

UCLA



1999-2001

GENERAL CATALOG

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Please Note

Every effort has been made to ensure the accuracy of the information presented in the *UCLA General Catalog*. However, all courses, course descriptions, instructor designations, curricular degree requirements, and fees described herein are subject to change or deletion without notice.

The departmental websites referenced in department addresses in this catalog are maintained by independent operators and do not necessarily reflect approved curricula and courses information. Consult the online catalog for the most current, officially approved courses and curricula.

Other information about UCLA may be found in the announcements of the Schools of Dentistry, Education and Information Studies, Engineering and Applied Science, Law, Management, Medicine, Nursing, Public Health, and Public Policy and Social Research, and in literature produced by the School of the Arts and Architecture and School of Theater, Film, and Television. The most current information on graduate programs is available online at <http://www.gdnet.ucla.edu/publications.html>. Links from this page go to various Graduate Division publications, including *Program Requirements for UCLA Graduate Degrees* which has the complete text for officially approved graduate programs.



Chancellor's Message

The *UCLA General Catalog* for 1999-2001 presents the vast range of instructional offerings at UCLA's College of Letters and Science and 11 professional schools. These pages document the rich comprehensiveness of UCLA, while reflecting the University's commitment to high standards, curricular innovation, and interdisciplinary approaches to learning.

UCLA faculty and students come together in a true community of scholars to advance knowledge, address societal challenges, and pursue intellectual and personal fulfillment. Every facet of scholarly life here benefits immeasurably from the instructional process and its intersection with the research enterprise. In addition, public service is an integral part of our mission, and the University is actively engaged with the surrounding region in myriad ways.

UCLA's leadership in teaching, research, and public service make it a beacon of excellence in higher education. I encourage you to peruse this volume — both to learn about one of the world's premier academic programs, and to discover the excitement of the intellectually stimulating and diverse university community that is UCLA.

A handwritten signature in cursive script that reads "Albert Carnesale". The signature is written in dark ink on a white background.

Albert Carnesale
Chancellor

About UCLA

Introducing UCLA

“...in 10 years...we shall look with amazement upon the development of this University, for it is certain to be greater, far greater, than the imagination of any of us can foresee.”

Ernest Carroll Moore
UCLA Director, 1919

From Little Acorns . . .

The year was 1880. With a population of 11,000, Los Angeles was a gaslit pueblo trying to convince the state to establish in Southern California a second State Normal School like the one already existing in San Jose, some 300 miles to the north.

In March of the following year, the State Assembly approved the establishment of such a school. A group of enthusiastic citizens, over 200 of whom contributed between \$2 and \$500, purchased a site less than a mile from the business section. Soon the towering Victorian form of the school rose from an orange grove which, today, is the site of the Central Los Angeles Public Library. On August 29, 1882, the Los Angeles Branch of the State Normal School welcomed its first students.

By 1914 the little pueblo of Los Angeles had grown to a city of 350,000 and the school, whose enrollment far exceeded its capacity, moved to new quarters — a Hollywood ranch off a dirt road that would later become Vermont Avenue.

With a view toward expansion, Director Ernest Carroll Moore proposed in 1917 that the school become the first branch of the Berkeley-based University of California. Two years later on May 23, 1919, California Governor William D. Stephens signed the legislation that created the “Southern Branch” of the University of California — no longer merely a teacher’s college but an institution that offered two years of instruction in Letters and Science.

Third- and fourth-year courses were soon added, the first class of 300 students was graduated in 1925, and by 1927 the Southern Branch had earned its new name: University of California at Los Angeles (the “at” became a comma in 1958).

Move Westward

As the student population of the University continued to increase, the need for a new site became obvious and the search was soon under way for a permanent home for UCLA. On September 21, 1927, Director Moore turned the first shovelful of soil that broke ground for the creation of the campus of his dreams.

The choice of Westwood, set squarely in the path of westward-moving Los Angeles, no doubt was an important factor in determining UCLA’s future growth. But in 1929, on the barren chaparral-covered hills of West-

wood, the four original buildings — Royce Hall, Powell Library, Haines and Kinsey Halls — formed a lonesome little cluster in the middle of 400 empty acres. The campus hosted some 5,500 students that fall.

The first priority after the move to Westwood was to establish a graduate curriculum, essential for any major university. The Regents established the master’s degree at UCLA in 1933 and, three years later, the doctorate. UCLA was fast becoming a full-fledged university offering advanced study in almost every field.

Los Angeles and the University nurtured each other through the years, and both experienced phenomenal growth and development during the next half century. The most spectacular period of growth at UCLA occurred in the 25 years following World War II, when it tripled its prewar enrollment of 9,000 students and undertook what would become a \$260 million building program that included residence halls, parking structures, laboratories, more classrooms, service buildings, athletic and recreational facilities, and a 715-bed teaching hospital that is now one of the largest and most highly respected in the world.

UCLA Today

In 1990-00 UCLA celebrates 80 years of growth, from a small two-year college to a comprehensive institution in the elite company of the nation’s most prestigious research universities. This 80-year journey is one of the great success stories in American higher education.



UCLA is a large and complex institution devoted to undergraduate and graduate scholarship, research, and public service. Known for academic excellence, many of its programs are rated among the best in the nation, some among the best in the world.

Some 282 buildings on 419 acres house the College of Letters and Science plus 11 professional schools and serve more than 35,550 students. Another major period of campus development is currently nearing completion, providing needed additional space for chemistry, human genetics, law, neuroscience, and science and technology research programs, while several of UCLA’s older buildings are

now being made earthquake-safe through a broad seismic correction program.

The top administrative officer at UCLA is Chancellor Albert Carnesale, who took office on July 1, 1997, thus becoming the eighth chief executive in the 80-year history of UCLA.

Setting

Cradled in rolling green hills just five miles inland from the ocean, UCLA is in one of the most attractive areas of Southern California. It is bordered on the north by the protected wilderness of the Santa Monica Mountains and at its southern gate by Westwood Village. Originally envisioned as a business district to serve UCLA, this picturesque college town has mushroomed into an entertainment magnet for the entire Los Angeles area.

The cultural treasures of the Los Angeles County Museum of Art are a few miles to the east as are other museums, the community of Beverly Hills, the Music Center, and the downtown business area. Beyond that the deserts, snowcapped mountains, and ski resorts are little more than an hour's drive.

Ambience

The stately Tudor Gothic and Italian Romanesque architecture of UCLA's early buildings blends with the contemporary and modern design of the newer structures. Royce Hall, one of the original four buildings, remains the campus symbol. Contrasting campus moods range from the activity of Bruin Walk to the serenity of the Japanese Garden. Attend a rock concert on the lawn or a classical recital in Schoenberg Hall. Contemplate a Rodin or a Lachaise in the Sculpture Garden or participate in a political rally in Meyerhoff Park.

UCLA is a place of surprises. A unique inverted fountain, where water flows over river rocks, recalls the Yellowstone creeks that inspired it. Enter the Bunche Hall Annex and discover a glorious atrium where palms and ferns glisten in filtered sunlight. Step inside the courtyard of Macgowan Hall and come face to face with the impressive stone Tower of Masks, created by the noted sculptor Anna Mahler.

UCLA is a place for serious study in a vibrant, dynamic atmosphere. People must visit the campus to appreciate it. Students thinking of applying to the University as undergraduates should contact Undergraduate Admissions and Relations with Schools (310-825-8764; <http://www.saonet.ucla.edu/uars/prospect/tours.htm>), about campus tours specifically tailored to prospective students. The **Campus Visits Program** (310-206-0616), sponsored by the UCLA Alumni Association, arranges both individual and group tours of the campus throughout the year for everyone else. The tours are offered by current students and reservations are required.

Commitment to Research

UCLA is one of the outstanding research universities in the country. What does this mean to students?

It means that the same faculty members teach both undergraduate and graduate courses and that these instructors create knowledge as well as transmit it. They spend a major portion of their time engaged in research in libraries and laboratories and out in the field.

At UCLA students are taught by the people making the discoveries, so they learn the latest findings on every front. They may exchange ideas with faculty members who are authorities in their fields, and even as undergraduates are encouraged to participate in research to experience firsthand the discovery of new knowledge. This inseparable commitment to teaching and research is the hallmark of a research university.

Question of Size

Although UCLA has a larger enrollment than other University of California campuses, it is small in comparison to some of the Midwestern universities. Its general campus population of some 31,774 students is about equal to that at UC Berkeley, but the UCLA campus is enriched by an additional 3,784 men and women studying in its health sciences schools of Dentistry, Medicine, Nursing, and Public Health. UCLA makes the most of its size by offering an extraordinary breadth of high quality academic programs and a range of student opportunities available at few other universities in the country.

A major concern of the faculty and staff is to allow students to feel that they belong. UCLA provides orientation sessions and several innovative academic assistance programs for new students, a staff of helpful advisers and counselors in every college/school and academic department, a

myriad of student services, and unlimited opportunities for involvement and participation.

All UCLA students share the pride of attending one of the most prestigious educational institutions in the country. Beyond that, no one individual deals with the totality of UCLA. Campus life is made comfortable by interacting and identifying with only certain parts of the whole, whether they be the academic department, residence hall, fraternity or sorority, club or organization, or the spirit of Bruin victories on the athletic fields.

Many prospective students ask about the size of classes at UCLA. Standard instructional formats include lectures, discussion sections, seminars, and laboratory sessions. Although large lecture groups in some introductory courses are not unheard of, 96 percent of all lower division lecture classes in 1998-99 had fewer than 200 students, and the University is making every effort to further reduce class size. Students in most lecture classes also enroll in discussion sections of about 25 students, and seminars and laboratory classes usually have fewer than 20 students. There is an overall ratio of one faculty member for approximately 18 students.

Most UCLA faculty members take a genuine interest in their students. They set aside office hours for receiving students, and most appreciate the opportunity for informal conversation. Even professors who seem remote in the classroom may be just the opposite on a one-to-one basis. A brief discussion can benefit both student and instructor.

Professors are often aided, especially in the small discussion sections, by teaching assistants (TAs). These are graduate students who teach on a part-time basis while pursuing their degree. Many students find it helpful to talk to the TAs about academic problems.

Hallmarks of Excellence

Recent surveys indicate that in overall excellence, UCLA is one of America's most prestigious and influential public universities. It is consistently rated among the best universities in the nation.

UCLA is accredited by the Western Association of Schools and Colleges and by numerous special agencies. Information regarding the University's accreditation may be obtained in the Planning Office Library, Office of Academic Planning and Budget, 2107 Murphy Hall.

Academics

UCLA has one college and 11 professional schools. The College of Letters and Science offers programs leading to both undergraduate and graduate degrees, as do the School of the Arts and Architecture, School of Engineering and Applied Science, School of Nursing, and School of Theater, Film, and Television. The other professional schools offer graduate programs exclusively: the Graduate School of Education and Information Studies, School of Law, John E. Anderson Graduate School of Management, School of Public Policy and Social Research, and, in the health sciences, the Schools of Dentistry, Medicine, and Public Health.

Few universities in the world offer the extraordinary range and diversity of academic programs that students enjoy at UCLA. Undergraduates may earn a Bachelor of Arts or Bachelor of Science degree in one of 116 different disciplines; graduate students may earn one of 86 master's and 108 doctoral and professional degrees.

Academic programs undergo a continuing process of review and evaluation to maintain their excellence, and new programs are added as they are approved by The Regents. For example, new degree programs last year included the B.S. in Ecology, Behavior, and Evolution, B.S. in Marine Biology, B.S. in Plant Biology, M.S. and Ph.D. in Biomedical Engineering, M.S. and Ph.D. in Human Genetics, and M.S. and Ph.D. in Statistics. New undergraduate minors were established in Arabic and Islamic Studies, Armenian Studies, Asian American Studies, Comparative Literature, En-



glish, Geochemistry, Geology, Geophysics and Planetary Physics, Hebrew and Jewish Studies, Italian, Language, Interaction, and Culture, Latin American Studies, Linguistics, Mathematics, Museum Studies, Neuroscience, Political Science, Portuguese, Russian Language, Russian Literature, Russian Studies, Spanish, Spanish Linguistics, and Teaching English as a Second or Foreign Language.

Faculty

Of the many factors that go into the making of a great university, no single factor is as important as its faculty. UCLA's distinguished faculty includes 1997 and 1998 Nobel prizewinners Paul D. Boyer and Louis J. Ignarro, several John Simon Guggenheim fellows and Fulbright scholars, and many members of both the National Academy of Sciences and the American Academy of Arts and Sciences. In 1997-99 three faculty members received Fulbright scholarships to conduct research, lecture, and consult abroad, and 16 UCLA scientists and scholars were awarded Guggenheim fellowships. Four were elected as fellows of the prestigious American Association for the Advancement of Science (AAAS). With 12 additional American Academy of Arts and Sciences award winners, eight Sloan Foundation fellows, and two National Academy of Sciences awardees, UCLA placed among the leading universities nationwide in the number of these prestigious awards.

In a recent survey the Conference Board of Associated Research Councils evaluated the quality of the faculty in 274 American research universities. UCLA was judged fourteenth in the nation among both public and private universities. Of the 41 doctoral degree disciplines studied, 12 of UCLA's academic departments were ranked among the top 10 in the country and 30 were ranked among the top 20.

Research

UCLA is among the 10 leading research universities in the country, receiving a record \$410.1 million in 1997-98 in extramural grants and contracts to support its research activities. The University hosts several hundred postdoctoral scholars each year who share its excellent research facilities. Its laboratories have seen major breakthroughs in scientific and medical research; its study centers have helped foster understanding among the various cultures of the world; ongoing pursuits of new knowledge in a myriad of vital areas continue to improve the quality of life for people around the world.

Teaching

Although all UCLA faculty members engage in research and the discovery of new knowledge, they are equally dedicated to disseminating their findings in the classroom. Indeed, excellence in teaching is one of the most important criteria for faculty promotion, and distinguished teaching awards are among those most highly prized by UCLA professors.

Student Body

Students at UCLA pride themselves on academic excellence. The Fall Quarter 1998 entering freshman class had an average high school GPA of 4.08, with an average composite score on the Scholastic Assessment Test (SAT) of 1,272 out of a possible 1,600.

One of the University's highest priorities is to advance the ethnic diversity of its students, faculty, staff, and administrators. The diversity of UCLA's student population — nearly equally divided between men and women — yields the wide range of opinion and perspective essential to a great university. Although most students are from California, they come from all 50 states and more than 115 foreign countries to study at UCLA. The University now enrolls the most ethnically mixed and culturally diverse undergraduate student population — both in total students and as a percentage of enrollment — of any major university in the U.S. Ethnic minorities comprise 61.7 percent of the undergraduates and 42.1 percent of the graduate student population. And international students and scholars presently number over 1,900, making this one of the most popular American universities for students from abroad.

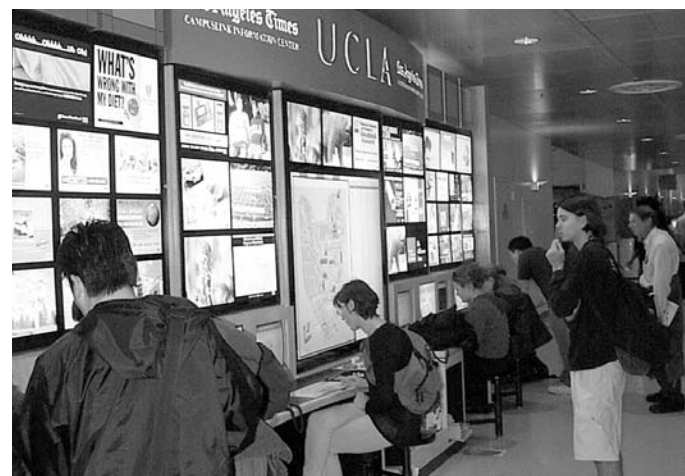
Numerous Other Factors

With more than 7.1 million volumes, UCLA's library is rated among the finest in the country. Its athletic teams have made the University an acknowl-

edged leader in intercollegiate sports. UCLA Performing Arts ranks as the largest, most diversified and comprehensive program of its kind in the country. And management of the UCLA at the Armand Hammer Museum of Art and Cultural Center and acquisition of the Geffen Playhouse in Westwood Village enhance the entire arts program.

The University played a significant role in the 1984 Summer Olympics in Los Angeles, and the campus reprised that role in July 1991 for the U.S. Olympic Festival '91. On both occasions, UCLA housed a large Olympic Village and served as the venue for several events.

All these factors plus its research facilities, its community service, and its international links with all parts of the world make UCLA today a very special kind of institution.



University of California

The University of California traces its origins to 1868, when Governor Henry H. Haight signed the Organic Act providing that California's first "complete University" be created.

Classes began the following year at the College of California in Oakland. The first buildings on the Berkeley campus were completed in 1873, and the University moved into its new home. The following June, the University of California conferred bachelor's degrees on 12 graduates.

Today the University is one of the largest and most renowned centers of higher education in the world. Its nine campuses span the state, from Davis in the north to San Diego in the south. In between are Berkeley, San Francisco, Santa Cruz, Santa Barbara, Riverside, Irvine and, of course, Los Angeles.

All the campuses adhere to the same admission guidelines and high academic standards, yet each has its own distinct character, atmosphere, and — to some degree — academic individuality. Riverside, for example, excels in the plant sciences and entomology; Davis has a large agricultural school and offers the University's only veterinary medicine program; San Diego has excellent oceanography and marine biology programs; San Francisco is devoted exclusively to the health sciences. Among the campuses there are five medical schools and three law schools, as well as schools of architecture, business administration, education, engineering, and many others.

The UC campuses have a combined enrollment exceeding 169,800 students, over 90 percent of them California residents. About one fourth study at the graduate level. Some 150 laboratories, extension centers, and research and field stations strengthen teaching and research while providing public service to California and the nation. The collections of over 100 UC libraries on the nine campuses are surpassed in size on the American continent only by the Library of Congress collection.

The faculty of the University of California is internationally known for its distinguished academic achievements. On its nine campuses the Univer-

sity has 18 Nobel laureates, and membership in the National Academy of Sciences is the largest of any university in the country.

University Administration

The University of California system is governed by a **Board of Regents** whose regular members are appointed by the Governor of California. In addition to setting broad general policy and making budgetary decisions for the UC system, The Regents appoint the President of the University, the nine chancellors, and the directors, provosts, and deans who administer the affairs of the individual campuses and divisions of the University.

The Regents delegate authority in academic matters to the **Academic Senate**, which determines academic policy for the University as a whole. The Senate, composed of faculty members and certain administrative officers, determines the conditions for admission and granting of degrees, authorizes and supervises courses and curricula, and advises University administrators on budgets and faculty appointments and promotions. Individual divisions of the Universitywide Academic Senate determine academic policy for each campus. Students participate in policy-making at both campuswide and systemwide levels.



Academic Resources and Programs

As one of the largest research universities in the world, UCLA is renowned for its programs of faculty and student research; more than 5,000 funded programs are in progress at a given time. One focus of these efforts is a group of organized research units (ORUs) which provide an interdisciplinary approach to the search for knowledge.

ORUs are study centers and research institutes consisting of faculty and students from various departments engaged in continuing research of particular subjects. They do not offer courses of instruction or degrees, although several work in conjunction with interdepartmental instruction programs that lead to bachelor's and/or advanced degrees. ORUs provide invaluable experience for students and faculty in basic and applied research and greatly enhance UCLA's educational program and the overall academic quality of the University.

In the overview that follows, UCLA's 23 organized research units are listed within six major divisions — arts and humanities, health sciences, international studies, life sciences, physical sciences and engineering, and social sciences. Within each division, representative groups and programs are included which, although not formally established as ORUs, are nevertheless doing important research in their respective areas.

Arts and Humanities

Center for Medieval and Renaissance Studies

The Center for Medieval and Renaissance Studies (302 Royce Hall, 310-825-1880, fax: 310-825-0655, e-mail: cmrs@humnet.ucla.edu; <http://www.humnet.ucla.edu/humnet/cmrs/>) supports the research activities of some 20 academic departments dealing with the development of civilization between A.D. 300 and 1650. Major programs include funding research assistants, appointing visiting professors, organizing conferences and colloquia, and supporting departments in inviting lecturers. The center sponsors the publication of two journals, *Viator*, with emphasis on intercultural and interdisciplinary studies, and *Comitatus*, with articles by graduate students and recent Ph.D. graduates. For more information, send inquiries to the center at UCLA, Box 951485, Los Angeles, CA 90095-1485.

Center for Seventeenth- and Eighteenth-Century Studies

The Center for Seventeenth- and Eighteenth-Century Studies (310 Royce Hall, 310-206-8552; <http://www.humnet.ucla.edu/humnet/c1718cs/>) and the **William Andrews Clark Memorial Library** are united under the administrative direction of the center and the College of Letters and Science. The center organizes scholarly programs and workshops, seeks to enlarge the Clark Library holdings in the early modern period to enhance local research opportunities, has a publications program that makes the results of its conferences and workshops known to the community, provides long- and short-term fellowships to students and scholars doing research in early modern studies, offers graduate research assistantships and master classes, and organizes public programs and classical music concerts. The Clark Library, located approximately 10 miles from UCLA at 2520 Cimarron Street (323-731-8529; <http://www.humnet.ucla.edu/humnet/clarklib/>), is a rare book library specializing in seventeenth- and eighteenth-century British works. It also has a renowned collection centering on Oscar Wilde and his era and significant holdings of modern fine printing and Western Americana. Bequeathed to UCLA in 1934 by William Andrews Clark, Jr., a prominent Los Angeles book collector and philanthropist, the extensive collection is housed in an elegant building in the West Adams district.

In other research activities, the **Center for Bilingual Research and Second Language Education** is working to produce a society that is proficient in at least two languages. In the **Linguistics Phonetics Laboratory** (<http://www.humnet.ucla.edu/humnet/linguistics/faciliti/uclaplab.html>), one of the best-known laboratories of its kind in the nation, researchers are finding new ways to analyze speech functions and make voiceprints for use in law enforcement. In the **Hammer Center for Leonardo Studies and Research** scholars have access to major resources for the study of the works of Leonardo da Vinci. The **Center for the Study of Regional Dress** (<http://www.fmch.ucla.edu/CSRD/CSRD.htm>) within UCLA's Fowler Museum of Cultural History advances the study of past and present cloth and clothing traditions through research, exhibitions, and teaching. The **Center for Jewish Studies** (<http://www.humnet.ucla.edu/humnet/jewishst/>) sponsors lectures, conferences, and visiting scholars and coordinates Jewish studies activities on campus. And the **Center for Modern and Contemporary Studies** (<http://www.humnet.ucla.edu/humnet/cmcs/>) presents workshops, faculty seminars, and public lectures and discussions to bring together people with diverse interests in the humanities and social sciences.

Health Sciences

Brain Research Institute

The Brain Research Institute (BRI), center for neuroscience research and education at UCLA, has one of the largest investigative programs of its kind in the country, with more than 200 scientists involved in every aspect of research in the nervous system from molecular organization to human behavior. The BRI provides core facilities with new technologies and an

environment for multidisciplinary research and training in the structure and function of the central nervous system. The BRI sponsors affinity groups, conferences, symposia, and a variety of other activities designed to strengthen ties among neuroscientists campuswide. The interdisciplinary Ph.D. and B.S. programs in Neuroscience, jointly sponsored by the School of Medicine and the College of Letters and Science, are housed within the BRI. Public service activities include an elementary school outreach program directed by graduate students and a joint educational program with UCLA Extension. The Office of the Director is located in 2506 Gonda Center (310-825-1868; <http://www.medsch.ucla.edu/som/bri/>).

Crump Institute for Biological Imaging

The Crump Institute for Biological Imaging is a science and technology center that brings together physical, biomathematical, chemical, biological, and clinical scientists and students to merge the principles of imaging with those of molecular and cellular biology, genetics, and biochemistry. The imaging domains range from the molecular organization of viruses and cellular subunits to the biological processes of organ systems in the living human. A major focus is the development and use of imaging technologies to collect, analyze, and communicate biological data. Imaging technologies are used to build a picture (image) of the spatial and temporal variations in biological processes. Imaging technologies encompass such areas as cryoelectron microscopy and protein structure studies to assemble and study simple organisms and subcellular domains; confocal fluorescent microscopy for study of cellular and subcellular processes; in vitro and in vivo autoradiography studies of integrated organ function; and positron emission tomography (PET), X-ray computed tomography (CT), and magnetic resonance imaging (MRI) studies of the structure and biological functions of organ systems in animal and human subjects. Specially designed microPET scanners for mice are developed as laboratory devices for repeated in vivo monitoring of gene expression. The institute has research and educational programs for visiting scientists, postdoctoral scholars, and Ph.D. graduate students which include the development of novel multimedia computer-based learning technologies. Dr. Michael E. Phelps is the director (310-825-6539; <http://www.crump.ucla.edu/>).



Dental Research Institute

The mission of the Dental Research Institute (DRI) is to be the preeminent orofacial research center in the U.S. by fostering excellence in research, professional training, and public education. Its objective is to study the basic mechanisms of disease in the orofacial region through original research. Members include scientists trained in the traditional disciplines of molecular biology, immunology, virology, biochemistry, pharmacology, pathology, genetics, developmental biology, neurobiology, and neurophysiology, among others, who are presently engaged in various research projects which include oral cancer/molecular oncology, viral oncology, molecular mechanisms of periodontal diseases, dental implantology,

TMJ disorders and orofacial pain, neuroimmunology, molecular immunology, AIDS/HIV immunology, pain control/pharmacology, and wound repair/keloid tissue formation mechanisms. Currently several extramural funds supported by the National Institutes of Health and other private funding agencies are held by DRI members. The DRI contributes educational activities in the form of quarterly seminars in the UCLA Center for the Health Sciences to which everyone is welcome and encouraged to attend. The Office of the Director is located in 73-017 Center for the Health Sciences (310-206-8045; <http://www.dent.ucla.edu/dri/>).

Jules Stein Eye Institute

The Jules Stein Eye Institute is one of the best equipped centers for research and treatment of eye diseases in the world. This comprehensive facility, located in the Center for the Health Sciences (310-825-5000; <http://www.medsch.ucla.edu/som/jsei/>), is devoted to the study of vision, the care of patients with eye disease, and education in the broad field of ophthalmology. Outpatient, inpatient, and surgical facilities are provided. The **Doris Stein Eye Research Center** houses clinical facilities as well as new research and training programs concentrating on major eye diseases worldwide.

Mental Retardation Research Center

The Mental Retardation Research Center, located on the C level and the fourth through eighth floors of the Neuropsychiatric Institute and Hospital, provides laboratories and clinical facilities for research and training in mental retardation and related aspects of human development. Its interdisciplinary activities range from anthropological studies to molecular aspects of inherited metabolic diseases. Administrative offices are located in 58-258 NPI&H (310-825-0313; <http://www.mrrc.npi.ucla.edu/>).

UCLA-DOE Laboratory of Structural Biology and Molecular Medicine

The UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, located in the Molecular Biology Institute (310-825-3754; <http://www.doe-mbi.ucla.edu/>) and the Center for the Health Sciences, is funded through a contract with the Department of Energy. Research is conducted in molecular nuclear medicine and structural biology and genetics. Laboratory faculty members have joint appointments in academic departments and teach at both undergraduate and graduate levels. Major facilities include a biomedical cyclotron, advanced scanning equipment, nuclear magnetic resonance (NMR), protein expression, and X-ray crystallography facilities.

In the health sciences, research carried out in ORUs is complemented by research on neurological and neuromuscular diseases in the **Lewis Neuromuscular Research Center**, the **Reed Neurological Research Center**, and the **Neuropsychiatric Institute and Hospital** (<http://www.MentalHealth.ucla.edu/>). The **Jonsson Comprehensive Cancer Center** (<http://www.cancer.mednet.ucla.edu/>), one of only 35 comprehensive centers in the nation, is renowned for the breadth and excellence of its cancer research. The **UCLA AIDS Institute** (<http://www.medsch.ucla.edu/aidsinst/>) is deeply involved in all aspects of the fight against AIDS, with basic research in epidemiology, immunology, and the clinical management of AIDS patients being done in the **Center for Clinical AIDS Research and Education** (<http://www.medsch.ucla.edu/aidsinst/care/>). And the School of Public Health, which established the **Southern California Injury Prevention Research Center** (<http://www.ph.ucla.edu/sciprc/sciprc1.htm>), has joined forces with the School of Medicine to form the **Center for Health Promotion and Disease Prevention**, another clinical research program to enhance the health of the community.

International Studies

Office of International Studies and Overseas Programs

The Office of International Studies and Overseas Programs (ISOP; <http://www.isop.ucla.edu/>) supports and coordinates international and foreign area studies at UCLA. ISOP and its centers also support several interde-

partmental degree programs (IDPs) focusing on particular regions of the world. Among the area studies centers and programs that operate under its aegis are four major interdisciplinary research centers that rank among the best in the nation. Some of the world's leading specialists on area studies are affiliated with these centers.

The **Coleman African Studies Center** (10244 Bunche Hall, 310-825-3779; <http://www.isop.ucla.edu/jscasc/>) is one of the major interdisciplinary centers for African studies in the U.S. It encourages and coordinates research and teaching on Africa in the humanities, social sciences, and natural sciences, as well as in the professional schools of Arts and Architecture, Education and Information Studies, Law, Medicine, Public Health, Public Policy and Social Research, and Theater, Film, and Television. The center also sponsors an active program of public lectures, seminars, publications, and academic exchanges with African institutions and an outreach service to the Southern California community.

The **Center for European and Russian Studies** (11367 Bunche Hall, 310-825-4060; <http://www.isop.ucla.edu/euro/>) develops and coordinates teaching and research on Russia and the successor states of the former Soviet Union, as well as the countries of western Europe, through conferences, lectures, seminars, and academic exchange programs with European and Russian institutions. It also offers an interdepartmental undergraduate major in European Studies and provides fellowships to graduate students in European area studies.

The **Latin American Center** (10343 Bunche Hall, 310-825-4571, e-mail: cramirez@isop.ucla.edu; <http://www.isop.ucla.edu/lac/>) is a major regional, national, and international resource on Latin America and hemispheric issues. The center sponsors and coordinates research, academic and public programs, and publications on Latin America in the humanities, social sciences, and professional schools and links its programs and activities with developments in the field and in other institutional settings. By combining instruction, research, and service and by encouraging multidisciplinary and interdisciplinary approaches, the center promotes the effective use of UCLA's Latin American resources for the benefit of the campus, the broader community, and the public at large.



The **von Grunebaum Center for Near Eastern Studies** (10286 Bunche Hall, 310-825-1181; <http://www.isop.ucla.edu/cnes/>) coordinates research projects and academic programs related to the Near East and administers the interdisciplinary programs leading to the B.A. degree in Near Eastern Studies and the M.A. and Ph.D. degrees in Islamic Studies. The combined resources of the center include the largest faculty, one of the most comprehensive library holdings, and the richest variety of Near and Middle Eastern studies courses of any institution in the Western Hemisphere. Professors affiliated with the center come from UCLA departments as diverse as History, Public Health, Near Eastern Languages and Cultures, Art History, Anthropology, Sociology, and others. The center also conducts significant publication, community outreach, and scholarly exchange programs.

ISOP also supports other interdisciplinary activities within its other research centers:

The **Center for International Relations** (11381 Bunche Hall, 310-825-0604; <http://www.isop.ucla.edu/cir/>) focuses on international governments, migration, the environment, the spread of nuclear weapons, international political economy, and conflict resolution mechanisms. The center sponsors conferences, seminars, and lectures that deal with modern international problems; the **Center for Pacific Rim Studies** (11286 Bunche Hall, 310-825-0045; <http://www.isop.ucla.edu/pacrim/>) promotes and disseminates research, teaching, and public education programs on issues emerging from increasing interactions among the peoples and nations bordering the Pacific Ocean; the **Center for Chinese Studies** (11353 Bunche Hall, 310-825-8683; <http://www.isop.ucla.edu/ccs/>) develops, coordinates, and supports graduate training in Chinese studies, major research projects, and a regional seminar; the **Joint East Asian Studies Center** (11266 Bunche Hall, 310-825-0007; <http://www.isop.ucla.edu/eas/>) with the University of Southern California sponsors joint seminars and conferences focused on the East Asian region; the **Center for Japanese Studies** (11270 Bunche Hall, 310-825-7671; <http://www.isop.ucla.edu/japan/>) fosters research on Japan and scholarly exchange with Japanese institutions, and sponsors a colloquium series and conferences on Japan, as well as faculty research grants and graduate student fellowships; and the **Center for Korean Studies** (11282 Bunche Hall, 310-825-3284; <http://www.isop.ucla.edu/korea/>) presides over the biggest Korean studies program on the U.S. mainland, with the greatest number of specialists on its faculty dedicated to Korea and the largest number of students studying Korean subjects at both the undergraduate and graduate levels. The center also sponsors seminars, conferences, and symposia on Korea and Korean civilization.

The ISOP dean's office also supports an interdepartmental undergraduate degree program in international development studies (<http://www.isop.ucla.edu/ids/>). This program focuses on critical issues and problems common to Third World countries. Other ISOP programs focus on language teaching and academic exchange. In addition, ISOP houses offices of the UC Education Abroad Program, the Southern California Fulbright Visiting Scholars Program, and the Southern California Consortium on International Studies (SOCCIS; <http://www.isop.ucla.edu/soccis/>).

Life Sciences

Center for the Study of Women

The Center for the Study of Women (288 Kinsey Hall, 310-825-0590, e-mail: csw@csw.ucla.edu; <http://www.csw.ucla.edu/csw/webfro-1.htm>), is the only unit of its kind in the UC system that focuses on women and gender and draws on the energies of more than 200 faculty from 10 professional schools and 34 departments. The center's major purpose is to encourage and facilitate faculty research on women and gender. To this end, the center (1) organizes public conferences and lecture series in the areas of feminist theory, politics, science, technology and medicine, sociology, queer studies, and international relations, (2) administers research grants, and (3) offers an affiliation for research and visiting scholars. In addition, the center sponsors various working groups, produces quarterly calendar of events posters, and hosts various programs for graduate students interested in women and gender, as well as an annual graduate student research conference.

Molecular Biology Institute

The Molecular Biology Institute (MBI), an interdepartmental organization of molecular biologists, promotes molecular biology research and teaching at UCLA. The institute houses the laboratories of 30 MBI members, as well as the administration of the Molecular Biology Interdepartmental Ph.D. Program, the UCLA-DOE Laboratory of Structural Biology and Laboratory Medicine, and the UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences. Administrative offices are located in 168 MBI (310-825-1018; <http://www.mbi.ucla.edu/>).

The **Fernald Child Study Center** is a life sciences interdisciplinary research unit created to study and treat a variety of childhood behavioral problems and learning disorders. The **Center for the Study of Evolution and the Origin of Life** (<http://www.igpp.ucla.edu/cseol/>) melds the di-

verse research of more than 100 UCLA faculty members in the study of the emergence and evolution of life on Earth. And the **UCLA Ocean Discovery Center** (<http://www.lifesci.ucla.edu/odc/>) on the Santa Monica Pier educates Los Angeles-area school children and the public about life under the sea.

Physical Sciences and Engineering

Institute of Geophysics and Planetary Physics

The Institute of Geophysics and Planetary Physics (IGPP) is a multicampus research unit (MRU) of the University of California; the branch at UCLA is engaged in research in climate dynamics, geophysics, geochemistry, space physics, biochemistry, and biology. Research topics include the nature of the Earth, moon, and other planetary bodies, global and regional environmental change, the origin of terrestrial life, the dynamical properties of the sun and solar wind, and the nonlinear dynamics of complex systems. Facilities include analytical laboratories in geochemistry, meteoritics, glaciology, petrology, geochronology, archaeology, and the origins of life, laboratories for experiments in fluid dynamics and high-pressure physics, developmental laboratories for instrumentation in space physics and seismology, and computational laboratories for large-scale numerical modeling relevant to the above topics. The UCLA office is located in 3845 Slichter Hall (310-825-1664; <http://www.igpp.ucla.edu/Welcome.html>).



W. M. Keck Observatory in Mauna Kea, Hawaii

Institute of Plasma and Fusion Research

The Institute of Plasma and Fusion Research (44-114 Engineering IV, 310-206-0501; <http://www.ipfr.ucla.edu/>) is dedicated to research into plasma physics, fusion energy, and the application of plasmas in other disciplines. Students, professional research staff, and faculty study basic laboratory plasmas, plasma-fusion confinement experiments, fusion engineering and nuclear technology, computer simulations and the theory of plasmas, space plasma physics and experimental simulation of space plasma phenomena, advanced plasma diagnostic development, laser-plasma interactions, and the use of plasma in applications ranging from particle accelerators to the processing of materials and surfaces used in microelectronics or coatings.

Among other interdisciplinary activities in the physical sciences and engineering at UCLA, the **Center for Clean Technology** (<http://cct.seas.ucla.edu>) in the School of Engineering and Applied Science fosters research on the interaction between technology and the environment, focusing on pollution prevention and control. On other frontiers, an **Artificial Intelligence Laboratory** designed exclusively for research in this burgeoning field operates under the wing of the Computer Science Department, and the **Joint Services Electronics Program** (<http://www.ee.ucla.edu/jsep.html>), funded by the Department of Defense, supports research in the Electrical Engineering Department to establish millimeter-wave electronics for widespread use.

Social Sciences

Institute of American Cultures

The Institute of American Cultures (1237 Murphy Hall, 310-206-2557; <http://www.gdnet.ucla.edu/iacweb/iachome.htm>) is responsible for strengthening and coordinating interdisciplinary research and instruction in ethnic studies with special attention to UCLA's four ethnic studies research centers. The institute conducts no research itself but makes funds available for research and fellowships and promotes the activities of the four centers whose goals are to study and illuminate the histories of African Americans, American Indians, Asian Americans, Chicanas/Chicanos, and others, and to apply the University's capabilities to the analysis and

solution of specific social issues. These centers promote faculty research, encourage the development of new courses and degree programs, assist departments in recruiting scholars, build library and other resources, and publish literature to disseminate the results of their work.

The **Center for African American Studies** (2308 Murphy Hall, 310-825-7403; <http://www.sscnet.ucla.edu/caas/>) conducts and sponsors research on the African American experience, coordinates the Afro-American studies curriculum, publishes research results, and sponsors community service programming.

The **American Indian Studies Center** (3220 Campbell Hall, 310-825-7315; <http://www.sscnet.ucla.edu/indian/CntrHome.html>) serves as an educational and research catalyst and includes a library, master's and postdoctoral fellowship programs, a publishing unit that produces books and a quarterly journal, and a student/community relations unit.

The **Asian American Studies Center** (3230 Campbell Hall, 310-825-2974; <http://www.sscnet.ucla.edu/aasc/>) seeks to increase the knowledge and understanding of the experiences of Asian Pacific peoples in America and promotes the development of material resources related to Asian American studies.

The center includes a library, publications unit, student/community projects unit, postdoctoral fellowships, and B.A., undergraduate specialization, and master's programs.

The **Chicano Studies Research Center** (2307 Murphy Hall, 310-825-2363; <http://www.sscnet.ucla.edu/cscc/>) promotes the study and dissemination of knowledge on the experience of the people of Mexican descent and other Latinos in the U.S. The center primarily supports UCLA faculty and the training of the next generation of scholars engaged in this area of inquiry, with emphasis given to (1) interdisciplinary and collaborative research of a theoretical, interpretative, and applied nature, (2) the analysis, understanding, and articulation of issues critical to the development of Chicano and Latino communities in the U.S., and (3) establishment and maintenance of relationships with communities with similar academic and research interests at the state, national, and international levels.

Institute of Archaeology

The Institute of Archaeology (A210 Fowler Building, 310-206-8934; <http://www.sscnet.ucla.edu/iaoa/>) is dedicated to studying and understanding the past through laboratory studies of artifacts, analysis of field data, creation of archives to store this information, and the education of students and interested community members via publications and lectures. The institute, the only one of its kind in the U.S., coordinates various academic and practical facilities for more than 40 researchers and many graduate students and volunteers in 10 associated academic departments. It regularly sponsors workshops and special courses. Research facilities include the Information Center (regional office of the California Archaeological Inventory), Ceramics Laboratory, Computer Imaging of Archaeological Data, Obsidian Hydration and Lithics Analysis Laboratory, Paleoethnobotany Laboratory, Rock Art Archive, and Zooarchaeology Laboratory. The Publications Unit publishes the findings of scholars from UCLA and other archaeology centers, while the Public Lecture Program provides a forum for the public presentation of recent archaeological discoveries and advances.

Institute of Industrial Relations

The Institute of Industrial Relations (6350B Public Policy Building, 310-794-5957; http://www.spsr.ucla.edu/res_ctrs/industri.htm) has an interdisciplinary research program directed toward the study of all aspects of the employment relationship, including labor markets, labor law, labor/management relations, equal employment opportunity, occupational safety and health, and related issues. Through the Center for Labor Re-

search and Education, the institute also offers social policy and employment relations programs to the general public, unions, and management.

Institute for Social Science Research

The Institute for Social Science Research (4250 Public Policy Building, 310-825-0711; <http://www.sscnet.ucla.edu/issr/>) promotes interdisciplinary research on a broad spectrum of contemporary sociological, psychological, political, and economic problems and community issues. Research components include the Center for American Politics and Public Policy, Center for the Study of Urban Poverty, Center for the Study of Society and Politics, Center for Social Theory and Comparative History, Survey Research Center, Social Science Data Archive, and Organizational Research Program. Training in survey research methodology is available to students through participation in the annual Los Angeles County Social Survey. The institute publishes the *ISSR Working Papers in the Social Sciences*.

Other interdisciplinary activities in the social sciences include the nationally respected **Business Forecasting Project** (<http://www.anderson.ucla.edu/research/forecast/index.htm>) in UCLA's John E. Anderson Graduate School of Management and the **Center for the Study of Evaluation** (<http://www.gseis.ucla.edu/research/cse.html>) in the Graduate School of Education and Information Studies which is at the forefront of efforts to improve the quality of schooling in America. The **Center for the Study of Urban Poverty** (<http://www.sscnet.ucla.edu/issr/csup/index.html>) initiates new research on issues related to urban poverty and sponsors seminars in the field. The **Center for Communication Policy** (<http://www.ccp.ucla.edu/>) is a national leader in communications public policy issues such as technological innovations in telecommunications and the social and political impact of these changes. And the recently established **LeRoy Neiman Center for the Study of American Society and Culture** (<http://LeRoy-Neiman.sscnet.ucla.edu/>) in the Department of Sociology explores emerging social and cultural trends in American society.



Resources for Research and Study

Art Galleries and Museums

A tour of all the UCLA museums and art galleries takes visitors from the corner of Wilshire and Westwood Boulevards to the northeast corner of the campus. **UCLA at the Armand Hammer Museum of Art and Cultural Center** regularly presents selections from the **Armand Hammer Collection**, which features Impressionist and Post-Impressionist paintings by such artists as Monet, Pissarro, Sargent, Cassatt, and Van Gogh. Related paintings by Constable, Picasso, and others from UCLA's collection are also on view. The museum organizes and presents major changing exhibitions devoted to examinations of historical and contemporary art in all periods. Extensive cultural programming, including children's performance and storytelling series, music, poetry readings, and "Dialogues on Art," are presented Thursday evenings and Saturdays. The museum is open Tuesday through Saturday 11 a.m. to 7 p.m. (Thursday to 9 p.m.), Sunday 11 a.m. to 5 p.m.; closed Mondays, July 4, Thanksgiving, and Christmas. Admission is \$4.50 for adults; \$3 for seniors 65 and over, non-UCLA students, and UCLA faculty and staff; \$1 for UCLA students; children 17 and under are admitted free. Admission is free on Thursday from 6 to 9 p.m. For information on programming and docent tours, call (310) 443-7000 or see <http://www.hammer.ucla.edu/>.

On the gallery level of the Armand Hammer Museum is the **Grunwald Center for the Graphic Arts**, which houses a distinguished collection of over 45,000 prints, drawings, and photographs, including nearly 10,000 works from the prestigious **Armand Hammer Daumier and Contemporaries Collection**. Maintained as a study and research facility for the benefit of students and the community, the center's permanent holdings include significant European and American examples from the fifteenth century to the present. It is particularly noted for its collection of German Expressionist prints and works on paper by Matisse and Picasso, as well as the Richard Vogler Cruikshank Collection and the Frank Lloyd Wright Collection of Japanese prints. The center is open only by appointment Monday through Friday from 10 a.m. to 4 p.m. (310-443-7078).

The **Wight Art Building**, located in the Dickson Art Center on north campus, includes exhibition space of 6,000 square feet in which to mount campus exhibitions and student-organized programs and exhibits. For a schedule of exhibitions, call (310) 206-6467.

The **Murphy Sculpture Garden**, located between Bunche Hall and the Wight Art Building, contains a collection of over 70 major works by Rodin, Matisse, Calder, Lachaise, Lipchitz, Moore, Miro, Hepworth, and many other late nineteenth- and early twentieth-century masters. All works in this distinguished collection, situated on a picturesque five-acre expanse, are private gifts to the University. For information on docent tours, call UCLA at the Hammer Museum of Art and Cultural Center at (310) 443-7000.

The **Fowler Museum of Cultural History** is internationally known for the quality of its collections and exhibits. Its collections encompass the arts and material culture of much of the world, with particular emphasis on West and Central Africa, Oceania, and Latin America. The museum offers assistance with instruction and research and sponsors major exhibitions, lecture programs, and symposia. The museum is open Wednesday through Sunday from noon to 5 p.m. (Thursday to 8 p.m.). Admission is \$5 for adults; \$3 for seniors 65 and over, non-UCLA students, and UCLA faculty, staff, and Alumni Association members with I.D.; \$1 for UCLA students; children 17 and under are admitted free. Admission is free on Thursday. Administrative offices are located in 1586 Fowler Building (310-825-4361; <http://www.fmch.ucla.edu/>).

University Library System

Libraries are crucial to classroom study, research, and independent learning, and the UCLA Library, a campus-wide network of libraries serving programs of study and research in many fields, is among the top five ranked research libraries in the U.S. Total collections number more than 7.1 million volumes, and more than 90,000 serial titles are received regularly.

Users identify and locate library holdings through two online information systems, both of which are accessible at <http://www.library.ucla.edu>. ORION contains records for all UCLA Library holdings and other campus collections, including the Archive Research and Study Center of the Film and Television Archive, Chicano Studies Research Center Library, Ethnomusicology Archive, Institute for Social Science Research Data Archives Library, and Instructional Media Library; ORION also identifies library item location and circulation status information. The MELVYL® System, which is also available via telnet (melvyl.uocp.edu), provides information on library holdings at all nine UC campuses and access to 25 periodical databases, several of which include article abstracts and/or full text. In addition, look for ORION2, a new web-based system that provides the same information and access to the campus collections as ORION but is easier to use and more widely available through the web.

For complete information on the UCLA University Library policies, procedures, services, programs, and hours, see <http://www.library.ucla.edu/>.

College Library

The College Library (<http://www.library.ucla.edu/libraries/college/>), located in the Powell Library Building, features collections and services in support of the undergraduate curriculum in the humanities, social sciences, sciences, and mathematics. Course reserve materials, including books, articles, audiotapes, homework solutions, lecture notes, and Academic Publishing Service Readers, are available for loan. The College Library Instructional Computing Commons, located on the first floor of Powell Library, provides students with access to PCs, Macs, and a variety of multimedia equipment, and Night Powell provides study space in a late-night reading room.

Charles E. Young Research Library

The Young Research Library (<http://www.library.ucla.edu/libraries/url/>) on north campus is designed primarily as a graduate research library in the humanities, social sciences, education, public policy, and urban planning. Most of its collections are arranged in open stacks, and the building also houses reference, circulation, graduate reserve, and periodicals services and the Microform and Media Service, with microcopies of newspapers, periodicals, and other selected materials. The **Department of Special Collections** in the Young Research Library contains rare books and pamphlets, primarily in the humanities and social sciences, from the fifteenth to twentieth century, university archives, early maps and atlases, files of early California newspapers, manuscript collections, transcripts of oral history interviews, ephemera, microfilm, tape recordings, prints, paintings, and drawings, including original architectural drawings.

Arts Library

Housed in the Dickson Art Center, the Arts Library (<http://www.library.ucla.edu/libraries/arts/>) collects material on architecture, art history, design, film, television, history of architecture, photography as fine art, studio art, and theater. It also contains the **Elmer Belt Library of Vinci-ana**, a special collection of rare books and incunabula about Leonardo da Vinci and related materials in Renaissance studies. Arts Special Collections, housed in the Young Research Library, contain noncirculating materials, including the Princeton Index of Christian Art, Artists' file, archival records of major Southern California motion picture studios and television production companies, scripts from film, television, and radio, animation art, personal papers of writers, directors, and producers, photographs and production stills, posters, lobby cards, press kits, and West Coast theater playbills.

Louise M. Darling Biomedical Library

The Biomedical Library (<http://www.library.ucla.edu/libraries/biomed/>), located in the Center for the Health Sciences, serves all the UCLA health and sciences departments and schools and the UCLA Medical Center. Its collections focus on materials related to medicine, nursing, dentistry, public health, physiological sciences, biology, molecular biology, biochemistry, zoology, plant sciences, psychology, and life sciences, as well as rare works in the history of health and life sciences, botanical illustration, and Arabic and Persian medical manuscripts.

Richard C. Rudolph East Asian Library

Located on the second floor of the Young Research Library, the East Asian Library (<http://www.library.ucla.edu/libraries/eastasian/>) collects Chinese, Japanese, and Korean vernacular-language materials in the humanities and social sciences. The collection is particularly strong in Japanese Buddhism, religion, Chinese and Japanese fine arts, Chinese archaeology, premodern history and classical literature on both China and Japan, and Korean literature and religion.

Hugh and Hazel Darling Law Library

The Law Library (<http://www.law.ucla.edu/Library/>), housed in a new facility in the Law Building, collects published case decisions, statutes, and

codes of the federal and state governments of the U.S. and other Common Law jurisdictions, legal treatises and periodicals in Anglo-American and international law, and appropriate foreign and comparative law holdings. The Law Library reports to the dean of the School of Law.

Eugene and Maxine Rosenfeld Management Library

Located in the John E. Anderson Graduate School of Management complex, the Management Library (<http://www.anderson.ucla.edu/resources/library/libhome.htm/>) houses materials on accounting information systems, arts management, business history, corporate history, entrepreneurship, finance, general management and management theory, industrial relations, international and comparative management, management information systems, management strategy and policy, marketing, operations, research, production and operations management, public/not-for-profit management, and real estate.

Henry J. Bruman Maps and Government Information Library

The Maps and Government Information (MGI) Library (<http://www.library.ucla.edu/libraries/mgi/>), housed in the Young Research Library, collects modern and historical maps (topographic, aerial, nautical, aeronautical), city plans, atlases and gazetteers, specialized books and serials on mapping and cartography, official publications from U.S. federal, state, and local governments, foreign national governments, and international and intergovernmental organizations, campaign literature from U.S. national and California state and local elections, and pamphlets and ephemeral materials on public affairs-related subjects published by nongovernmental organizations. The library also houses the **Geographic Information System (GIS) Resource Center**, which allows UC students, faculty, and staff to use computer technology to view, manipulate, store, and analyze spatial digital data sets.

Music Library

The collections of the Music Library (<http://www.library.ucla.edu/libraries/music/>) in Schoenberg Hall include books, music scores, sound recordings, microforms, and interactive media on Western music history and criticism; world music styles, cultures, and traditions; and music theory, aesthetics, philosophy, and organology. Music Special Collections include rare printed and manuscript books, scores, and opera librettos; personal papers of prominent Southern California composers, performers, and writers on music; and archives of film, television, and radio music; it also houses the Archive of Popular American Music, a special collection of published and manuscript sheet music, recordings, and related materials.



Science and Engineering Library

The Science and Engineering Library (SEL; <http://www.library.ucla.edu/libraries/sel/>) covers the fields of engineering, mathematics, and the physical sciences. Collections are housed in four separate locations. **SEL/Chemistry**, in Young Hall, houses materials on chemistry, biochemistry, and molecular biology. **SEL/Engineering and Mathematical Sciences**, in Boelter Hall, houses materials on aeronautics, astronomy, atmospheric sciences, bioengineering, chemical, civil, electrical, environmental, manufacturing, mechanical, and nuclear engineering, computer science, elec-

tronics, energy technology, mathematics, metals and materials, and pollution. **SEL/Geology-Geophysics**, in the Geology Building, houses materials on geology, geophysics, geochemistry, space physics, planetary science, paleobiology, micropaleontology, invertebrate paleontology, ore deposits, geomorphology, hydrology, and chemical oceanography. And **SEL/Physics**, in Kinsey Hall, houses materials on solid-state, elementary particle, high-energy, mathematical, nuclear, and plasma physics, acoustics, spectroscopy, optics, and astrophysics.

Special Archives and Collections

In addition to the extensive collections of the University Library, a rich array of other information resources is available to the UCLA community. The archives and collections listed below are independently managed by individual UCLA departments and centers.

The **Center for African American Studies Library** contains materials reflecting the African American experience in the social sciences, arts, and humanities. The **American Indian Studies Center Library** houses a collection on American Indian life, culture, and state of affairs in historical and contemporary perspectives, while the **Asian American Studies Center Reading Room** features Asian and Pacific American resources.

Materials related to Chicano and Latino cultures are housed in the **Chicano Studies Research Center Library**, and the **Clark Memorial Library** contains rare books, manuscripts, and other noncirculating materials on English culture (1640 to 1750). The **English Reading Room** features a noncirculating collection of English and American literature, literary history, and criticism.

The **Ethnomusicology Archive** houses sound recordings of folk, ethnic, and non-Western classical music, while the **Institute for Social Science Research Data Archive Library** contains a collection of statistical databases for the social sciences. The **Seeds University Elementary School Library** features contemporary materials for children from kindergarten through junior high school and adult works on children's literature.

UCLA Film and Television Archive

The UCLA Film and Television Archive (<http://www.cinema.ucla.edu/>) is the world's largest university-based collection of motion pictures and broadcast programming. The archive's holdings of original film and television materials serve both the UCLA community and national and international constituencies.

The Motion Picture Collection, with more than 37,000 films, is the country's largest collection after the Library of Congress. Among its outstanding collections are 27 million feet of Hearst Metrotone News film dating back to 1919. Other noteworthy holdings include studio print libraries from Twentieth Century-Fox, Paramount Pictures, Warner Brothers, Columbia Studios, New World Pictures, Universal Studios, and Orion. Special collections document the careers of William Wyler, Hal Ashby, Tony Curtis, Rosalind Russell, Stanley Kramer, Cecil B. DeMille, Harold Lloyd, and other persons of prominence in the American film industry.

The Television Collection is the nation's largest university-based collection of television broadcast materials. Its 35,000 titles include kinescopes, telefilms, and videotapes spanning television history from 1946 to the present, with emphasis on drama, comedy, and variety programming. A special collection of over 100,000 news and public affairs programs is also maintained.

The archive's exhibition program presents evening screenings and discussions in the James Bridges Theater that focus on archival materials, new work by independent filmmakers, and a wide array of international films. For program information, call (310) 206-FILM.

The **Archive Research and Study Center (ARSC)**, located in 46 Powell Library (310-206-5388), provides on-site viewing of the Film and Television Archive's collections and research consultation to students, faculty, and researchers. ARSC hours are weekdays 8:30 a.m. to 5 p.m.

Computer Services

The **Office of Academic Computing (OAC)** provides resources and services that support the UCLA distributed computing environment. Through its five service areas OAC seeks to facilitate cross-departmental information technology initiatives, provide specialized resources to faculty and students in pursuit of their research and instructional goals, and leverage the volume purchasing power of the University. For further information, call (310) 825-6635 or see <http://www.oac.ucla.edu>.

Research Technology Services (RTS) offers integrated services to help faculty members succeed in today's research environment. Areas of expertise include (1) technical and administrative grant development support for interdisciplinary granting activities that require investments in information technology, (2) storage and management tools for research and instructional data, (3) analysis and interpretation of complex data sets through statistical and visualization support, (4) high-performance network consulting services for research, and (5) high-performance computing through UCLA's SP/Cluster Program, consulting support for faculty to access the National Supercomputer Centers, and support for the development of central and local commodity-based Linux clusters. For further information, call (310) 825-7426 or see <http://www.oac.ucla.edu/rts>.

OAC Software Central provides information about software available to the UCLA community at educational or special volume discounts. Software Central works with the UCLA Purchasing Department to negotiate and implement volume software license agreements. Software Central provides access to licensed software by CD, disk, or download from the software distribution server. Technical support for many software applications is also available to UCLA licensees. For further information, call (310) 206-4780 or see <http://www.oac.ucla.edu/software>.

Student laboratories are supported through the **OAC Commons Laboratory**, located in 4328 Math Sciences, and the **College Library Instructional Computing Commons (CLICC)** in Powell Library. CLICC is a collaborative effort between OAC, Humanities Computing, Social Sciences Computing, the Office of Instructional Development, and College Library. OAC Commons is available to all undergraduates and provides 58 computers (48 Intel-based and 10 Macs), two high-speed printers, and three walkup ports for laptops. Five stations are designed for wheelchair access. For further information, call (310) 205-6772 or see <http://www.oac.ucla.edu/labs>.

OAC training and consulting services assist faculty and students with statistical computing, high-performance computing, and scientific visualization. Training services include classes in statistical applications such as SAS, SPSS, STATA; high-performance computing, including parallel programming and Fortran 90; and scientific visualization applications such as GIS. Call (310) 825-7431 or see <http://www.oac.ucla.edu/trainin> for further information. Register for classes at <http://www.oac.ucla.edu/classes>. In partnership with Communication Technology Services (CTS) and Administrative Information Services (AIS), OAC also provides access to over 300 **online interactive training** courses in diverse topics ranging from basic word processing to programming and LAN management. See <http://computertraining.ucla.edu>.

The **Disabilities and Computing Program (DCP)** provides adaptive technology services and support to students, faculty, and staff with disabilities, to faculty who are working with students with disabilities, and to departments. The DCP also coordinates access to computers, local area networks, and online information resources for people with disabilities. Specific services include (1) adaptive technology consulting and training, (2) information access consulting and training, (3) braille services, (4) web usability evaluations, and (5) adaptive technology purchase recommendations. Further information is available at 5907 Math Sciences (voice 310-206-7133, TDD 310-206-5155; <http://www.dcp.ucla.edu>).

Other Campus Resources

The **Biological Collections** of the Biology Department include marine fishes from the Eastern Pacific and Gulf of California, and birds and mam-

mals primarily from the Western U.S., Canada, Mexico, and Central America. The department also maintains a more limited collection of amphibians, reptiles, and fossil vertebrates. For more information, contact Fritz Hertel, 1233 Life Sciences (310-825-1282), or Donald Buth, 1335 Life Sciences (310-206-6084).

The **Division of Laboratory Animal Medicine** (1V-211 CHS, 310-825-7281; <http://research.mednet.ucla.edu/cores/dlam.html>) is responsible for the procurement, husbandry, and general welfare of animals required for teaching and investigative services. It also administers the veterinary medical and husbandry programs throughout the campus.

The **Hannah Carter Japanese Garden** is one mile from the UCLA campus in Bel Air. The authentic Kyoto-style terraced garden was designed and constructed by Japanese artisans and architects using native plants and artifacts. The garden houses such traditional and symbolic features as a teahouse, shrine, antique stone water basins, lanterns, waterfalls, and a koi pond. It was donated to UCLA in 1965 and is used by faculty, students, school and community groups, and others seeking a serene setting for meditation and solitude. The garden is open to the public by reservation only. For further information, call (310) 825-4574 or see <http://www.urelations.ucla.edu/protocol/garden.html>.

The **Marine Science Center** (310-206-8247; <http://www.lifesci.ucla.edu/msc/>) was established at UCLA in 1989 to coordinate marine-related teaching and research on campus and to facilitate interaction across departmental boundaries of faculty and students with similar interests in marine sciences. UCLA offers one of the broadest interdisciplinary educational programs in marine sciences in the U.S. Field trips for marine-related courses and access to research sites in the Santa Monica Bay, Channel Islands, and the Southern California Bight are provided by UCLA's 68-foot research vessel *Sea World UCLA*.

Although the UCLA campus as a whole has an attractive, park-like atmosphere, there are two distinctive garden areas worthy of special note. The seven-acre **Mathias Botanical Garden**, located in the southeast corner of campus, contains some 4,000 species of native and exotic plants. It is used for botanical teaching and research. This peaceful wooded area, a center for testing the usefulness of woody subtropical plants, is a favorite spot for quiet strolls. Volunteer docents lead group tours. The botanical garden also has a research Herbarium containing 180,000 dried plant specimens. The administrative office is located in 124 Botany (310-825-3620; <http://www.lifesci.ucla.edu/botgard/>).

The University of California founded the **UC Natural Reserve System (NRS)** in 1965 to preserve for study a series of undisturbed natural areas representing the state's vast ecological diversity. Students, teachers, and researchers from public and private educational institutions use the reserves as outdoor classrooms and living laboratories. The **Stunt Ranch Santa Monica Mountains Reserve** (23-126 Warren Hall, 310-206-3887; <http://nrs.ucop.edu/reserves/Stunt.html>), administered by the Los Angeles campus, officially joined the UC NRS in November 1995. The 310-acre site is within a 40-minute drive from UCLA and includes fine examples of chaparral and oak woodland ecosystems. The reserve lends itself to programs that focus on the natural ecosystems and issues of resource management in the urban/wildland interface. Undergraduate and graduate courses in the Departments of Anthropology, Earth and Space Sciences, Geography, Organismic Biology, Ecology, and Evolution, and Physics and Astronomy, and the Institute of the Environment utilize Stunt Ranch and other NRS sites.

The **UCLA Ocean Discovery Center** at the Santa Monica Pier (1600 Ocean Front Walk, 310-393-6149; <http://www.lifesci.ucla.edu/odc/>) is a marine science learning center serving K-12 classes from schools in the greater Los Angeles area. Interactive lessons and activities introduce students to the basic concepts of marine environmental studies, marine biology, oceanography, and meteorology. The center is also open to the public, using the same conceptual approach to teach visitors about their connections to Santa Monica Bay and the world ocean.



Supplementary Educational Programs

In addition to the regular academic programs that are described in the Curricula and Courses section of this catalog, the following optional programs are available to UCLA's undergraduate and graduate students.

Education Abroad Program

Each year more than 1,700 undergraduate and graduate students from UC campuses study at distinguished universities throughout the world through the Education Abroad Program (EAP). UCLA students remain registered here while overseas and receive UC units and grade points for work completed abroad. Currently, EAP offers study opportunities at more than 100 different universities in 36 countries: Australia, Austria, Barbados, Brazil, Canada, Chile, China, Costa Rica, Denmark, Egypt, England, France, Germany, Ghana, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Russia, Scotland, Singapore, South Africa, Spain, Sweden, Taiwan, Thailand, Turkey, and Vietnam. Participants can spend up to a full academic year abroad, enjoying a unique opportunity to enhance language skills, take courses in their major, and become involved in the culture of the host country. One-term programs are available in Austria, Barbados, Brazil, Canada, Chile, China, Costa Rica, Denmark, France, Germany, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Korea, Mexico, Netherlands, Russia, Singapore, Spain, Sweden, Taiwan, and Thailand. Summer programs are offered in Denmark and Mexico. In Costa Rica there is a one-term tropical biology field study program, and field study programs are available in Mexico. For all programs a special orientation program and, when necessary, intensive language training are included. During the year UC faculty members at the host university assist with scholastic or personal problems.

EAP is open to all undergraduate students who have (1) at least a B average (3.0 GPA) overall at the time of application and (2) the support of the UCLA EAP Selection Committee. Some programs have a language requirement as well. Most programs require junior standing (90 units minimum) at departure; seniors and transfer students are welcome.

Graduate students who have completed at least one year of graduate work and have the approval of their graduate adviser and the dean of the Graduate Division may participate at most study centers.

Costs for participation in EAP vary from \$1,740 to \$19,000, but University financial aid and special EAP scholarships are available to those who qualify. Applications must be filed several months in advance. EAP Offices are located in 10370 Bunche Hall and 1105 Hershey Hall. For more information, call (310) 825-4995 or see <http://www.isop.ucla.edu/eap/>.

Interdisciplinary Colloquia

Organized colloquia involving several disciplines are offered from time to time in conformity with faculty and student interests. They are open to all faculty members, interested undergraduates, and graduate students assigned to the colloquia by their advisers. Credit is not awarded directly but may be given through appropriate departmental courses. For information about the committees in charge of the colloquia, call the assistant to the provost of the College of Letters and Science at (310) 825-4286.

The **Jacob Marschak Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences** provides a forum for interaction among faculty and students interested in the applications of mathematics and statistics to the behavioral sciences. Disciplines include anthropology, architecture, artificial intelligence, biology, business, computer science, economics, education, engineering, geography, linguistics, management, mathematics, operations research, philosophy, political science, psychology, public health, public planning and policy, sociology, statistics, and systems analysis.

The colloquium sponsors presentations by leading experts in these fields, including faculty members from UCLA, other UC campuses, and other universities and meets on alternate Fridays from 1 to 3 p.m. in C301 Anderson Complex during the academic year. Announcements of presentations, including abstracts of the papers to be presented, are circulated and posted on campus; announcements also appear in *UCLA Today*. The colloquium is directed by Michael D. Intriligator, professor of economics, political science, and policy studies. For further information, call the Western Management Science Institute at (310) 825-4144 or see <http://www.anderson.ucla.edu/research/marschak/>.

The **Rothman Colloquium in Cognitive Science**, organized by the interdisciplinary Cognitive Science Research Program, sponsors presentations by leading experts in the broad field of cognitive science, which explores the nature of human and artificial intelligence. Participating disciplines include artificial intelligence, biology, computer science, linguistics, neuroscience, philosophy, and psychology. The list of speakers is circulated to the participating departments on campus. For further information, call the Cognitive Science Research Program at (310) 825-0951 or see <http://www.lifesci.ucla.edu/cogsci/Seminars/>.

Summer Sessions

Throughout the summer, UCLA offers more than 500 courses from approximately 60 UCLA departments in six-, eight-, and 10-week sessions. Many students take advantage of Summer Sessions to enroll in courses they were unable to take during the year, repeat courses in which they may have done poorly, lighten their academic load for the following term, or complete graduation requirements more quickly.

Admission to Summer Sessions does not constitute admission to the University in either undergraduate or graduate standing. Students who wish to attend UCLA in regular session must follow admission procedures described in the Undergraduate Study and Graduate Study sections of this catalog.

Regularly enrolled undergraduate students may attend UCLA Summer Sessions for full unit and grade credit. Summer Sessions work is recorded on the UCLA transcript, and grades earned are computed in the grade-point average. Check with the college or school counselor about applying these courses toward the minimum unit requirements and for any limitations the college or school may impose on Summer Sessions study.

Regularly enrolled graduate students may, with departmental approval, take regular session courses offered in Summer Sessions for credit toward a master's or doctoral degree; consult the graduate adviser in advance concerning this possibility. Summer Sessions courses may also satisfy the academic residence requirement for master's or doctoral degrees.

Unlike enrollment in regular terms, students may attend another college institution for credit while they are enrolled in Summer Sessions. Registration information is available in 1147 Murphy Hall (310-794-8333; <http://www.summer.ucla.edu>).

UCLA Extension

With over 100,000 adult student enrollments each year, UCLA Extension is one of the largest university continuing education programs in the world. It is designed to bring the benefits of the University — its scholars, research, and resources — to the community and the state as a whole.

Many of UCLA Extension's 4,500 classes are innovative and experimental in content, format, and teaching methods. Credit and noncredit courses are offered in nearly every academic discipline, in many interdisciplinary areas, and in emerging fields. In addition, Extension offers special programs each term on topical issues as well as those of ongoing public concern. Many noncredit Extension courses offer the opportunity to earn Continuing Education Units, widely used for relicensure and other professional/career-related purposes.

Although registering for Extension courses does not constitute admission to regular session, degree credit earned through Extension may apply toward the UCLA bachelor's or master's degree; consult the college or school counselor or graduate adviser before enrolling. For more information, see Concurrent Enrollment and Transfer of Credit and Courses of Instruction in the Academics section of this catalog. Graduate students should also see Transfer of Credit in the Graduate Study section.

The Extension Advisory Service offers assistance in planning long- or short-term study through Extension. The office is located in 114 UCLA Extension Building, 10995 Le Conte Avenue (310-206-6201; <http://www.unex.ucla.edu>). To obtain the current *UCLA Extension Catalog*, contact the Registration Office at (310) 825-9971. Hours are weekdays from 8 a.m. to 6 p.m. (5 p.m. Friday).

Student Life

Associated Students UCLA

Every registered UCLA student is a member of the Associated Students UCLA (ASUCLA). Four entities comprise ASUCLA: the undergraduate and graduate student governments, student media, and retail services and enterprises. For information on all four entities, including the services and enterprises described in the following section, see <http://www.asucla.ucla.edu>.

Automatic Tellers and Banking

Cash is available via on-campus automatic tellers. On the A Level of Ackerman Union are automatic tellers for Bank of America, University Credit Union, Washington Mutual, and Wells Fargo Bank. Near the North Campus Student Center are automatic tellers for Bank of America, University Credit Union, and Washington Mutual. The Hill Top Shop in Sunset Village and the UCLA Store/Health Sciences each have a Wells Fargo Bank machine. The UCLA Store/LuValle Commons, the Bombshelter, and the Terrace Food Court have automatic tellers for the Westwood Student Federal Credit Union.

The University Credit Union (<http://www.ucu.org/>) maintains an electronic services office on the A Level of Ackerman Union; the Westwood Student Federal Credit Union (<http://www.fffccu.org/>) is on the first floor of Kerckhoff Hall. Membership in these credit unions is open to UCLA students.

Campus Photo Studio and Graduation Etc.

Senior yearbook portraits and other formal portraits are available from the Campus Photo Studio (A Level of Ackerman Union, 310-206-8433). Seniors are advised to have yearbook portraits taken in Fall Quarter, since lines are long as the January deadline approaches. At the same location, Graduation Etc. (310-825-2587) sells caps and gowns for bachelor's de-

grees, rents academic attire for advanced degrees, and provides announcements, diploma mounting, and other graduation-related products and services. See <http://www.uclastore.ucla.edu/graduation/>.

Cards and Gifts

Papercuts (A Level of Ackerman Union, 310-206-1564) offers an extensive selection of Hallmark cards and gift wrap, plus stuffed animals, mugs, and other gift items.

Copying and Printing Services

Pulse Copy and Technology operates two copy centers on campus: Lu Valle Commons (310-825-7568) and A Level of Ackerman Union (310-206-0894). Copies, color copies, binding, lamination, and printing are offered.

Gameroom

Xcape (A Level of Ackerman Union, 310-206-0829) is a gameroom featuring pinball, video games, and electronic games. Especially popular are weekend "unlimited play" opportunities, which allow hours of play for one flat fee.

Job Opportunities on Campus

ASUCLA reserves more than 2,500 part-time jobs for UCLA students in the UCLA Restaurants, UCLA Store, student union, and other departments. Listings are posted outside the Human Resources Office, 3519 Ackerman Union (310-825-7055; <http://www.uclastore.ucla.edu/student-jobs/>).

Aside from the student jobs reserved by ASUCLA, the residence halls offer a number of positions, as do the University libraries; check at the residences and the Personnel Office in the Young Research Library (310-825-7947). Other on-campus jobs may be available through the UCLA Career Center (see Student Services later in this section).

Lecture Notes and Academic Publishing Service

Lecture Notes is a subscription service that publishes concise weekly summaries of about 100 of UCLA's large lecture classes. Notes can be picked up in the Textbooks department of the UCLA Store, Ackerman Union (A Level, 310-206-0882; <http://www.uclastore.ucla.edu/textbooks/lecturenotes/index.html>). **Academic Publishing Service** (next to Lecture Notes, 310-825-2831; <http://www.uclastore.ucla.edu/textbooks/ap/index.html>) reproduces course materials for professors, obtaining 5,000 copyright authorizations each year.

Meeting Rooms

A variety of meeting rooms is available for use by the entire campus community. To reserve space in Ackerman Union or Kerckhoff Hall, contact the Student Union Operations Office on the A Level of Ackerman Union (310-206-0836).

UCLA Restaurants

ASUCLA operates the UCLA Restaurants and three coffee houses on the general campus. Hours vary, especially during summer and holiday periods. Consult the hours posted at each unit or check the UCLA Restaurants listing at <http://www.uclastore.ucla.edu/information/restaurant.html>.

Bombshelter Deli and Burger Bar (310-206-0727; <http://www.uclastore.ucla.edu/restaurants/bombshelter.html>), in the Court of Sciences, offers traditional deli sandwiches, an outdoor barbecue, snacks, rice bowls, sushi, broiled hamburgers and chicken, and salads at reasonable prices.

Campus Corner (310-206-0726; <http://www.uclastore.ucla.edu/restaurants/taco-sub.html>) is located just across Bruin Walk from Kerckhoff Hall. Taco Bell Express is on the north side, while the south side features sandwiches at SubSection.

The **Cooperage** (310-206-0740; <http://www.uclastore.ucla.edu/restaurants/cooperage.html>), on the A Level of Ackerman Union, offers pizza, chicken, grill items, and an extensive by-the-ounce salad bar. A stage and

sound system for live entertainment and a large-screen TV for major events are available.

Kerckhoff Coffee House (310-206-0729; <http://www.uclastore.ucla.edu/restaurants/kerckhoff.html>), on the second floor of Kerckhoff Hall, offers Baskin-Robbins ice cream specialties and a variety of teas, coffees, fresh pastries, and gourmet sandwiches and soups.

Lu Valle Commons (310-825-1177; <http://www.uclastore.ucla.edu/restaurants/luvalle.html>), located just north of the School of Law, features deli food, international entrees, hamburgers, and other grilled specialties. Within Lu Valle Commons, **Jimmy's Coffee House** (<http://www.uclastore.ucla.edu/restaurants/jimmy.html>) features specialty beverages, pastries, and desserts.

The **North Campus Student Center** (310-206-0720; <http://www.uclastore.ucla.edu/restaurants/northcampus.html>), southwest of the Young Research Library, offers Mexican entrees, frozen yogurt, pizza, deli and garden sandwiches, Italian food, stir-fry, and a salad bar. North Campus is open for breakfast, lunch, and dinner. At the west end, **Northern Lights** coffee house (310-206-0373; <http://www.uclastore.ucla.edu/restaurants/northernlights.html>) features gourmet coffees and Baskin-Robbins ice cream.

The **Terrace Food Court**, on the first floor of Ackerman Union, offers snacks at Rx Candy (310-206-7879), Wetzels Pretzels (310-206-8645), Columbo Frozen Yogurt (310-206-8645), and Tropix beverage bar (310-206-0732). Italian, Asian, and Mexican food and fish tacos are offered at La Cucina by Sbarro (310-794-4080), Panda Express (310-206-9395), and Rubio's Baja Grill (310-794-4009), respectively.

Tsunami (310-206-9226; <http://www.uclastore.ucla.edu/restaurants/tsunami.html>), in the northwest corner of the A Level of Ackerman Union, serves Japanese noodles and sushi.



UCLA Store

In terms of sales, the UCLA Store is the biggest college store in the nation. There are five locations on campus, plus UCLA Spirit Stores at Santa Monica's Third Street Promenade and Universal CityWalk. See <http://www.uclastore.ucla.edu> or the *Daily Bruin* for information on sales, author signings, and other special events. The website also offers current computer price lists and the opportunity for students to "preshop" textbooks by entering their course I.D. numbers to get a list of required and recommended books.

UCLA Store, Ackerman Union (B Level of Ackerman Union and parts of A Level, 310-825-7711), has seven departments. The **Textbooks** department carries required and recommended texts for most undergraduate and many graduate courses and operates a buyback service so students can sell used texts. **BookZone** offers reference books and a wide selection of titles in literature, science, history, and technical disciplines, including an impressive UCLA Faculty Authors section. The **Computer Store** carries Macintosh and Windows computers, printers, and software at low academic prices. **Essentials** offers school and office supplies, including consumables for computer printers. **BearWear** specializes in UCLA emblematic merchandise. **Fast Track** carries active footwear and sportswear for men and women, plus an extensive Clinique counter. **Market** is a convenience store, with snacks, health and beauty aids, and cut flowers.

UCLA Store/Health Sciences (13-126 CHS, 310-825-7721) specializes in books and supplies for students in dentistry, medicine, public health, and related areas. **UCLA Store/Lu Valle Commons** (just north of the School of Law, 310-825-7238), carries convenience items, art supplies, and books, as well as textbooks and supplies for all on-campus Extension courses and selected academic programs (architecture and urban design, film, law, management, public policy, social welfare, theater, urban planning). **North Campus Shop** (in the North Campus Student Center, 310-206-0751) and **Hill Top Shop** (Delta Terrace in Sunset Village, 310-206-4306) are convenience store locations.

Living Accommodations

Where students live while attending UCLA can play an important role in their total college experience. Many students, especially those in their first year, choose to live on campus; others opt for a University-owned apartment or a private apartment in one of the many surrounding communities.

There are many housing options available. Students should decide early which ones they plan to pursue and apply for or follow up on them as soon as possible. If they plan to live off campus, they should arrive early to make their housing arrangements for the coming academic year.

The **UCLA Community Housing Office**, 350 De Neve Drive (Sproul Hall Annex), Box 951495, Los Angeles, CA 90095-1495, (310-825-4491; <http://www.cho.ucla.edu/housing/ochcho.htm>), provides information and current listings for University-owned apartments, cooperatives, private apartments, roommates, rooms in private homes, room and board in exchange for work, and short-term housing. Rental listings are updated daily. The housing office also has bus schedules, area maps, and neighborhood profiles. A current BruinCard or letter of acceptance is *required* for service.

UCLA Housing, a booklet that covers housing options in detail, is mailed to all students when they are accepted for admission.

Apartments

If selecting an off-campus apartment, students should carefully consider the kind of living arrangements they can afford. Their financial situation may dictate how close they live to UCLA and whether they can live alone or must share an apartment. Apartments within three miles of UCLA (Westwood, West Los Angeles, parts of Brentwood and Santa Monica) average \$600 per month for single units and \$800 for one-bedroom units. Apartments more than four miles away (Palms, Mar Vista, Culver City) usually cost \$100 to \$150 less. Listings change daily and are posted in the UCLA Community Housing Office. A roommate share board is also available. See <http://www.cho.ucla.edu/housing/cho.htm>.

Student Cooperative and Boarding Houses

There is one student cooperative within walking distance of campus that provides an atmosphere similar to residence halls except students must work three to four hours per week as partial payment for room and board. There are also several boarding houses and private residence halls convenient to UCLA. Phone numbers are available from the UCLA Community Housing Office.

Fraternities and Sororities

Many of the 41 fraternities and sororities at UCLA own chapter houses on the west and east sides of campus respectively. For sororities, students must be members to live in the house and generally are able to move in after their first year of active membership. For fraternities, living in the house depends on the number of housing spaces available. Room, board, and dues are often less than the monthly residence hall fee. During the summer break, most fraternities with chapter houses lease rooms to students, Greek or not (check listings at the UCLA Community Housing Office). For more information, contact Fraternity and Sorority Relations, 118 Men's Gym (310-825-6322; <http://www.saonet.ucla.edu/csp/housing.htm>).

On-Campus Housing

Living on campus can add an extra dimension of academic support, enjoyment, and convenience to the UCLA experience. Four residence halls (Dykstra, Hedrick, Rieber, and Sproul Halls), two residential suite complexes (Hitch and Saxon Residential Suites), Sunset Village, and De Neve Plaza accommodate nearly 6,700 undergraduates, while the Hilgard Houses accommodate 200 transfer and upper division students. All on-campus housing is coed and within walking distance to classrooms.

Residence hall rooms are shared by two or three students. Residential suites — shared by four or six students — consist of two bedrooms, a full bathroom, and a common living room. Sunset Village and De Neve Plaza rooms are air conditioned and shared by two or three students. Most rooms in Sunset Village and all rooms in De Neve Plaza have private baths. Hilgard Houses are four large residential homes on the east side of campus. Each accommodates about 40 students and has a large living room, study hall, small computer room, TV lounge, and patio. Students live in furnished doubles, triples, and quads. Each house has single-sex communal bathrooms and a small laundry room. Residential restaurants are located in Rieber Hall, Hedrick Hall, Covell Commons, and De Neve Plaza. All accommodate on-campus residents and serve meals daily. Residents may choose from a variety of meal plans.

Applications for on-campus housing are in the *UCLA Housing* booklet, available at the **UCLA Housing Assignment Office**, 270 De Neve Drive, Box 951381, Los Angeles, CA 90095-1381 (310-825-4271; <http://www.cho.ucla.edu/housing/hao.htm>). To apply for on-campus housing, the completed application must be postmarked by the following deadlines:

Fall Quarter 1999	
Current Students	May 31, 1999
Freshmen	May 3, 1999
Transfer Students	June 1, 1999
Winter Quarter 2000	Assigned as available
Spring Quarter 2000	Assigned as available

For Fall Quarter, the Housing Assignment Office randomly designates a number to each application received; the number determines the order in which students are offered assignment to on-campus housing. **All new freshman and transfer students who are admitted for Fall Quarter and apply for on-campus housing by the stated deadline are guaranteed University housing.**

Students applying for Winter or Spring Quarter are assigned on a space-available basis in the order applications are received.

The full cost per student for the 1999-00 academic year (Fall, Winter, and Spring Quarters, excluding vacation periods) is \$6,045 to \$6,565 (triples) or \$7,005 to \$7,525 (doubles) for residence halls, \$7,500 to \$8,020 (six persons) or \$8,305 to \$8,825 (four persons) for residential suites, and \$7,660 to \$8,180 (triples) or \$8,475 to \$8,995 (doubles) for Sunset Village and De Neve Plaza, plus a \$22.44 social fee for residential programming.

The **Office of Residential Life**, in the Residential Life Building near Sproul Hall (310-825-3401; <http://www.orl.ucla.edu/>), is responsible for student conduct in residence halls and suites and provides professional and student staff members to counsel residents on programming and other problems. The office is also a designated Sexual Harassment Information Center, as well as a campus Harassment Information Center, available to all UCLA students (see Harassment in the Appendix for more information).

Short-Term Housing

If students need temporary quarters until they find something permanent, there are several hotels and motels within five miles of campus with varying rates and accommodations. Most short-term housing is available for

no more than one to three months, though some may be for longer periods. Sublets are most readily available from May to August. Hotel and motel listings, which may be requested by mail or phone, are available in the UCLA Community Housing Office.

University Apartments for Single Graduate and Family Students

About five miles from campus, UCLA maintains nearly 1,400 off-campus apartments for married, single-parent, and single graduate students. Unfurnished one-, two-, and three-bedroom units are available. One-bedroom rentals for 1999-00, excluding utilities, are expected to range from \$586 to \$793 per month. Because assignment to several of the apartment units is by wait list, students should not wait until they have been accepted to UCLA to apply. Verification of marriage and/or copies of children's birth certificates (English translation) must accompany the application. For up-to-date information, call University Apartments South at (310) 398-4692 or see <http://www.cho.ucla.edu/housing/uasouth.htm>.

University Apartments for Single Undergraduate Students

More than 230 apartments for single undergraduate students in four off-campus facilities are maintained by the University; all are located within walking distance of campus. Apartments vary from singles to three-bedroom units, with bedrooms usually shared by two or three students. Space rates for the 1999-00 academic year, including utilities, range from \$3,062 to \$7,336. All occupants must be full-time UCLA students; rental agreements are for the entire academic year. An application is included in the *UCLA Housing* booklet, available at the UCLA Housing Assignment Office. Assignments are made on a space-available basis. Current UCLA students are assigned to the apartments during Spring Quarter; not all types of apartment spaces are available to entering students. Call the Housing Assignment Office at (310) 825-4271 or see <http://www.cho.ucla.edu/housing/uanorths.htm> for current availability information.

Transportation Services

A variety of parking, ridesharing, and other transportation options and services are offered through Transportation Services. There are several commuting alternatives for students to get to and from campus without driving their cars. To save time and money, many students form new or join existing UCLA carpools or vanpools. Both full-time and part-time riding opportunities are available.

Commuter Services

The Commuter Assistance-Ridesharing (CAR) Office (310-794-RIDE) can help students learn about **vanpools** available from their neighborhoods. Currently there are more than 130 vanpools commuting from nearly 80 communities throughout Southern California.

Students interested in forming a **carpool** who need help finding other students who live near them should call (310) 825-3618 and ask for a free *RideGuide*. As an additional incentive to rideshare, registered two- and three-person student carpools are given top priority to receive parking (see Parking Permits).

These alternatives and other commuting options, including an extensive network of public transit service providers, are described in the *UCLA Commuter Guide*, available at <http://www.transportation.ucla.edu/> or at Parking Services on the corner of Strathmore Place and Westwood Plaza (Parking Structure 8, Level 2) weekdays from 7:45 a.m. to 5 p.m. For further information, call (310) 825-3618.

Parking Permits

Due to the limited availability of parking at UCLA, parking is offered to students who demonstrate the greatest need. Student parking permits are currently assigned through a need-based point system which takes into consideration class standing, commute distance, previous attendance, employment status, dependent children, and professional school obliga-

tions. Students are strongly encouraged to apply on time and follow all application and payment guidelines in order to increase their chances of receiving a permit.

When assigning parking permits to students, UCLA Parking Services gives the highest priority to carpools. Carpool permits are guaranteed to all qualified two- and three-person student carpool groups that apply on time. In addition, student carpools are parked in centrally located campus parking areas and share a discounted permit fee. All members of a proposed student carpool must apply in person as a group each term.

Most student permits are assigned for the academic year and can be paid for annually or quarterly. Renewal forms for students paying quarterly are automatically mailed before the Winter and Spring Quarter payment due dates. Students who are not offered a parking assignment during a given term or who wish to change their parking area need to reapply the following term. Student Parking Request forms, along with important quarterly due dates and helpful information on how to apply for a parking permit, are available by calling (310) 825-9871 or in person weekdays from 7:45 a.m. to 5 p.m. at Parking Services.

Students with permanent disabilities who have disabled persons' placards or DMV-issued disabled persons' license plates and students with short-term disabilities should contact the Office for Students with Disabilities (310-825-1501; <http://www.saonet.ucla.edu/osd/>) regarding parking assignments and on-campus transportation assistance.

Parking permits and access cards to campus lots and structures are not transferable and may be purchased only from UCLA Parking Services. *Resale is prohibited and subjects both buyer and seller to disciplinary action.*



Student Activities

The opportunities to participate in extracurricular activities at UCLA are virtually unlimited. Though it is impossible to list all the activities here, the following are just a few of the many ways students can get involved in campus life and expand their horizons beyond classroom learning.

Clubs and Organizations

Joining a club or organization is a wonderful way to become involved on campus. UCLA currently has about 600 different registered organizations — more than are found on almost any other university campus in the country. Political, recreational, community service, cultural, academic, religious, and residential clubs can be found at UCLA. And it only takes three people to start their own if they can't find one that suits their interests.

Clubs focusing on sports and recreation are listed in the Department of Cultural and Recreational Affairs, located in the Wooden Center (310-825-3701; <http://www.saonet.ucla.edu/recreate/>). For a full listing of regis-

tered organizations, contact the **Center for Student Programming (CSP)**, 105 Kerckhoff Hall (310-825-7041; <http://www.saonet.ucla.edu/csp/>). This office can help students start a club or join an existing one, and serves as the official registry for all campus organizations. CSP assists students with program and leadership development and fund-raising, interprets and enforces University rules and regulations, and administers official and general purpose bulletin boards on campus.

All student organizations are eligible to use the services of **Student Event Management (SEM)**, located in 105 Kerckhoff Hall (310-825-6690). SEM offers technical and logistical consulting for student events, including cost estimates and event management.

Complaints Against Student Organizations

Complaints of misconduct against officially recognized student organizations may be made at the Center for Student Programming (105 Kerckhoff Hall; <http://www.saonet.ucla.edu/csp/>) or Student and Campus Life (1104 Murphy Hall; <http://www.saonet.ucla.edu/sao/scl.html>).

Fraternities and Sororities

The 41 Greek letter social organizations and their four governing councils — Asian Greek Council, Interfraternity Council (IFC, 310-825-7878; <http://www.studentgroups.ucla.edu/ifc/>), National Pan-Hellenic Council (NPHC, 310-206-1868), and Panhellenic Council (PHC, 310-206-5499; <http://www.studentgroups.ucla.edu/panhellenic/>) — are sponsored by a component of the Center for Student Programming — **Fraternity and Sorority Relations (FSR)**, 118 Men's Gym (310-825-6322; <http://www.saonet.ucla.edu/csp/FSR/>).

Greek letter social organizations registered and officially recognized by FSR are eligible to participate in programs such as the Greek Leadership Conference, Membership Recruitment, Greek Week, New Member Forums, Dating Expectations Programs, intramural tournaments, and all University-sponsored programs. Individual student members of IFC and Panhellenic Council are eligible for scholarships offered by the Intersorority Mothers' Club, Los Angeles Alumnae Panhellenic, and their own governing councils. The FSR staff assists organizations in campus and community programming, fund raising, membership recruitment and development, training, and service/learning activities

Fraternities

Alpha Epsilon Pi	Pi Kappa Alpha
Alpha Gamma Omega	Pi Kappa Phi
Alpha Phi Alpha	Sigma Alpha Epsilon
Alpha Phi Omega	Sigma Chi
Beta Theta Pi	Sigma Nu
Delta Sigma Phi	Sigma Phi Epsilon
Lambda Chi Alpha	Sigma Pi
Lambda Phi Epsilon	Theta Chi
Omega Sigma Tau	Theta Delta Chi
Phi Beta Sigma	Theta Xi
Phi Kappa Psi	Triangle
Phi Kappa Sigma	Zeta Beta Tau

Sororities

Alpha Delta Pi	Kappa Alpha Theta
Alpha Epsilon Phi	Kappa Delta
Alpha Kappa Alpha	Kappa Kappa Gamma
Alpha Phi	Lambda Theta Nu
Chi Alpha Delta	Pi Beta Phi
Chi Omega	Sigma Gamma Rho
Delta Delta Delta	Theta Kappa Phi
Delta Gamma	Zeta Phi Beta
Delta Sigma Theta	

FSR is also a designated campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

Fraternities and sororities provide the security of friendship and academic support while encouraging personal development and expansion. Members have group and individual responsibilities related to their particular interests and talents, and all take part in the group's programs and support networks. "Greeks" follow their founding principles of service, scholarship, and friendship. There is a place for anyone who desires to contribute to a group experience, and the cost to live in a chapter house is no more than living in a campus residence hall, although many members "live out" (not all chapters have houses). Approximately 3,000 UCLA students participate in "Greek life."



Statue commemorating the centennial of the birth of Duke Ellington

Performing Arts

A rich variety of concerts, dance recitals, and theater productions is an integral part of life at UCLA. A full calendar of exceptional programs by the Music, Ethnomusicology, and World Arts and Cultures Departments and UCLA Performing Arts of the School of the Arts and Architecture and the Theater and Film and Television Departments of the School of Theater, Film, and Television provides opportunities for student involvement and personal growth.

The **Music Department** has 12 active performance organizations. Instrumentalists are invited to perform with one of seven groups, including the UCLA Philharmonia Orchestra. Vocalists may join the UCLA Chorale, the Collegiate Chorus, or the Musical Theater Workshop.

The **Ethnomusicology Department** provides students with the opportunity to perform in various non-Western and ethnic groups.

The **World Arts and Cultures Department** presents events and concerts involving departmental faculty, guest artists, and students. Student performances include M.F.A. concerts, an undergraduate and graduate student-produced concert, and the Senior Concert/Colloquium. Students also perform in more informal programs, such as the end-of-term Creative Work showings or *Pau Hana*, that feature many world dance forms.

Each year the **Theater Department** presents a series of major productions to the general public, and the **Film and Television Department** produces approximately 100 student-directed films and 50 television programs. Professionals appearing on campus frequently visit classes to share their skills, and many have established awards and scholarships in the performing arts at UCLA.

Since its founding in 1936, **UCLA Performing Arts** (B100 Royce Hall, 310-825-4401; <http://www.performingarts.ucla.edu/>) has served as the premier West Coast showcase for world-class performing artists and ensembles as well as innovative new work in dance, music, theater, and performance art. UCLA Performing Arts presents more than 250 public concerts and events each year, often sponsoring debut performances of new works by major artists. Through UCLA Performing Arts, the campus hosts a varied and active performance program, ranging from regular concerts by the Los Angeles Chamber Orchestra to events with Luciano Pavarotti, Yo-Yo Ma, Alvin Ailey American Dance Theater, Kathleen Battle, Mikhail Baryshnikov, Pina Bausch Tanztheater Wuppertal, Twyla Tharp, Stomp,

Pinchas Zukerman, and Branford and Wynton Marsalis. Subject to availability, discount tickets are offered to students, faculty, and staff.

Publications and Broadcast Media

Publications and broadcast media at UCLA are operated by the UCLA Communications Board and provide excellent training ground for aspiring writers, journalists, photographers, and radio announcers while serving the communication needs of the campus community. The following are the major student-operated sources of information on campus:

The **Daily Bruin**, with a circulation of 20,000, is one of the largest daily newspapers in Los Angeles. As the principal outlet for campus news, the *Bruin* is published each weekday of the regular academic year (once a week during the summer) and is distributed free from kiosks around campus and in Westwood and Brentwood. Students work as reporters, editors, designers, photographers, and advertising sales representatives; new staff members are always welcome. *Bruin* offices are located in 118 Kerckhoff Hall (310-825-9898; <http://www.dailybruin.ucla.edu>).

Seven newsmagazines reflecting the diversity of the campus community are published twice each term. ***Al-Talib*** is a publication devoted to Muslim issues; ***Fem*** reports on women's issues; ***Ha'Am*** deals with Jewish issues; ***La Gente*** treats Chicano, Latino, and Native American issues; ***Nommo*** explores African issues; ***Pacific Ties*** is devoted to Asian issues; and ***TenPercent*** covers gay, lesbian, bisexual, and transgender issues. Each includes news and features on political and cultural affairs both on and off campus. Prospective staffers are welcome. The offices of these newsmagazines are located in 149 Kerckhoff Hall.

The UCLA yearbook, ***BruinLife***, is one of the largest student publication efforts on campus. Available each spring, it contains photographs and information on undergraduate students, graduating seniors, athletic teams, fraternities and sororities, and campus activities. A separate publication, the ***Freshman Record***, is produced for new UCLA students. Students who would like to participate should contact the yearbook staff in 149 Kerckhoff Hall (310-825-2640).

Like many other large universities, UCLA has its own radio station. **KLA Radio** provides music, news, public service programming, and sports coverage during the academic year. The signal is sent to the residence halls over channel 29 on the cable television system. The studios are located at the rear of the Grand Ballroom in 2400 Ackerman Union (310-825-9107; request line: 310-825-9999). All positions, including on-air, news staff, and advertising representatives, are open to students.

Sports and Athletics

Athletics (<http://www.uclabruins.com/>) play a major role in the University's mission to provide a well-rounded education both in and out of the classroom. UCLA continues to live up to its reputation as a national leader in intercollegiate sports and now ranks first in the U.S. in the number of National Collegiate Athletic Association (NCAA) championships won (77). In 1997-98 the UCLA athletic programs (men and women) placed fourth in the Sears Directors Cup national all-around excellence survey. In the 23-year history of the former *USA Today* survey, the men's program placed first 11 times, while the women's program placed first five times in the final nine years. UCLA was the first university in the country to win five NCAA men's and women's championships in a single year (1981-82).

UCLA also has produced a record number of professional athletes such as Troy Aikman, Eric Karros, Reggie Miller, Natalie Williams, and Corey

Pavin and Olympians such as gold medalists Lisa Fernandez, Karch Kiraly, Gail Devers, and Dot Richardson.

Intercollegiate Athletic Facilities

The major indoor arena at UCLA is the famed **Pauley Pavilion**, which seats 12,800 for UCLA basketball, volleyball, and gymnastics events. It was the site of the 1984 Summer Olympics gymnastics competition. Immediately adjacent, **Drake Stadium** is the home of UCLA track and field competitions and site of many outdoor events, including the U.S. Olympic Festival '91. The **Los Angeles Tennis Center**, a 5,800-seat outdoor tennis stadium and clubhouse, was the site of the 1984 Olympic tennis competition. **Easton Softball Stadium**, which seats 1,050, is the home of the championship women's softball team. The **Morgan Intercollegiate Athletics Center** houses the UCLA Athletic Hall of Fame. Off-campus facilities include **Jackie Robinson Stadium** for varsity baseball and the renowned **Rose Bowl** in Pasadena, home of the UCLA football team.

Men's Intercollegiate Sports

UCLA is a member of the Pacific-10 Conference, which includes Arizona State University; University of Arizona; University of California, Berkeley; Stanford University; University of Southern California; University of Oregon; Oregon State University; Washington State University; and the University of Washington. UCLA teams have won an overall

total of 63 NCAA men's championships — second highest in the nation — including 17 in volleyball, 15 in tennis, 11 in basketball, eight in track and field, five in water polo, three in soccer, two in gymnastics, and one each in golf and swimming. Students can participate on the varsity level in football, basketball, track, baseball, tennis, volleyball, water polo, golf, soccer, and cross-country. For more information, contact the Athletic Office at (310) 825-8699.

Women's Intercollegiate Sports

With 11 different varsity sports, the UCLA women's program is one of the most extensive in the country, and UCLA has played an important role in establishing women's sports as part of the NCAA. Women's teams have won an overall total of 14 NCAA titles — fifth highest in the nation — including seven in softball, three in volleyball, two in track and field, and one each in golf and gymnastics. UCLA has also won three collegiate water polo titles. Other nationally ranked teams are those in basketball, swimming, tennis, cross-country, and soccer. For more information, contact the Athletic Office at (310) 825-8699.

Student Government

In addition to its **Services and Enterprises** division, ASUCLA includes the **Undergraduate Students Association**, the **Graduate Students Association**, and the **Communications Board**, which publishes the *Daily Bruin* and other campus student publications. Governed by a student-majority Board of Directors, ASUCLA operates and manages Ackerman Union, Kerckhoff Hall, North Campus Student Center, and Lu Valle Commons.

Many facets of student life at UCLA are sponsored or organized in some way by student government. Getting involved in the decision-making process can be extremely rewarding and can offer avenues of expression students may not find in other aspects of their university experience.



Graduate Student Government

The Graduate Students Association (GSA) is the official organization representing the interests of UCLA graduate students in academic, administrative, campus, and statewide areas. GSA appoints or elects graduate student members to important campus organizations and committees, including the ASUCLA Board of Directors and the Student Fee Advisory Committee, as well as to departmental student organizations and committees of the Academic Senate. In addition, GSA sponsors various graduate student journals, programs, and social events, including Melnitz Movies (UCLA student film program). GSA also maintains an electronic mail listserv for graduate student government bulletins, agendas, and general graduate student information. The GSA Office is located in 243 Kerckhoff Hall (310-206-8512, e-mail: gsa@asucla.ucla.edu; <http://gsa.asucla.ucla.edu/>).

Undergraduate Student Government

The Undergraduate Students Association (USA), with offices in Kerckhoff Hall (310-825-7068; <http://students.asucla.ucla.edu/>), is governed by the Undergraduate Students Association Council (USAC), which administers the USA operating budget through a network of six officers (president, internal vice president, external vice president, three general representatives) and seven student commissions (Academic Affairs, Campus Events, Community Service, Cultural Affairs, Facilities, Financial Supports, and Student Welfare).

Many **student government programs** benefit both campus and community. The Community Service Commission (310-825-2333; <http://students.asucla.ucla.edu/csc/>) serves Los Angeles through more than 20 programs such as Amigos del UCLA, offering academic and emotional support for Latina/Latino students; UCLA Project BRITE, providing tutoring for inmates of juvenile correctional institutions; UCLA Special Olympics; and UCLA Hunger Project, to name just a few. More than 2,500 students offer their services on a volunteer basis.

Student government also supports approximately 20 student advocacy groups on campus, such as the African Student Union, American Indian Students Association, Asian Pacific Coalition, Gay and Lesbian Association, International Students Association, MEChA, UCLA Jewish Student Union, Samahang Pilipino, and the Union of Students with Disabilities.

The Campus Events Commission (CEC, 310-825-1958; <http://students.asucla.ucla.edu/CEC/>) and Cultural Affairs Commission (CAC, 310-825-6564) provide the campus with free and low-cost cultural and entertainment programming, as well as opportunities for student involvement. CEC is responsible for the Speakers and Concert Programs and the Ackerman Film Program. CAC sponsors WorldFest, a celebration of campus diversity, and the Jazz/Reggae Festival.

The ASUCLA Library (304D Kerckhoff Hall, 310-206-7997, e-mail: library@asucla.ucla.edu; <http://students.asucla.ucla.edu/Library/>) houses materials related to student and campus governance and aims to enhance understanding among students about University issues and to increase student involvement within the UCLA community.

UCLA Campus Events Speakers and Concert Programs

The Speakers Program, now over 25 years old, brings the world's foremost entertainers, politicians, and literary figures to campus. It also presents two annual awards programs — the Jack Benny Award for comedic excellence and the Spencer Tracy Award for outstanding screen performance. Speakers and awardees have included Bill Gates, Oliver Stone, Goldie Hawn, Frances Crick, Johnny Carson, David Letterman, Whoopie Goldberg, John Cleese, Robin Williams, Jessica Lange, James Stewart, Spike Lee, Sir Anthony Hopkins, Harrison Ford, Lily Tomlin, Nicholas Cage, William Hurt, Patricia Schroeder, Jesse Jackson, Matt Groening, Studs Terkel, Shimon Peres, Walter Cronkite, Dustin Hoffman, Candice Bergen, Tom Hanks, and Denzel Washington.

The Concert Program brings new and name performing artists like the Talking Heads, Guns N' Roses, 10,000 Maniacs, Public Enemy, Rage against the Machine, No Doubt, Big Bad Voodoo Daddy, Green Day, A Tribe Called Quest, Digital Underground, and The Pharcyde to UCLA for free and affordably priced concerts at noon in Westwood Plaza and at night in the Cooperage and Ackerman Grand Ballroom.



UCLA Recreation

UCLA offers a variety of recreational opportunities to meet the needs of the campus community. The **Department of Cultural and Recreational Affairs (CRA)**, 2131 Wooden Center (310-825-3701; <http://www.sao-net.ucla.edu/recreate>), is the administrative center for the coordination of programming, facilities, and equipment and supervision of campus recreational activities and services.

Intramural and Club Sports

The **Intramural Sports Program** consists of team, dual, and individual sports competition in tournament or league play. More than 40 activities, ranging from basketball and badminton to volleyball and water polo, are offered in men's, women's, and coed divisions. Varying skill levels are available in almost all activities, and the emphasis is on friendly competition. In order to maintain the quality of service to Intramural Sports participants, nominal individual and team entry fees have been established. The **Club Sports Program** offers students the chance to organize, coach, or participate in sports that fall beyond the scope of intramurals but are not offered at the varsity level. Annually over 18 club teams participate in a competitive schedule of league and tournament play with other college, university, and local area teams. Recognized teams exist in ice hockey, men's and women's rugby and lacrosse, cycling, men's gymnastics, rowing, waterskiing, sailing, snow skiing, and surfing.

Recreation Class Program

A broad range of noncredit recreation classes is available in aquatics, dance, fine arts, martial arts, outdoor studies, tennis, and sports skills. Most classes are designed for beginning and intermediate skill levels. Private lessons in tennis, fitness activities, swimming, racquetball, and golf are also available. Students can also participate in cultural events through art exhibitions, the poetry reading program, museum tours, and theater in Los Angeles outings.

Fitness is offered either as a recreation class or on a drop-in basis. A Fitness Pass must be purchased (\$25 for a four-quarter pass; \$10 for a one-quarter pass) to participate in drop-in fitness classes.

Recreation Clubs

Students with special interests in activities that are primarily instructional or social in nature may pursue their interests through clubs such as amateur radio, chess, snow skiing, golf, swimming, and tennis.

Recreation Facilities/Informal Recreation

A popular attraction of CRA is the opportunity for independent recreation and exercise. UCLA students with appropriate identification have several major facilities in which to practice and play. The **Wooden Recreation and Sports Center** is a comprehensive student activities building with multiple gymnasia, nine racquetball/handball courts, two squash courts, a weight training facility, rock wall, exercise/dance and martial arts rooms, and a games lounge. The **Sunset Canyon Recreation Center** offers year-round activities in an outdoor park setting and features a 50-meter swimming pool, 25-yard family pool, picnic/barbecue areas, multipurpose play fields, an outdoor amphitheater, 10 lighted tennis courts, and various meeting rooms and lounges. The **UCLA Marina Aquatic Center** in Marina del Rey offers sailing, windsurfing, kayaking, canoeing, scuba diving, and rowing classes and activities, as well as the opportunity to sail, kayak, canoe, or row individually. The competitive sailing and rowing club teams are administered through the center. Students also have the use of Pauley Pavilion, Drake Stadium, Sycamore Tennis Courts, Los Angeles Tennis Center, Intramural Fields, Men's Gym, and Dance Building for recreational sports and activities.

Youth and Family Programs

Youth and Family Programs offer an exciting schedule of year-round activities for children 18 months to 17 years. Summer programs include Bruin Kids Day Camp (ages 5 to 12), Camp Explore (ages 12 to 14), UCLA Summer Programs for High School Students, group and private lessons, and special events. Year-round classes are also offered on Saturday mornings. Activities combine play with skill development and deepen the fun in learning.

Student Services

UCLA students enjoy a broad range of benefits and support services that enrich their college careers and help them attain academic and career goals.

Academic Counseling

Many sources of academic counseling are available. Faculty advisers and counselors in each college and school help students with major selection, program planning, academic difficulties, degree requirements, and petitions for exceptions to these requirements.

Advisers in each major department counsel undergraduates concerning majors offered and their requirements, and possible career and graduate school options (see Academic Resources and Assistance in the Undergraduate Study section of this catalog). In addition, special graduate advisers are available in each department to assist prospective and currently enrolled graduate students.

Ashe Student Health and Wellness Center

The Arthur Ashe Student Health and Wellness Center, located at 221 Westwood Plaza, is an outpatient clinic designed especially for UCLA students. Because it is supported by registration fees, a current BruinCard is required for service. Most services are prepaid by registration fees, and students may be seen by appointment or on a walk-in basis. Call (310) 825-4073 for up-to-date fee information. Core (prepaid) services include visits, most procedures, X rays, and most laboratory procedures. Noncore (fee) services, such as pharmaceuticals, injections, orthopedic devices, and some laboratory procedures, are less costly than elsewhere. If students withdraw during a school term, all Ashe Center services continue to be available on a fee basis for the remainder of that term, effective from the date of withdrawal.

The cost of services received outside the Ashe Center (such as the Emergency Room) is *each student's* financial responsibility. Students are strongly encouraged to purchase supplemental medical insurance either through the UCLA-sponsored Medical Insurance Plan (see below) or

other plans that provide adequate coverage. For more information on Ashe Center services, call (310) 825-4073 or see <http://www.sao-net.ucla.edu/health.htm>.

Office hours weekdays are 8 a.m. to 6 p.m. except Tuesday, when service begins at 9 a.m. Patients without appointments and patients with orthopedic or surgery appointments are seen on the first floor; Women's and Men's Clinics, social service, and internal medicine appointments are on the second floor; all other patients with appointments (including immunizations) are seen on the third floor. For emergency care when the Ashe Center is closed, students may obtain treatment at the UCLA Medical Center Emergency Room or UCLA Family Practice on a fee-for-service basis.

Dental care arrangements are available. Call (310) 825-4073 for further information.

Health Education (Pauley Pavilion) offers services and programs that interest, inform, and help students to lead a healthier lifestyle. Outreach programs, such as the Student Health Advocates, provide peer care and educational counseling for health concerns. The programs allow students to be involved in the planning and delivery of many aspects of health care. Call (310) 825-4730.

Men's Health Clinic (second floor) treats male genital and urinary problems, both sexual and nonsexual in nature. The clinic also provides sexual counseling for UCLA's male students. Call (310) 825-4073.

Primary Care (first and third floors) provides outpatient diagnoses and treatment for most health care needs of both men and women. Care is provided by board certified physicians and licensed nurse practitioners. Though complete physicals are available for a fee, a prepaid "Well Exam" is available if students have general health questions or concerns. Students are encouraged to select a clinician who provides ongoing health care. Call (310) 825-4073 to schedule an appointment.

Specialty Clinics provide specialized care when students are referred by Primary Care. Services include dermatology, orthopedics, surgery, gynecology, internal medicine, allergy, ear, nose, and throat, ophthalmology, urology, and neurology. Health clearances, immunizations, and travel shots are available by appointment for a moderate fee. Call (310) 825-4073.

Women's Health Service (second floor) offers comprehensive health care and counseling. Services include routine gynecological examinations, evaluation of gynecologic problems, abnormal pap smear evaluation and treatment, contraception, and pregnancy testing. Counseling for relationships and sexual concerns is also available. Call (310) 825-4073 for appointments or to speak to clinicians.

Supplemental Medical Insurance

UCLA provides a student Medical Insurance Plan (MIP) which is available as a supplement to the services offered at the Ashe Center. MIP provides benefits for certain major medical expenses not covered by the Ashe Center, such as hospitalization, surgery, and emergency room costs.

All international students (graduate and undergraduate) on nonimmigrant visas and all graduate students *must maintain adequate medical insurance coverage* during all periods of enrollment at UCLA. MIP fulfills the University requirement for adequate medical insurance. The MIP fee is included each term in the amount due on the UCLA Student Billing Statement (BAR) for all graduate students and for undergraduate and graduate international students. This is the only way that MIP can be purchased.

Graduate and international students who are insured under *adequate* private medical insurance may waive out of MIP. See Mandatory Medical Insurance Requirement under Registration in the Undergraduate Study and Graduate Study sections of this catalog for a description of what constitutes adequate private medical insurance and instructions for waiving out of MIP. For further information on medical insurance, call the Ashe Center Insurance Office at (310) 825-4073, option 4.

Bruin OnLine

Bruin OnLine (BOL) gives UCLA students, faculty, and staff access to campus network communication services and the Internet. Using a BOL connection from their computers at home or at a campus workstation, students communicate with friends, family, and professors via e-mail, enroll in classes or access student records through URSA, check class availability in the online *Schedule of Classes*, search the UCLA Library via ORION, or connect to a range of campus events, programs, and services.

Bruin OnLine services include dial-up access to the UCLA campus backbone network and the Internet, an e-mail account, and space for personal webpages. BOL internet access software is available at the UCLA Store and can be downloaded from the BOL site (<http://www.ucla.edu/bruinonline/>).

For more information, contact the BOL Helpdesk in 4302 Math Sciences (310-825-7452, option 1, e-mail: consult@ucla.edu).

Campus Ombuds Office

The ombudsperson is a confidential and neutral party responsible for listening and responding to grievances or concerns from any member of the campus community (students, staff, faculty, or administrators). Acting impartially, the ombudsperson may investigate unresolved grievances or facilitate the resolution of problems for which there are no established guidelines and may also, where possible and when requested by the grievant, assist in resolving an issue through mediation (including sexual harassment cases). The ombudsperson is empowered to recommend changes to the University Policies Commission and/or to the chancellor regarding University policies and procedures. The office is located in 1172 Career Center (310-825-7627; <http://www.saonet.ucla.edu/ombuds/>); hours are weekdays 8 a.m. to 5 p.m.

The office is also a designated Sexual Harassment Information Center for students, faculty, and staff, as well as a campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

Central Ticket Office

Tickets for all UCLA events are available at the Central Ticket Office (CTO) in the West Alumni Center (310-825-2101; <http://www.cto.ucla.edu/>).

As part of its service, CTO offers student *discount* tickets to campus athletic and cultural events and local motion picture theaters (current BruinCards must be presented at the time of purchase). Students may also purchase tickets to off-campus events through Ticketmaster, as well as student discount tickets for Los Angeles city buses and tokens for the Santa Monica and Culver City bus systems.

Child Care Services

UCLA Child Care Services (<http://www.childcare.ucla.edu/>) operates four child care centers: Bellagio Center at Sunset Boulevard and Bellagio Drive; Fernald Center at Sunset Boulevard and Royce Drive; Colina Glen Preschool in the Colina Glen faculty housing area at Beverly Glen Boulevard and Nicada Drive; and University Village Center in the University Village family student housing complex at 3233 South Sepulveda Boulevard.

Child care is provided for children two months to five years old (two to five years at the Colina Glen Center and a kindergarten at the University Village Center). Fees range from \$360 to \$835 per month depending on the age of the child, the site, and schedule selected. A limited number of state grants is available at the Bellagio and University Village Centers for eligible student families. Call (310) 825-5086 for more information.

The **Outreach Program** helps parents make off-campus child care arrangements. The program coordinator meets parents the first Monday of each month from noon to 1 p.m. in 2 Dodd Hall and from 4:30 to 5:30 p.m. at the University Village Center for a "Choosing Child Care Forum." For further information, call (310) 825-8474.

The *Working Parents Newsletter* addresses many issues of concern to working parents and is available through department subscription. Call (310) 206-3078 for information.

The **University Parents Nursery School** is a multicultural cooperative school for two- to five-year-old children of UCLA students, faculty, and staff; priority is given to students living in Family Student Housing. Experienced teachers, assisted by co-oping parents, provide a gradual transition from the home to the school environment. Hours are weekdays 7:30 a.m. to 5:30 p.m. There is also a part-time morning program that ends at 12:30 p.m., and an afternoon program from 1:30 to 5:30 p.m. for children two years nine months to five years. The nursery school is located in the UCLA University Village Child Care Complex, 3233 South Sepulveda Boulevard (310-397-2735).

Helpline

UCLA Peer Helpline (310-825-HELP; <http://www.ucla.edu/emergency/helpline.html>) is a crisis intervention and referral hot line staffed by UCLA students and staff members. Students can call and talk to a trained peer counselor about school stress, relationship problems, loneliness, depression, drug problems, suicide, or anything else that is on their mind. Hours are Monday through Thursday 5 p.m. to midnight, Friday through Sunday 8 p.m. to midnight. For more information, contact Clive D. Kennedy, Student Psychological Services, 4223 Math Sciences (310-825-0768).

Office of the Dean of Students

The Office of the Dean of Students (1206 Murphy Hall, 310-825-3871; <http://www.saonet.ucla.edu/dos/>), exists to help students, either directly or by referral, with whatever needs they might have. Direct services include general counseling; sending emergency messages to students; and assisting in understanding University policies and procedures, including grievance procedures regarding student records, discrimination, and student debts.

In addition, the office publishes "Official Notices" in the *Daily Bruin* at various times during the year. Such notices are important, and *all students are held responsible* for the information in them.

The Office of the Dean of Students also plays a role in administering campus discipline and applying the standards of citizenship that students are expected to follow at UCLA. The standards involve complying with the policies and regulations governing this campus and being aware that violation of those policies or regulations can result in disciplinary action. See Student Conduct: University Policies in the Appendix for more information.

Safety and Security

Dial **911** from any campus phone for **police, fire, or medical emergencies** (do not dial an additional 9 to establish an outside line). For non-emergency information, contact the UCLA Police Department at 601 Westwood Plaza (310-825-1491; <http://www.ucpd.ucla.edu>).

The UCLA Police Department provides a free **Campus Escort Service** every day of the year from dusk to 1 a.m. Uniformed community service officers (CSOs) — specially trained UCLA students — are available to walk students, staff, faculty, and visitors between campus buildings and local living areas or Westwood Village. To obtain an escort, call (310) 794-WALK about 20 minutes before one is needed.

The free **Evening Van Service** provides a safe, accessible, and convenient mode of transportation around campus at night. Seven vans driven by CSOs operate Monday through Thursday from 6 p.m. to midnight and provide transportation between Ackerman Union, apartments on the west side of campus, Lot 32, the campus libraries, and the residence halls. For further information or a free brochure, call (310) 825-9800.

Cosponsored by the Women's Resource Center and the UCLA Police Department, **UCLA Sexual Violence Prevention and Education Services** include workshops, self-defense classes, intake counseling, and referrals

to offer practical safety suggestions, increase physical and psychological preparedness, and heighten awareness of the complex issues of rape, sexual assault, and relationship violence. For more information, call (310) 206-8240 or the Crime Prevention Unit at (310) 825-7661.

Cardiopulmonary resuscitation (CPR) and basic emergency care courses are offered by the Center for Prehospital Care (924 Westwood Boulevard, Suite 720) and can be organized most days and times. For more information or to schedule a course, call (310) 794-8797.

The **Office of Environment, Health, and Safety (EH&S)** is dedicated to the reduction of workplace hazards on the UCLA campus and to the promotion of safety at all levels of the University community. EH&S is a consulting resource for UCLA departments and personnel who want to know more about how they can make their workplaces safe. The goal is to make health and safety information more readily accessible and usable and to promote the mission of the University in a safe and healthful manner. Requests for safety information and training, regulatory interpretation and applicability, approval for potentially hazardous procedures, resolution of safety problems, and surveillance and monitoring of persons and workplaces are handled by EH&S. For further information, call (310) 825-5689 or see <http://www.ehs.ucla.edu>.

Police, Fire, or Medical Emergency	911
UCLA Police Department (24 hours)	(310) 825-1491
UCLA Emergency Medical Center (24 hours)	(310) 825-2111
Campus Escort Service (dusk to 1 a.m.)	(310) 794-WALK
Helpline (Monday through Thursday 5 p.m. to midnight, Friday through Sunday 8 p.m. to midnight)	(310) 825-HELP

Services for International Students

The **Office of International Students and Scholars (OISS)** and the **Dashew International Student Center (DISC)** provide services and programs for UCLA's international community, particularly for 2,000 nonimmigrant students. A comprehensive orientation program for these students helps them achieve their academic objectives. Programs throughout the year allow them to share their viewpoints with American students and the community.

The OISS staff, located in 106 Bradley Hall on the west side of campus (310-825-1681; <http://www.saonet.ucla.edu/intl/>), includes professional and peer counselors specially prepared to assist students with questions about immigration, employment, government regulations, financial aid, academic and administrative procedures, cultural adjustment, and personal matters. OISS is also a designated Sexual Harassment Information Center for international students, as well as a campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

In addition, OISS provides visa assistance for faculty, researchers, and postdoctoral scholars.

The DISC, also located in 106 Bradley Hall, seeks to improve student and community relationships and assists international students with language, housing, and personal concerns in addition to sponsoring cultural, educational, and social programs for UCLA students and community members. OISS and DISC frequently offer programs with interethnic and international themes.

Services for Students with Disabilities

The **Office for Students with Disabilities (OSD)**, A255 Murphy Hall (voice 310-825-1501, TDD 310-206-6083, fax 310-825-9656; <http://www.saonet.ucla.edu/osd/>), provides academic support services to regu-



larly enrolled students with documented permanent or temporary disabilities in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Free support services include readers, note takers, sign language interpreters, Learning Disabilities Program, special parking, registration assistance, fee deferments authorized by the California Department of Rehabilitation, on-campus transportation, campus orientation and accessibility, proctor and test-taking arrangements, tutorial referral, housing assistance, support groups, workshops, special materials, adaptive equipment, and referral to the Disabilities and Computing Program. Accommodations are varied and specifically designed to meet the disability-related needs of each student. All contact and assistance are handled confidentially.

For information on the **Disabilities and Computing Program (DCP)**, see Computer Services earlier in this section of the catalog.

Student Legal Services

Currently registered and enrolled students with legal problems can get assistance from attorneys or law students under direct supervision of attorneys. They help students solve legal problems, including those related to landlord/tenant relations; domestic violence and harassment; divorces and other family law matters; accident and injury problems; criminal matters; automobile purchase, repair, and insurance problems; health care, credit, and financial aid issues; consumer problems; and University-related issues. Assistance is available only by appointment from 9 a.m. to 5 p.m. weekdays in 70 Dodd Hall (310-825-9894; <http://www.saonet.ucla.edu/slgs/>).

Student Psychological Services

Student Psychological Services (SPS; <http://www.saonet.ucla.edu/sps.htm>) offers short-term personal counsel and psychotherapy at two locations. The Mid-Campus Office is located in 4223 Math Sciences (310-825-0768); the South Campus Office is in A3-062 CHS (310-825-7985).

Psychologists, clinical social workers, and psychiatrists are available at both locations, offering assistance with situational stresses and emotional problems from the most mild to severe. These may include problems with interpersonal relationships, academic stress, loneliness, difficult decisions, sexual issues, anxiety, depression, or other concerns affecting the personal growth of students.

The service is confidential and free to regularly enrolled students. Students are seen individually or may choose from a number of groups offered each term. Appointments are made on weekdays between 8 a.m. and 5 p.m. Emergency counseling is also available.

SPS is also a designated Sexual Harassment Information Center, as well as a campus Harassment Information Center, available to all UCLA students (see Harassment in the Appendix for more information).

UCLA Alumni Association

Celebrating more than 65 years of serving the UCLA community, the UCLA Alumni Association has nearly 75,000 members, making it one of the largest alumni groups in the nation. Whether a person is a recent graduate, a pioneer Bruin, or somewhere in between, membership in the Alumni Association is the best way to stay connected to UCLA and its growing excellence.

Membership dues enable the Alumni Association to serve as an advocate on campus and to play the vital role of guardian of the value of every UCLA degree. Dues also support programs such as Bruin Fest, Spring Sing, class reunions, and the scholarship program.

The association also offers a plethora of benefits and services. Members can make new friends, pursue lifelong learning, save money, and make a difference. Recently the association greatly expanded its career services program to meet the needs of members. UCLA graduates, Bruin parents, and friends of the University are invited to take advantage of all the association has to offer. It is located in the West Alumni Center, 325 Westwood Plaza (310-825-ALUM; 800-825-ALUM outside Los Angeles County; <http://www.alumni.ucla.edu/index.cfm>).



UCLA Career Center

The UCLA Career Center (<http://www.career.ucla.edu/>) offers career planning and employment assistance free to all UCLA students. Services are located in the Career Center and in two specialized branches: Engineering and Science Career Services in 5289 Boelter Hall and EXPO Internship and Study Abroad Services in 109 Kerckhoff Hall.

Career Planning and Exploration

Career counselors provide assistance in selecting a major, setting realistic career goals, investigating career options, evaluating graduate and professional school programs, and developing skills to conduct a successful job search. Information on local, national, and international internship opportunities can assist students in exploring different career possibilities, making important professional contacts, and obtaining valuable on-the-job experience. The Career Center Library offers a collection of over 3,000 career-related books and directories, videos, periodicals, and other materials. In addition, the Career Center offers workshops on a variety of career-related topics; many are repeated several times each term.

Employment Assistance

Students who need extra money to finance their college degree can find a large volume of part-time, temporary, and seasonal employment leads advertised through the Career Center's 24-hour BruinTraks™ online listings available on the web. Students and recent graduates looking for full-time, entry-level career positions may access hundreds of current professional, managerial, and technical openings in numerous career fields. Seniors and graduate students may participate in BruinView™ campus interviews for positions in corporations, government, not-for-profit organizations, elementary and secondary schools, community colleges, and four-

year academic institutions. Annual career fairs and special events offer additional opportunities to meet potential employers.

University Records System Access

Through University Records System Access (URSA), UCLA students acquire academic, financial, and personal information from their University academic records and enroll in classes. URSA is accessed through **URSA OnLine** at <http://www.ursa.ucla.edu/> or through **URSA Telephone** at (310) 208-0425. URSA operates Sunday from 6 p.m. through 1 a.m. Tuesday and Tuesday through Saturday from 6 a.m. to 1 a.m., including holidays.

For most students, URSA OnLine provides the easiest way to gain real-time access to academic, financial, and personal records. The site is designed with an intuitive visual interface that walks students through the different steps of the procedure they are trying to accomplish, whether it be to check their Student Billing and Receivable (BAR) accounts, change address information, view and print Study Lists or Degree Progress Reports (DPRs), or see term grades. URSA OnLine also provides a convenient way to enroll in classes, to verify enrollment appointment times, and to view real-time enrollment counts.

Students use URSA Telephone to process class enrollment and to add, drop, or exchange classes/sections, sign onto class waitlists, add a class using a permission to enroll number, change the grading basis for a class, obtain a reading of a Study List, and obtain instructor names for all courses. Financial aid information allows students to check the status of financial aid applications, track documents submitted with applications, and verify the amounts of disbursements.

Veterans Affairs and Social Security Services

The Veterans Affairs coordinator, 1113 Murphy Hall, provides information for veterans and eligible dependents about veterans' educational benefits and tutorial assistance; issues fee waivers to dependents of California veterans who are deceased or disabled because of service-connected injuries and who meet the income restrictions in Education Code Section 10652; and certifies student status for recipients of Social Security benefits.

Women's Resource Center

The Women's Resource Center (WRC), located in 2 Dodd Hall (310-825-3945), offers services to all UCLA students, with special focus on gender-related issues and concerns.

The center presents workshops and support groups on many topics, including child care, self-defense, assertiveness training, rape prevention and education, relationship violence, career development, single parenting, health, returning to school, men's issues, and personal relationships. It also offers referrals for medical, legal, and personal counseling, mentoring programs for life, physical, and social sciences majors, and other services both on and off campus. A library includes specialized publications on gender-related issues. In addition, rape services consultants (RSCs) — individuals who provide information, support, and resources for members of the UCLA community who have been raped or sexually assaulted — can discuss options and alternatives, help identify and assist in contacting the most appropriate support services, and answer any questions that may arise. The WRC is also a designated Sexual Harassment Information Center, as well as a campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

Committed to improving the status of women on campus, WRC works with other campus agencies to help women reach their full potential.

Undergraduate Study

Undergraduate Admission

Undergraduate Admissions and Relations with Schools
1147 Murphy Hall
(310) 825-3101
<http://www.saonet.ucla.edu/uars.htm>

The Office of Undergraduate Admissions and Relations with Schools (UARS) invites students to visit UCLA and experience the campus firsthand. The UARS Office offers student-guided individual and group tours of the campus Monday through Friday at 10:15 a.m. and 2:15 p.m. and Saturday at 10:15 a.m. throughout the year; reservations are required. Call (310) 825-8764 for tour reservations or see <http://www.saonet.ucla.edu/uars/prospect/tours.htm>; call (310) 825-3101 for general UCLA admission information or see <http://www.saonet.ucla.edu/uars.htm>.

Applying for Admission

The first step in applying for admission is to obtain the *UC Application for Undergraduate Admission and Scholarships*, which contains all necessary forms and instructions, from the California high school or community college counselor or from any University of California Undergraduate Admissions Office. One application is used to apply to all UC campuses. Students apply to one UC campus for the basic \$40 application fee; an additional \$40 fee is charged for each additional campus selected.

Students then complete the application, taking care to list their desired major and the correct major code for the campus(es) to which they are applying. Mail the completed application and the nonrefundable application fee in the self-addressed envelope included in the application packet.

If students are in high school when they apply (freshman applicant), their self-reported application information is used to make preliminary admission decisions. Do not send the sixth and/or seventh semester high school transcripts. Once admitted, students must submit a final transcript, including a statement of graduation or proficiency, which is used to verify the application information. Students must submit official results of the Scholastic Assessment Test I (SAT I) or American College Test (ACT) and three subject tests from the SAT II; students should request that test results be sent directly to UCLA when they take each test. The tests should be taken by the December test date, as they are part of the review process for admission.

If students have attended or are attending another college when they apply (transfer applicant), their self-reported application information is used to make preliminary admission decisions. Once admitted, students must submit official transcripts from all colleges and universities attended (high school transcripts may also be required), which are used to verify

the application information. Transcripts and other documents cannot be returned or forwarded to other institutions.

When to Apply

Application filing periods for the year 2000 follow. Check the quarterly *Schedule of Classes* for updates or see <http://www.registrar.ucla.edu/calendar/>:

Winter Quarter 2000	Closed to new applicants
Spring Quarter 2000	October 1-31, 1999 (If open to new applicants, junior-level applicants only.)
Fall Quarter 2000	November 1-30, 1999 (Freshmen and transfers)

All majors are open for Fall Quarter. For Spring Quarter all majors in the College of Letters and Science, except communication studies, are open; majors in the Schools of Engineering and Applied Science, Nursing, Arts and Architecture, and Theater, Film, and Television are closed.

Notification of Admission

Students are mailed a notice from the UC Undergraduate Application Processing Service acknowledging receipt of their application. Later, they receive a letter from the UCLA Office of Undergraduate Admissions and Relations with Schools regarding the admission decision. The length of time before admission notification varies. In general, Fall Quarter applicants are notified in mid-March (freshmen) and mid-April (transfers); Spring Quarter applicants are notified in mid-December.

Students who are offered admission are asked to sign and return a Statement of Intent to Register and a Statement of Legal Residence. A nonrefundable \$100 deposit, also required at this time, is applied to the University registration fee as long as students register in the term to which they are admitted.



Entrance Requirements

The entrance requirements established by the University of California follow the guidelines set forth in the California Master Plan for Higher Education, which requires that the top one eighth of the state's high school graduates be eligible for admission to the University of California. These requirements are designed to ensure that all eligible students are adequately prepared for University-level work and are based on the principles that the completion of certain academic courses in high school prepares them to begin University work and choose a general field of study. Further, the grades earned in these courses indicate whether students will be successful in college-level courses.

Fulfilling the minimum admission requirements, however, does not assure admission to UCLA. The selection of applicants is based on demon-

strated high scholarship in preparatory work, which often goes well beyond the minimum eligibility requirements. UCLA offers admission to those students with the best overall academic preparation.

At least 50 percent of the freshman class is selected on the basis of academic criteria alone. The remainder of the class is selected after a comprehensive review that takes into account both academic and personal elements. Criteria include a progressively challenging academic program, participation in activities that develop academic or intellectual abilities, honors and/or awards, leadership in school or community, and responses to life challenges. Contact Undergraduate Admissions and Relations with Schools for further information.

Admission as a Freshman

Students are considered freshman applicants if they have not enrolled in a regular session of any college-level institution since graduation from high school (except for summer session immediately following high school graduation). To qualify for admission as a freshman, students must meet three major requirements: the **Subject Requirement**, the **Scholastic Requirement**, and the **Examination Requirement**. These are the **minimum** requirements for admission to the University; meeting them does not automatically assure admission to UCLA.

A series of changes in the minimum eligibility requirements for freshman applicants are being gradually implemented over three years, beginning with students entering UCLA in Fall Quarter 2001. Contact Undergraduate Admissions and Relations with Schools for further information.

Subject Requirement

Outlined below are the high school academic courses required for admission to the University of California. Each course must be completed with at least a grade of C. The requirement consists of 15 year-long courses, seven of which must be taken during the last two years in high school. These are the **minimum** courses required for admission; students are encouraged to exceed these requirements whenever possible.

History/Social Science

Two years of history/social science, including one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government; and one year of world history, cultures, and geography.

English

Four years of college preparatory English that include frequent and regular writing, and reading of classic and modern literature. No more than two semesters of ninth-grade English can be used to meet this requirement.

Mathematics

Three years of college preparatory mathematics that include the topics covered in elementary algebra, geometry, and advanced algebra (four years are recommended, including trigonometry and calculus). Mathematics courses taken in the seventh and eighth grades may be used to fulfill this requirement if the high school accepts them as equivalent to its own courses.

Laboratory Science

Two years of laboratory science (three years are recommended) which provide fundamental knowledge in at least two of these areas — biology, chemistry, and physics. Laboratory courses in Earth/space sciences are acceptable if they have requisites or provide basic knowledge in biology, chemistry, or physics. No more than one year of ninth-grade laboratory science can be used to meet this requirement.

Language Other than English

Two years of the same language, other than English (three to four years are recommended). Courses should emphasize speaking and understanding and include instruction in grammar, vocabulary, reading, and composition.

College Preparatory Electives

Two units (four semesters), in addition to those required above, to be selected from the following subject areas: history, English, advanced mathematics, laboratory science, language other than English, social science, and visual and performing arts.

Scholastic Requirement

Eligibility for admission to the University of California is based on a combination of the grade-point average (GPA) in the academic subject requirements and the American College Test (ACT) or Scholastic Assessment Test I (SAT I) scores. For detailed scholarship information, see the UC publication *Introducing the University* or contact Undergraduate Admissions and Relations with Schools.

Examination Requirement

All freshman applicants must submit scores from the following tests:

(1) Either the American College Test (ACT) composite score OR the Scholastic Assessment Test I: Reasoning Tests (SAT I) total score.

(2) Three Scholastic Assessment Test II: Subject Tests (SAT II) which must include

- (a) Writing AND
- (b) Mathematics, level 1 or 2, AND
- (c) One additional test (either English literature, foreign language, science, or social studies).

The tests should be taken by the December test date, as they are part of the review process. Students should request that test results be sent directly to UCLA when they take each test.

Admission Selection

Many elements are considered in the selection process, but the primary ones are (1) academic grade-point average, (2) scores on the SAT I or ACT and the three SAT II tests, (3) quality, content, and level of coursework throughout the entire high school program, including the senior year, and (4) number of and performance in honors and advanced placement (AP) courses.

Students should take as many honors and advanced placement courses as possible and should try to exceed the minimum academic subject requirements in all subjects, particularly mathematics, laboratory sciences, and foreign languages. High test scores are necessary in conjunction with strong performance in classes and a consistent pattern of academic courses. Overall performance must be well above average.

For detailed information on admission requirements for freshman students, see the UC publication *Introducing the University* or contact UARS.

Admission as a Transfer Student

Students are considered transfer applicants if they have been a registered student (1) at another college or university or (2) in college-level extension courses. (This does not include attending a summer session immediately following high school graduation.) They **may not disregard** their college record and apply for admission as a freshman. Priority is given to junior-level applicants. Students who wish to transfer to UCLA should follow these general guidelines:

The number of advanced standing students applying to UCLA has increased significantly during the last several years. Students admitted to the University exceed the minimum University of California transfer eligibility requirements, and those with the strongest preparation and performance are offered admission.

In accordance with the California Master Plan for Higher Education, first preference is given to California community college applicants. Applicants transferring from other UC campuses are next in priority, followed by applicants transferring from other colleges and universities. Each application receives a comprehensive review, integrating all available information.

The academic criteria are as follows: grade-point average (GPA) in transferable courses, significant preparation for the major, completion of the English composition and mathematics requirements, and progress toward completion of the Intersegmental General Education Transfer Curriculum (IGETC) or UCLA general education requirements. Applicants who have completed the English composition and mathematics requirements as early as possible in their academic program and who have 90 transferable quarter units by the time they enroll in the University receive priority admission consideration.

For more detailed information on admission requirements for transfer students, see the *UC Application for Undergraduate Admission and Scholarships* and the *UC Answers for Transfers* booklet or contact UARS.

Intercampus Transfers

Undergraduate students registered in a regular session at any campus of the University (or those previously registered who have not since registered at any other school) may apply for transfer to another campus of the University. Obtain the *UC Application for Undergraduate Admission and Scholarships* and submit the required application fees with the application form. The filing periods are the same as those for new applicants (see When to Apply at the beginning of this section). Students who have attended another UC campus and wish to be considered for admission to UCLA must have been in good standing when they left that campus. Intercampus transfers are not automatic; students must compete with all other applicants.

Senior-Level Applicants

Students attaining senior standing are not generally admitted by the University.

Transfer Credit and Credit by Examination

The University awards unit credit to transfer students for certain courses completed at other accredited colleges and universities. To be accepted for credit, the courses must be comparable to those offered at the University, as determined by the Office of Undergraduate Admissions and Relations with Schools (UARS). All courses which meet the criteria are used in determining eligibility for admission. (To convert semester units into quarter units, multiply the semester units by 1.5 — for example, 12 semester units \times 1.5 = 18 quarter units.)

College credit for examinations given by national testing services is generally not allowed, except for the Advanced Placement (AP) Tests given by the College Board and the International Baccalaureate. Contact UARS for more information.

Applicants from Other Countries

Application for Admission

To be considered for admission to the University of California, international students must have completed secondary school with a superior average in academic subjects and have earned a certificate of completion which would enable them to be admitted to a university in the home country.

The application for admission, copies of official certificates, and detailed records of all secondary schools attended should be submitted as early as possible after the filing period opens (see When to Apply at the beginning of this section). This allows time for the necessary correspondence and, if students are admitted, to obtain their passport visas.

Proficiency in English

Students whose native language is not English must have sufficient command of English to benefit from instruction at UCLA. To demonstrate that command, they are required to take the UCLA English as a Second Language Placement Examination (ESLPE) before the term in which they are to register. Failure to sit for the ESLPE results in a hold on student records. Depending on the ESLPE results, students may be required to successfully complete one or more English as a second language

courses. In addition, they are advised to take the Test of English as a Foreign Language (TOEFL) as a preliminary means of testing their ability. Make arrangements for this test by contacting TOEFL/TSE Publications, P.O. Box 6151, Princeton, NJ 08541-6151 (609-771-7100) or at <http://www.toefl.org>. Have the test results sent directly to the UCLA Office of Undergraduate Admissions and Relations with Schools.

Mandatory Medical Insurance Requirement

UCLA requires, as a condition of registration, that all **undergraduate international students** on nonimmigrant visas have *adequate* medical insurance coverage during all periods of enrollment. See Mandatory Medical Insurance Requirement for International Students under Undergraduate Registration later in this section.

Readmission

Undergraduate students are required to apply for readmission only if they are absent from the University for more than one term. Thus, if they complete a term and then withdraw, cancel, or fail to register for the next term, registration information is available for the term immediately following.

Students who are absent for two or more consecutive terms must complete an Undergraduate Application for Readmission form and file it with the Registrar. All such students returning in the same standing (undergraduate) must file readmission applications by the following dates or, if the deadline falls on a weekend or holiday, on the following workday.

Fall Quarter	August 15
Winter Quarter	November 25
Spring Quarter	February 25

Application forms are available at 1113 Murphy Hall. The completed application must be accompanied by a \$40 application fee (nonrefundable) and transcripts of records from any other institutions (including UCLA Extension) students attended during their absence. The paper records of nonregistered students, including transcripts submitted for transfer credit, are retained for five academic years by the Registrar's Office. Students who have not been registered for the last five years must resubmit official transcripts of all work completed outside UCLA. Readmission is generally approved if students were in good academic standing (2.0 grade-point average) when they left the University, if coursework completed elsewhere in the interim is satisfactory, and if readmission applications are filed on time. The college or school may have other academic regulations governing readmission (consult the appropriate counseling office). Contact the readmission clerk at (310) 825-1091 for further information.

Second Bachelor's Degree Applicants

By policy, second bachelor's degrees are not generally granted by the University, except in the School of Nursing.

Undergraduate Registration

Enrollment and Degree Services
1113 Murphy Hall
(310) 825-1091
<http://www.registrar.ucla.edu>

Registration consists of paying fees and enrolling in classes. The UCLA Student Billing Statement (BAR), mailed monthly to students' UCLA mailing addresses by the Student Accounting Office, is used to pay registration fees and other University charges. Enrollment in classes is completed online or by telephone through URSA (University Records System Access). Students must complete both processes by the established deadlines to be officially registered and enrolled for the term.

Paying Fees

Details on **fee payment, enrollment procedures, and deadlines** are in the quarterly *Schedule of Classes*, available for purchase at the UCLA Store several weeks before the beginning of each term. To obtain a copy, write to UCLA Store, Attn: Mail Out, 308 Westwood Plaza, Los Angeles, CA 90024-1645, or call (310) 825-6064. The *Schedule of Classes* is available at <http://www.ucla.edu/registrar.ucla.edu/schedule/>.

Eligible students must pay fees by the applicable deadlines. Payments may be mailed, paid by credit card through URSA OnLine, or deposited in the UCLA Administrative Main Cashier's Drop Slot (1125 Murphy Hall). Payments submitted after the published deadline must be made in person at 1125 Murphy Hall and are assessed an additional \$50 late payment fee.

Mandatory Medical Insurance Requirement for International Students

UCLA requires, as a condition of registration, that all **undergraduate international students** on nonimmigrant visas have *adequate* medical insurance coverage during all periods of enrollment.

The following plans are NOT acceptable and do NOT fulfill the University requirement for adequate medical/health insurance: (1) travel insurance plans of any kind, (2) any plans purchased outside the U.S. and/or not issued by a U.S. company, (3) reimbursement arrangements or vouchers, including those from home governments and consulates in the U.S.

UCLA provides a student Medical Insurance Plan (MIP) that fulfills the University requirement for adequate medical insurance. The MIP fee is included each term in the amount due on the BAR statement for all undergraduate international students. This is the only way that MIP can be purchased.

International students who do not purchase MIP must have an adequate private medical insurance plan with all of the following minimum benefits:

- (1) A *minimum* of \$100,000 in lifetime benefits.
- (2) Coverage of at least 75 percent of medical expenses, with a deductible of \$500 or less and a copayment of 20 percent or less.
- (3) A policy issued in the U.S. by a U.S. carrier.
- (4) Inclusion of Medical Evacuation and Repatriation benefits for those on J-1 or J-2 visas.

If the private medical insurance plan does not meet all of the above requirements, students must purchase MIP.

International students who decide to waive out of MIP because they have adequate private medical insurance must complete the Medical Insurance Waiver Request included each term with the BAR statement and submit the form when they pay their registration fees. Students whose fees are paid by financial aid or other sources must submit their MIP waiver by the published registration deadline each term. Students may waive out of MIP at <http://www.saonet.ucla.edu/health/insuranc/mipforms/auth.html>; the online waiver deadline is two days prior to the official fee payment deadline published in the quarterly *Schedule of Classes* calendar.

This information serves as notice of the mandatory medical insurance requirement; it is each student's responsibility to obtain the necessary information before they register. Changes and exceptions requested after students have registered cannot be honored. MIP cancellation requests must be made to the Ashe Student Health and Wellness Center Insurance Office within 10 days from the MIP effective date.

For all **other undergraduate students**, the MIP fee appears as a voluntary option on the BAR statement and is in addition to the amount due each term. To request MIP, students must select it by marking that item on the remittance portion of the BAR statement. The remittance slip must be returned to the UCLA Administrative Main Cashier by the published registration deadline each term. This is the only way that MIP can be purchased.

For further information on MIP or adequate medical insurance requirements, call the Ashe Center Insurance Office at (310) 825-4073 option 4.

Enrolling in Classes

The quarterly *Schedule of Classes* contains up-to-date listings of class times, meeting rooms, instructors, and all information necessary for enrolling in classes. Using the *Schedule* and with the aid of academic counseling from the school or college advisers, students can assemble a program of courses (see Choosing the Major and Planning a Program later in this section).

Students should plan two or three alternate programs in case their first choice of courses is not available. They may not choose two courses in the same final examination group and should not select classes that conflict in meeting times. If conflicts are unavoidable, consult with the instructor of each course at the first class meeting.

University Records System Access Enrollment

Through **University Records System Access (URSA)**, UCLA students enroll in classes and obtain academic, financial, and personal information from their University records. URSA can be accessed either through **URSA OnLine** at <http://www.ursa.ucla.edu/> or through **URSA Telephone** at (310) 208-0425. URSA operates Sunday from 6 p.m. through 1 a.m. Tuesday and Tuesday through Saturday from 6 a.m. to 1 a.m., including holidays.

The easiest way for most students to enroll is through URSA OnLine, which also provides enrollment appointment times. The site's intuitive interface makes it easy to view course descriptions and times, enroll in classes, add, drop, or exchange classes, sign onto class waitlists, and confirm class enrollment through a printout of the Study List. Students can also check their BAR account, make online credit card payments, and obtain refund information.

By using URSA Telephone, students can obtain enrollment appointment times, enroll in classes, add, drop, or exchange classes, sign onto class waitlists, and confirm class enrollment through a reading of their Study List, which includes the day, time, and location of classes, examination codes, and instructor names. Students may also verify that their registration fees have been paid and that they have no outstanding holds, factors that could effect their ability to enroll. In addition, they may check financial aid information.

In-Person Enrollment

For classes that require written approval or specialized processing, students may enroll at computer terminals at 1113 Murphy Hall Monday through Friday from 9 a.m. to 5 p.m.

Study Lists

At 11:59 p.m. on Friday of the second week of instruction the Study List of enrolled courses becomes "official," and all wait lists are eliminated. Students should obtain a reading of their Study List through URSA after all enrollment transactions. **Students are responsible for all courses and the grading basis as listed on URSA, and they cannot receive credit for courses not listed.** Errors or omissions should be corrected before the academic dean's deadline for changes by petition. Unapproved withdrawal from or neglect of a course entered on the Study List results in a failing grade.

Beginning with the third week of instruction, most changes to the Official Study List can be made with a fee via URSA or require an Enrollment Petition which is available for purchase in the school supplies section at any UCLA Store. Approval signatures are required before processing. If students add a special studies (199) course, they must also bring an approved copy of the Petition for Enrollment in Special Studies 199 Course. Consult the *Schedule of Classes* for deadlines and complete instructions. Note: When retroactive approval is given, in exceptional cases, to drop a course or to change the grading basis, the course and action appear on the official transcript.

Change of College/School or Major

Changing the college/school or major requires the approval of the college/school or department students want to attend. Applications for change of college/school are made by petition, which is available without charge from the college or school office. Change of major petitions are available from the department students want to attend. They may not change majors after the opening of the last term of their senior year.

Undergraduate Fees and Financial Support

Fees

Although the exact cost of attending UCLA varies according to personal habits, tastes, and financial resources, there are some fees that all UCLA students must pay. Each entering and readmitted student is required to submit a Statement of Legal Residence to the Registrar's Office. Legal residents of California are not required to pay tuition at the University. Students classified as nonresidents must pay annual tuition in addition to registration fees, as published in the quarterly *Schedule of Classes* and online at <http://www.registrar.ucla.edu/fees/>. For a full definition of residence and nonresidence, see the Appendix.

Fees are current as of publication but are subject to change without notice by The Regents. See <http://www.registrarucla.edu/fees/> for updates.

Annual Expenses for 1999-00	
University registration fee	\$ 713.00
Educational fee	2,896.00
Ackerman Student Union fee	51.00
Undergraduate Students Association fee	54.00
Wooden Recreation Center fee	36.00
Seismic fee for Ackerman/Kerckhoff	113.00
Total for California residents	\$3,863.00
Nonresident educational fee	3,086.00
Nonresident tuition fee	9,384.00
Total for nonresidents	\$13,437.00

The registration fee covers certain student expenses for counseling service, laboratory and course fees, athletic and gymnasium facilities and equipment, lockers, registration, graduation, and care and treatment on campus by the Ashe Student Health and Wellness Center. This fee is charged whether or not students make use of these services.

Course Materials Fees

The College of Letters and Science and several professional schools are authorized to assess course materials fees for particular courses. The fees may take the form of materials use fees or instructional enhancement fees. Depending on the academic unit, schools either assess these fees at the start of the quarter or based on actual enrollment at the end of the fourth week of instruction. Students are responsible for ensuring that all Study List errors and omissions are corrected prior to this time.

All students in a course with an approved course materials fee are assessed the fee, regardless of major. The fee is nonrefundable once assessed. Students who are approved for a Late Add enrollment in a course

after the fourth week of instruction are required to pay the course materials fees, which are billed through the BAR statement, for the entire quarter.

Other Fees

Miscellaneous fees charged to UCLA undergraduate students include a \$50 charge for late payment of registration fees (after the fee deadline) or late filing of the Study List (after Friday of the second week of classes) and a \$20 late fee if the BAR statement has an unpaid balance in excess of \$25. A \$60 fine is assessed if any check for registration fee payment is returned by a bank for stopped payment, insufficient funds, or any other reason. Minimal charges of \$5 or less are assessed for most petitions and other special requests. A complete list of fees may be found in the *Schedule of Classes*.

Fee Refunds

Students who formally withdraw from the University may receive partial refunds of fees. For the refund schedule and more information, see Withdrawal in the Academics section of this catalog or consult the *Schedule of Classes* for policy details and specific refund dates for each term.

Fee Waiver Requests

Late registration, processing, and penalty fees are waivable on request in writing to the office assessing the fees only if they were incurred through the fault of the University or because a student suffered sudden and debilitating injury or accident.

Reduced Fee Programs

UCLA recognizes the need for undergraduate part-time study in special circumstances. Students who have ongoing family or employment responsibilities or health problems that preclude full-time study may qualify for part-time enrollment.

Students who have approval from their college or school to enroll in 10 units or less may qualify for a fee reduction. Nonresident students pay only half the nonresident tuition fee; residents pay half the educational fee. Students must file the Request for Fee Reduction form with their college or school by Friday of the second week of instruction. Fee assessment is based on total units enrolled as of Friday of the third week of instruction. Students who receive the part-time fee reduction from their academic dean may not also use the UC employee reduction; they must use one or the other.

Estimated Annual Budgets for Undergraduate California Residents

Expenses cover the three regular session terms of the 1999-00 academic year and do not include Summer Sessions. Nonresidents must add \$9,384 annual tuition to their total expenses for an accurate estimate. The budgets are designed to serve as a guide and are subject to change.

	Commuter from Home	On-Campus Housing	Off-Campus Housing
University fees	\$ 3,863.00	\$ 3,863.00	\$ 3,863.00
Books and supplies	902.00	902.00	902.00
Food and rent	2,854.00	7,692.00	6,839.00
Transportation	1,028.00	473.00	701.00
Personal	1,524.00	1,317.00	1,453.00
Total Budget	\$10,171.00	\$14,247.00	\$13,758.00

For more information on housing, contact the UCLA Community Housing Office, 350 De Neve Drive, (310) 825-4491.

Financial Support

Financial Aid Office
A129J Murphy Hall
(310) 206-0400
<http://www.saonet.ucla.edu/fa.htm>

Students do not need to come from low-income families to qualify for financial aid. They must, however, demonstrate financial need, which is defined as the difference between the cost of attending UCLA and the amount that they and their families should be able to contribute. The University expects that students and their families bear as much of the necessary cost of a student's education as their circumstances permit.

The Financial Aid Office publishes a *Financial Aid Handbook* with detailed information. Students can obtain a free copy at the Financial Aid Office, A129J Murphy Hall, UCLA, Box 951435, Los Angeles, CA 90095-1435.

Applying for Financial Aid

The deadline for filing all undergraduate financial aid applications is **March 2** (or the Friday before that date if March 2 falls on a weekend). Because of the limits being placed on financial aid funding, meeting deadlines is more crucial than ever. Applications received after the deadline are considered only if funds are still available. The *Daily Bruin* and other campus media publish information on deadline dates.

Prospective students must first apply for admission to UCLA by filing the *UC Application for Undergraduate Admission and Scholarships* during the filing period (see Undergraduate Admission at the beginning of this section). They can also use the admissions application to apply for undergraduate scholarships.

Free Application for Federal Student Aid

One of the key assumptions of financial aid is that parents, to the extent that they can contribute, have primary responsibility for financing the cost of a student's education. To permit an evaluation of need, all students who apply for need-based aid must provide financial information on the Free Application for Federal Student Aid (FAFSA). If students are financially independent according to the federal financial aid guidelines, their own financial circumstances are analyzed rather than those of their parents.

The FAFSA is used to apply for all federally funded programs, funds administered by UCLA, and Cal Grants administered by the California Student Aid Commission. The FAFSA is available from California high schools and colleges and from the UCLA Financial Aid Office, and should be filed by March 2. Be sure to indicate that a report is to be sent to UCLA by using the UCLA Title IV code: 001315.

Continuing students may obtain UCLA Financial Aid Application Packets beginning in January of each year at the Financial Aid Office. Continuing undergraduate students from foreign countries may pick up a Financial Aid Application for International Students at the same office. No financial aid can be awarded to international students in their first year of attendance at UCLA.

Types of Financial Aid

There are four basic types of aid: scholarships, grants, loans, and work-study employment. Since most students are eligible for several of these, the Financial Aid Office usually offers a combination "package" consisting of some funds that are a gift (scholarship or grant) and some that have to be paid back or earned through employment.

Unless otherwise stated, students must demonstrate financial need to qualify for aid, and they must be making normal academic progress as defined by their college or school, their department, and the Financial Aid Office (for a full definition of financial aid minimum progress standards, see the Appendix of this catalog).

Scholarships

Scholarships are gifts that do not have to be repaid. The Undergraduate Scholarship Program at UCLA rewards academic excellence and provides assistance in meeting the expenses of an undergraduate education. Scholarships are expected to create opportunities for further academic growth and development.

Financial need is a requisite only for University and name (endowed) scholarships other than those listed below. Each year approximately \$300,000 is awarded from the many different scholarship funds. Awards range from \$100 to \$2,000 and are not renewable. Students must reapply each year for continued consideration.

Regents Scholarships

One of the highest honors that may be conferred on an undergraduate student is the awarding of a Regents Scholarship. Unlike other University scholarships, these are awarded for four years to students entering from high school, and for two years to juniors. A UCLA faculty committee selects Regents Scholars on the basis of their exceptional academic achievement and promise. Financial need is not a criterion for this award; scholars receive a yearly honorarium if they have no financial need. Scholars who establish financial need by filing the FAFSA receive a yearly stipend to cover the amount of their need. In addition to the monetary awards, Regents Scholars receive special privileges.

National Merit Scholarships

UCLA sponsors a number of four-year scholarships for entering freshmen who are finalists in the National Merit Scholarship competition. Finalists who are admitted to UCLA must select UCLA as their institution of choice and must meet UCLA's scholarship criteria in order to receive a UCLA Merit Scholarship. Awards range from \$500 to \$2,000.

UCLA Alumni Association Scholarships

Alumni Scholarships are available to California high school graduates who will be UCLA freshmen in the Fall Quarter and to community college transfer students. No financial need is involved, but eligibility requirements exist, and students should have demonstrated leadership ability, be involved in extracurricular activities, and show academic excellence and promise. Alumni Scholarships are merit-based and competitively awarded. Freshman award amounts range from \$500 to \$10,000; transfer awards are \$500 each. The Dr. Ralph Bunche Scholarship Awards, also presented by the UCLA Alumni Association and named in honor of the Nobel Peace Prize laureate and UCLA alumnus, are given to students from historically underrepresented communities. In addition to the monetary awards, Alumni Scholars receive special privileges. Recipients who receive work-study and/or loans as part of a financial aid package receive additional alumni grant monies.

ROTC Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance of \$150 per month during the academic year. Applications for four-year scholarships may be obtained by calling the appropriate department at UCLA — Army, (310) 825-7381; Air Force, (310) 825-1742; Navy, (310) 825-9075 — or by writing to Armed Forces Opportunities, P.O. Box 2865, Huntington Station, NY 11746-2102. When writing, specify which service (Army, Air Force, Navy/Marine) scholarship is desired. Applications for Army scholarships can also be obtained by calling (800) 872-7682. Completed applications should be submitted prior to July 15 (Army) or August 15 (Air Force and Navy) for early consideration, but no later than December 1 (all services) of the year preceding college matriculation. Two-year scholarship applications may be obtained from the appropriate UCLA department and are considered when received.

Grants

Grants are funds that do not have to be repaid and are based solely on need. Whenever awarding policies and funds permit, the financial aid package includes a grant.

Federal Pell Grants

Federal Pell Grants are federal aid awards intended to be the "floor" of financial aid packages. As such, they may be combined with other forms of aid in order to meet the full costs of education. Amounts for 1999-00 range from \$400 to \$3,150, depending on federal funding, and are determined by student financial resources and the family's financial resources. U.S. citizens and eligible noncitizens may apply by filing the FAFSA. The University requires all eligible undergraduates to apply for a Federal Pell Grant.

Cal Grants A and B

California residents who have not completed more than nine quarters or six semesters of college work prior to September 1999 are eligible to apply for a California Student Aid Commission Cal Grant award. The FAFSA and GPA Verification Form are the official applications for these programs. Cal Grant A awards are applied toward registration fees. They are based on need and academic achievement and are renewable each year. Cal Grant B awards are intended to assist low-income families and are renewable annually. First-year freshmen receive a quarterly stipend. In subsequent years recipients receive a stipend plus funds toward educational and registration fees.

State University Grants

These grants provide eligible students with financial assistance from state funds. Awards range from \$100 to \$4,000. All undergraduate students are considered.

Federal Supplemental Educational Opportunity Grants

These awards are federally funded and are granted only to undergraduates with financial need. Awards range from \$100 to \$4,000. Recipients must be U.S. citizens or eligible noncitizens.

Loans

Loans allow students to postpone paying some of the costs of their education until they have completed school. A financial aid offer includes a long-term, low-interest loan.

It is essential that borrowers realize their commitment and responsibility to repay according to repayment schedules. Before accepting a loan, students should assess their total educational debt and their ability to repay following graduation. The University makes every effort to assist students during the repayment of their obligation, but University services, including registration and the release of official transcripts, are withheld if the loan becomes delinquent. Seriously delinquent accounts are referred to a professional collection agency for action. All first-time borrowers must attend a loan entrance interview before their funds are released.

All loan recipients must come to the Student Loan Services Office (A227 Murphy Hall) for a loan exit interview before leaving UCLA for any reason. This interview helps students understand their loan agreement and their rights and responsibilities. If students fail to participate in an exit interview, the University places a hold on their academic records and registration materials. Call (310) 825-9864 for an interview appointment before graduating, transferring, or withdrawing from UCLA.

Federal Perkins Loans

Low-interest Federal Perkins loans are available to all students who are U.S. citizens or eligible noncitizens. Repayment begins six or nine months after students terminate at least half-time study. Repayment terms are fully explained when students accept the loan. Minimum repayment is \$90 per quarter, including interest, up to a maximum of 10 years.

Federal Nursing Loans

To be eligible for a nursing loan, applicants must be U.S. citizens or eligible noncitizens and students in the School of Nursing. Up to \$3,000 is available per academic year. For more information, contact the financial aid counselor either in the Financial Aid Office or in the School of Nursing.

Emergency Educational Loans

Students need not be receiving financial aid to apply for emergency loans. They may borrow up to \$100 for immediate emergency needs; the amount is repayable on the 20th of the month following the month in which the loan was made. To qualify, applicants must be registered UCLA students with satisfactory loan repayment records. Applications are available from the Student Loan Services Office, A227 Murphy Hall.

Federal Family Education Loan Program

Federal Stafford Loans are long-term need-based loans made by banks and credit unions. They are available to U.S. citizens and eligible noncitizens who are enrolled in at least a half-time program at UCLA. Freshmen may borrow up to \$2,625, sophomores up to \$3,500, and juniors and seniors up to \$5,500 per academic year, to a maximum of \$23,000.

Unsubsidized Federal Stafford Loans for Middle-Income Borrowers are not based on need. Although repayment can be deferred until after graduation, interest begins to accrue while students are in school. Students must file a FAFSA to be considered for the program.

Through **Federal Parent Loans for Undergraduate Students (PLUS)** parents may be eligible to borrow up to the cost of a student's education for the academic year minus any estimated financial aid. These loans are not deferrable.

Work-Study Programs

Work-study is a need-based program designed to expand part-time job opportunities for students. The program allows them to work a maximum of 20 hours per week while attending school. An academic year's work-study award may range from \$1,000 to \$1,800, but gross earnings may not exceed the amount awarded.

Under **Federal Work-Study**, the federal government pays a portion of the hourly wage; the employer contributes the balance. Whenever possible, work is related to student educational objectives. Employment may be on or off campus. Hourly pay rates comply with minimum wage laws and vary with the nature of the work, experience, and capabilities. To be eligible, students must be U.S. citizens or eligible noncitizens.

Off-campus community service positions are also available in nonprofit organizations and governmental agencies. Students who are placed in these positions may petition the Financial Aid Office for an increase in work-study funding up to a maximum of \$5,000.

Whether employed on or off campus, students must maintain full-time enrollment (12 units for undergraduates, eight units for graduate students) to be exempt from Social Security and Medicare taxation.

Getting the Bachelor's Degree

College and Schools

The UCLA campus consists of one college and 11 schools, most of which are subdivided into departments. The courses of instruction are administered within the departments.

The **College of Letters and Science** provides a broad, nonprofessionally oriented curriculum leading to both undergraduate and graduate degrees.

The **schools** provide training for specific professions and are authorized to grant professional degrees (for example, Master of Business Administration, Doctor of Education, Master of Public Health). UCLA has 11 professional schools, four of which offer undergraduate degree programs: School of the Arts and Architecture, School of Engineering and Applied Science, School of Nursing, and School of Theater, Film, and Television.

Each college and school has its own degree requirements and is headed by a dean or provost who has final academic authority. Thus, when students attend UCLA, they are enrolled not only at the University of California, Los Angeles campus, but in a specific college or school within the University. Their academic life is governed by the college or school that houses their major.

UCLA offers Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) degrees in a broad range of disciplines. In addition there are a number of special programs and minors that students may complete as an adjunct to their major. The bachelor's degree (only one may be earned) is the culmination of their undergraduate work; master's and doctoral degrees are earned in graduate study.

Student Responsibilities

UCLA provides its students with a wide variety of academic assistance and personal support resources, but it is up to students to realize when they need help and to seek it out. It is also the responsibility of students to keep informed and to comply with the rules, regulations, and policies affecting their academic standing and their life as UCLA students. Consult this catalog, the college and school announcements, and the *Schedule of Classes* for the information needed; watch for official announcements in the *Daily Bruin* and on campus bulletin boards. Meeting academic deadlines, monitoring the Study List for accuracy, completing requisites, and fulfilling degree requirements are all part of their academic duties as students. Living up to their responsibilities adds immeasurably to the value and enjoyment of their education (also see Student Conduct in the Appendix of this catalog).

Choosing the Major

One of the most important decisions students have to make in college is their choice of major — the field of study that represents their principal academic interest and that likely will contribute toward their career goals. Some students select their major at the time they fill out the University's application for admission. A far greater number, however, are undecided about their major.

Students in the College of Letters and Science do not need to declare their major in their freshman year. The college allows them to attend with an undeclared major until the end of their sophomore year. In fact, if students are not certain of their specific academic goals, it is often wise to wait and explore the diversity of subject areas offered at UCLA. Enroll in introductory courses (usually numbered below 100) in a variety of disciplines to learn the scope and vocabulary of the major. It is not unusual for students to become enthusiastic about disciplines previously unfamiliar to them. With careful planning, such courses may also apply toward fulfilling college requirements for whatever major students select. To narrow the choices, carefully consider general college requirements, the description of courses offered in the major, and the departmental requirements for completing the program of study. Look at the books required for each course. Sit in on a few classes and talk with professors during their office hours. Discuss interests and plans with a departmental counselor or faculty adviser, a college counselor, or advisers in the UCLA Career Center.

Certain majors, especially in the arts, theater, film and television, engineering, and the sciences, require **early declaration**. Some have enrollment quotas and allow application by new majors only during a specified term. Students should check with the departmental adviser for the majors that interest them.

In addition, UCLA undergraduate students are limited to between 208 and 216 quarter units, depending on the college or school, to complete the academic program and fulfill all degree requirements. So, if they wait to declare a major, they should not wait too long. In any case, they must declare a major by the beginning of their junior year (90 quarter units).

When students are ready to declare their major, or if they wish to change from one major to another, they should obtain a Petition for Change of Major at the college or school office. There is no fee for the petition.

Planning a Program

New students should obtain academic counseling before enrolling in classes at UCLA (counseling is required in the School of Engineering and Applied Science). Working with a tentative major in mind, they need to plan courses to satisfy all of the degree requirements while staying within the maximum number of units required for graduation. The Orientation program for new students takes them through a step-by-step process designed to insure they enroll in an effective program (see Orientation later in this section). Students who cannot attend Orientation should see their college or school adviser or, if they have selected a major, should make an appointment with their major department adviser before enrolling in classes.

Undergraduate Degree Requirements

In all campus units except the School of Engineering and Applied Science, students are required to earn a minimum of 180 units from all college-level coursework for the bachelor's degree at UCLA. A maximum of 208 units is allowed in the School of Nursing and School of Theater, Film, and Television; in the School of the Arts and Architecture and College of Letters and Science a maximum of 216 units (228 for double majors and special programs) is allowed. In the School of Engineering and Applied Science, the minimum units allowed are between 180 and 200 (depending on the program); 213 maximum units are allowed.

As students work toward a bachelor's degree, they should be aware that in addition to unit requirements there are three types of requirements they must satisfy. The first type consists of Universitywide requirements that all undergraduates must satisfy; the rest vary depending on the major and the college or school that offers it.

- (1) University requirements — Subject A or English as a Second Language (ESL), and American History and Institutions;
- (2) College or school requirements (e.g., credit and scholarship, English composition, general education requirements);
- (3) Department requirements (courses in preparation for the major and in satisfaction of the major).

University requirements are described below. See the College and Schools section of the catalog for a description of the college or school requirements and the Curricula and Courses section for departmental requirements.

University Requirements

The University of California has established two requirements that all undergraduates must satisfy in order to graduate: Subject A or English as a Second Language (ESL), and American History and Institutions. It is each student's responsibility to see that these requirements are fulfilled.

Subject A

Because proficiency in English composition is so important to successful performance in many courses, Subject A is the only requirement for graduation that students must satisfy before entering UCLA or during their first year in residence. They may meet this requirement by

- (1) Scoring 3, 4, or 5 on one of the College Board Advanced Placement Tests in English OR
- (2) Scoring 680 or better on the SAT II Subject Test in Writing OR
- (3) Presenting transfer credit for an acceptable college-level course in English composition (passed with a grade of C or better) at another institution OR
- (4) Passing the Subject A Examination. All freshmen from California high schools should have taken the Universitywide Subject A Examination during the month of May before they enrolled; others take an examination at UCLA early in their first term.

If students do not meet the requirement in one of the ways described above, Academic Senate regulations require them to enroll in either En-

English Composition A or 2 (determined by performance on the Subject A Examination) as early as possible during their first year in residence. Each course must be taken for a letter grade and passed with a grade of C or better. Students receiving a final grade of C– or less must repeat the course during their next term in residence. Satisfaction of the Subject A requirement is a requisite to English Composition 3 and all subsequent English courses.

English as a Second Language

The English as a Second Language Placement Examination (ESLPE) is required of all entering UCLA students whose native language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement. Neither the Test of English as a Foreign Language (TOEFL) nor any other English proficiency test can be submitted or accepted in lieu of the ESLPE. Undergraduate students may take the ESLPE once only. Unauthorized retakes of the examination result in an invalid examination score.

Nonnative-speaking **first-year students** who have taken the Subject A Examination are evaluated on the basis of their Subject A composition and informed if they need to take the ESLPE before the term in which they are to register. Failure to take the ESLPE results in a hold on student records. Results of the ESLPE and the Subject A Examination are reviewed to determine which track (Subject A or ESL) is a more appropriate placement. Students placed in the Subject A track may satisfy the Subject A requirement by following the guidelines listed above. If students are placed in the ESL track, they must complete the requirement by taking the designated courses through the ESL track.

Nonnative-speaking **transfer students** with grades of B or better in the English Composition 3 and English 4 equivalent courses at their transfer institution are exempt from the ESL requirement. Other students must take the ESLPE and may be required to take one or more ESL courses beginning in their first term in residence at UCLA to satisfy the ESL requirement.

Results of the ESLPE are used to determine placement into the required sequence of ESL courses or exemption from the ESL requirement. In the case of a nonpassing score on the examination, students are placed in one or more of the credit-bearing courses — English as a Second Language 33A, 33B, 33C, and 35. Students must begin taking courses during their first term in residence at UCLA and must complete the courses in sequence with grades of C or better (C– or a Passed grade is not acceptable). All units are applied toward graduation but cannot be applied toward general education requirements. Certain ESL courses fulfill major requisite requirements and provide upper division elective units.

American History and Institutions

The American History and Institutions requirement is based on the principle that a U.S. citizen attending an American university should understand the history and public institutions of the U.S. under the federal and state constitutions. Candidates for a bachelor's degree must satisfy the requirement in American History and Institutions by one of the following methods:

- (1) Completing a year's course in American history or American government, or a one-year combination of both, in high school with an average grade of B or better OR
- (2) Completing any one of the following UCLA courses with a grade of C or better, or a grade of Passed:

Afro-American Studies M104A, M104B, M104C, M158A, M158B, M158C, M158E

Asian American Studies M153

Chicana and Chicano Studies M159A, M159B

Economics 183

English 80, 85, M104A, M104B, 115A, 170A, 170B, 171A, 171B, 172A, 172B, 173A, 173B, 173C, 174A, 174B, 174C

Geography 136

History 13A, 13B, 13C, 145A, 145B, 146, 147A, 147B, 147C, 148A, 148B, 148C, 149A, 149B, 150A, 150B, 150C, 151A, 151B, 152A, 152B, M153, 154A, 154B, 154C, 154D, 155A, 155B, 156A through 156H, 157A, 157B, M158A through M158E, M159A, M159B, 160A, 160B, 161, 162, 163, 164

Political Science 40, 114A, 114B, 140A, 140B, 140C, 142A, 143A, 143B, 145B, 145C, 146A

Equivalent courses completed in UCLA Extension or at another college institution, and accepted by the Board of Admissions, may be used to fulfill the requirement OR

(3) Presenting a satisfactory result of the requirement, by examination, as administered at another college or university within the state OR

(4) Scoring 500 or better on the SAT II Subject Test in American History OR

(5) Scoring 3, 4, or 5 on the College Board Advanced Placement Test in American History.

Candidates for an instructional credential, but not for a degree, must take one of the following courses: History 151A, 151B, Political Science 145B, or 145C.

Students attending the University on an F-1 or J-1 visa may petition for exemption from this requirement by showing proof of temporary residence in the U.S.

For more information on this requirement, contact the undergraduate History Department counselor in 6248 Bunche Hall (310-825-3720).

Course Credit and Minimum Scholarship

The grades A through C and Passed denote satisfactory progress toward the bachelor's degree. The grades C– through D– yield unit credit but may not satisfy certain scholarship requirements. Even when they do, they must be offset by grades of C+ or better in other courses.

In order to qualify for a bachelor's degree in any college or school at UCLA, students must earn at least a C (2.0) average in all courses taken at any University of California campus. Students who fail to maintain this level may be placed on academic probation or may become subject to dismissal.

Petitions

A petition is a form submitted to explain a student's need or desire to be excepted from any standard rule or regulation of the University. It is the only way to obtain formal approval from the department, the college or school, the Registrar, or whoever has authority over the particular request. Some petitions carry a small fee; others are free.

An approved petition for a waiver or substitution in degree requirements represents an agreement between students, their college or school and, in some cases, the department chair, granting students an exception from the existing regulations.

Petitions are also used at UCLA to change the college/school or major, take more or fewer units than regulations permit, make changes to the Study List after URSA processing ends, or obtain credit by examination. In addition, students may petition for concurrent enrollment, double major, or waiver of scholarship requirements. Petitions for most of these exceptions are available from the college/school or department; consult the *Schedule of Classes* for details about procedures.

Academic Probation

Students are placed on probation if their overall grade-point average falls between 1.5 and 1.99 or if they do not earn at least a 2.0 GPA in any one term. While they are on probation, they may not take any course on a Passed/Not Passed basis, and they may have to limit their Study List to 12 units.

Probation ends at the close of a regular term if students have attained a C (2.0) average for the term and a cumulative C average in all University

work. Students who do not end probation within two terms are subject to dismissal.

Academic Dismissal

Students are subject to dismissal from the University under any of the following conditions:

- (1) If their grade-point average in any one term is less than 1.5 OR
- (2) If they do not earn at least a C (2.0) average in any term when they are on probation OR
- (3) If they do not end probation within two terms.

If students are subject to dismissal, their transcripts carry that notation. They should make an appointment with their college or school counselor. Depending on the situation, they are given conditions for continuation or are dismissed from the University.

The college or school counselor can explain the conditions for readmission if students wish to return to the University after dismissal (see Readmission earlier in this section).

Progress toward the Bachelor's Degree

The undergraduate curriculum at UCLA is designed as a four-year curriculum. In order to graduate in four years, students need to complete at least 45 units during each academic year, not just the 36 required for "minimum progress." In the absence of special circumstances justifying slower progress, they should plan to complete 45 units per year, in an arrangement of courses appropriate to their needs. Students should consult their college or school counselor if they have questions or need advice.

Each college and school enforces minimum enrollment or minimum progress regulations. Students may be subject to disqualification for failing to meet minimum progress requirements. Check with a college or school counselor. Read the degree requirements section under each college and school for specific Study List limits. See the Academics section of this catalog for information on concurrent enrollment, credit by examination and credit from other institutions, and individual special studies (199) course limitations.

Undergraduate Research

Undergraduate Research Centers

The Undergraduate Research Centers (URC) assist students in the humanities and social sciences (1201A Campbell Hall, 310-825-2935) and in the life and physical sciences (2121 Life Sciences, 310-794-4227) by supporting scholarly, critical, and creative undergraduate research. The centers provide individual research counseling, house the Student Research Program (SRP) and the URC/AAP mentor program, and administer stipends and scholarships for undergraduate research. URC sponsors *Westwind*, *A Journal of Undergraduate Writing and Research* and *The Undergraduate Science Journal*, and organizes campuswide undergraduate research events such as the Humanities and Social Sciences Undergraduate Research Conference and Science Poster Day. In addition, URC coordinates the Summer Research Program for Undergraduate Research Scholars. Website: <http://www.college.ucla.edu/ugresearch/centers.html>.

Student Research Program

Housed in each Undergraduate Research Center, the Student Research Program (SRP) offers undergraduate students, especially lower division undergraduates, opportunities to become actively involved in the University research community. Working with faculty members on research projects, SRP students gain valuable research training and experience for advanced undergraduate work and preparation for graduate school. Students earn transcript notation after completing 60 to 100 hours of research (approximately six to 10 hours per week). There is no minimum grade-point average. Website: <http://www.college.ucla.edu/up/SRP/>.

Undergraduate Research Development Stipend

Undergraduate Research Development Stipend (URDS) awards are available on a competitive basis and by application for undergraduate students who have financial need and who want to participate in two terms of research through the Student Research Program. The commitment to the SRP project is for Winter and Spring Quarters, and stipends are set at \$1,000 per term. Applications are accepted during Fall Quarter only, and the deadline for submission of applications is late November. Website: <http://www.college.ucla.edu/up/SRP/srpstip.htm>.

Academic Research Courses

All academic departments offer undergraduate research courses that allow students to obtain academic credit for their research experiences. Students enrolled in the courses are often upper division students with Student Research Program experience. Department requirements for credit vary, but all departments require a research proposal to enroll in independent studies and a research report to receive credit when the research project is completed. Senior students working toward honors or highest honors in many majors must complete a two-term (or more) research project that culminates in an honors thesis. Arrangements must be made with a faculty mentor before students can register for the course. See the undergraduate adviser in the department of interest for more information.

Center for Academic and Research Excellence

The Center for Academic and Research Excellence (CARE), located in 2103 Life Sciences (<http://www.lifesci.ucla.edu/CARE/>), provides enrichment opportunities for students majoring in the sciences and mathematics who seek careers in scientific research and teaching and whose success through graduate training will increase the numbers of historically underrepresented individuals in academic and technological fields. CARE offers a variety of research opportunities during the academic year and summer that allows students the financial support to dedicate themselves to research. CARE programs, some sponsored by grants through federal agencies such as the National Institutes of Health (NIH) and the National Science Foundation (NSF), are for UCLA students as well as students from other universities.

Academic Resources

A broad range of options at UCLA can lend an added dimension to the undergraduate academic program. Other services and programs available to both graduate students and undergraduates are listed in the About UCLA section of this catalog.

Center for American Politics and Public Policy

The Center for American Politics and Public Policy (CAPPP) selects 25 to 30 undergraduates each fall and spring to participate in its Quarter in Washington, DC Program, which offers an exciting opportunity to combine UCLA courses with research and field experience in areas directly related to the policy-making process of the federal government. Students live in the Washington area for 12 weeks, dividing their time between courses taught by UC faculty and a part-time field placement position. They are registered as UCLA students and earn academic credit for the courses taken. Most of the courses emphasize politics and public policy. The core course carries political science credit. Efforts are also made to provide at least one course in a subject other than political science, such as art or history. All courses take advantage of Washington's unique resources for study and research.

CAPPP administrators help students find a field placement, which is central to a research seminar each student takes, in a Washington organization. Washington field placement locations have included the American Enterprise Institute, CNN, Carnegie Endowment for International Peace, General Accounting Office, Heritage Foundation, Japan Economic Institute, Justice Department, Office of National Drug Control Policy, Senator Edward Kennedy's Office, Treasury Department, and others. For further

information and applications, contact the CAPPP Office in 4250 Public Policy Building (310-206-3109, e-mail: cappp@issr.ucla.edu; <http://www.sscnet.ucla.edu/issr/cappp>).

Center for Experiential Education and Service Learning

The Center for Experiential Education and Service Learning (CEESL), formerly known as Field Studies Development, strives to enhance the quality of undergraduate education at UCLA by offering students the opportunity to participate in "experiential" learning. In courses supported by CEESL, students work outside the classroom at internships or public service positions and use their experiences as the basis for academic projects. In this way, students participate in their communities and gain insights into a range of professional fields, while applying and testing academic theories firsthand. CEESL is located in 160 Powell Library (310-825-7867; <http://www.oid.ucla.edu/Ceesl/>).

A variety of exciting field placements is available to students either in the form of internships or short-term projects such as community service work, local industry and business positions, and out-of-state opportunities. Students combine service experiences with research and writing to receive academic credit. For example, a CEESL student interning at a talent agency researched and wrote a paper on racial stereotypes in the acting profession; a student working with ESL students at an elementary school wrote a paper on the politics of English-only legislation and its impact on teaching; students volunteering at a health clinic researched and produced educational pamphlets on AIDS prevention in Russian and Armenian for recent immigrants in the community.

Supported Courses

Every term CEESL supports a variety of unique courses that incorporate community work with course readings, lectures, and discussions. These courses and seminars create opportunities for students to work with an instructor and to interact with their peers in a structured environment. Examples of such courses are Film and Television 192 and Community Health Sciences 195. Courses supported by CEESL are mostly designed for upper division students who have the necessary academic preparation to benefit from out-of-classroom learning opportunities. Lower division students may participate in courses that offer a portion of course credit for community service and fieldwork.

Upper division students looking for a more intensive service or field experience may enroll in immersion programs or in sequential courses. Immersion programs are structured around a block of courses with focus on the study and observation of a single topic (for example, social and cultural stigma). They require a full-time commitment for one or two terms, for which students earn 12 to 16 units per term. The **Developmental Disabilities Immersion Program (DDIP)** and **Sociology Immersion Quarter** (with changing themes) are two long-standing immersion programs. Sequential courses are taken consecutively for two or three terms. Students receive prefield training during the first term and conduct service and research in subsequent terms.

Students may also design individualized service-learning and internship projects to meet their specific academic, personal, and career goals. These are organized through individual studies courses (199 or 199I), in which a CEESL graduate student coordinator helps students develop suitable projects, secure field placements, and identify faculty sponsors.

Each term CEESL publishes a list of service and experience-based courses. Interested students should visit 160 Powell Library for the most recent schedule and speak with a coordinator for more information. The deadline for enrollment in CEESL supported courses is the end of the second week of the term.

Community Service and Internship Sites

All CEESL participants need to secure academically viable placement sites. Hundreds of local and national opportunities are listed in 160 Powell Library and at EXPO Internship and Study Abroad Services. Students may also initiate contact with a site on their own. However, all community

service and internship placements must be approved by a CEESL coordinator.

EXPO Internship and Study Abroad Services

The EXPO Internship and Study Abroad Services, a branch of the UCLA Career Center, offer access to a variety of off-campus learning experiences. Information on the programs or services below is available at 109 Kerckhoff Hall (310-825-0831) or at <http://www.saonet.ucla.edu/career/EXPO.htm>.

UCLA National Internship Program

More than 5,000 UCLA students have learned about the inner workings of government and business while serving in the internship program. Bruins serve full-time internships for one or more terms on the staffs of elected officials, public interest groups, government agencies, and media organizations in Sacramento, Washington, DC, and other U.S. cities. Stipends for students in the program can be arranged.

Los Angeles Internship Program

Local internships are available throughout the year in fields such as advertising, business, film, media, and politics.

International Opportunities

EXPO advises students on study, travel, volunteer, international internship, and short-term work opportunities outside the U.S., offering information on overseas study programs open to UCLA students. EXPO maintains a library of current materials related to study, travel, and other opportunities abroad. International Student Identity Cards and Youth Hostel Cards are also issued.

Freshman and Sophomore Programs

Collegium of University Teaching Fellows

The Collegium of University Teaching Fellows (CUTF) was initiated to provide a mechanism for UCLA's finest advanced graduate students to develop and teach lower division seminars in their area of expertise. These unique courses cover all areas, from the social sciences and humanities to the life and physical sciences. Undergraduate students have the chance to take courses that are at the cutting edge of a discipline and to experience the benefits of participating in a small-seminar environment. General education and honors credit is granted for most seminars, which are offered in Winter and Spring Quarters only (consult the quarterly *Schedule of Classes*). Enrollment is limited to allow students close contact with the instructors. For further information, contact the Office of Instructional Development in 160 Powell Library (310-825-5467; <http://www.oid.ucla.edu/Cutf/index.html>).

Honors Collegium

The Honors Collegium is an innovative educational alternative designed primarily for UCLA's promising freshmen and sophomores. Some upper division courses are also offered. For a complete description of this program, see the College of Letters and Science in the College and Schools section of this catalog.

Lower Division Seminars

Lower division seminars are departmentally sponsored and designed to provide freshmen and sophomores the opportunity to participate in a small classroom setting to enhance writing, verbal, and analytical skills. Many courses carry general education credit.

Professional Schools Seminar Program

The Professional Schools Seminar Program (PSSP) offers seminars that explore topics bridging various academic disciplines and professional practice. Students seeking to define their own academic and career goals gain valuable exposure to (1) research frontiers in the professions, (2) policy and ethical issues, and (3) historical and sociological perspectives on professional practice.

Seminars are offered in Fall, Winter, and Spring Quarters (consult the quarterly *Schedule of Classes*). Enrollment is limited to allow students

close contact with professional school faculty members; lower division students are preferred. Students must satisfy the Subject A requirement before enrolling in these seminars. General education and honors credit is granted for most seminars. For further information, contact the PSSP Office in 160 Powell Library (310-825-5467; <http://www.oid.ucla.edu/Pssp/index.html>).

Individual Classes

Most departments offer the individual studies (199) course for seniors — or juniors with at least a B average — who want to pursue a particular research interest. Students should consult their department or the departmental listings in this catalog for further information.

Individual Majors

Highly motivated students who find that no single major accommodates their specific interest in a given subject may propose designing their own major. Proposals are prepared with faculty guidance and sponsorship and are thoroughly examined for cogency, completeness, and academic merit.

The requirements for an individual major vary with each college and school at UCLA, although maintaining a high scholastic average is usually mandatory. Refer to the Curricula and Courses section of this catalog for major requirements.

Reserve Officers' Training Corps

The University of California, in accordance with the National Defense Act of 1920 and with the concurrence of The Regents, offers courses and programs in military training. This voluntary training allows students to qualify for an officer's commission in the Army, Navy, Air Force, or Marine Corps while completing their college education. ROTC courses are offered by three departments within the College of Letters and Science: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). Equipment, uniforms, and textbooks are provided. The programs provide a monthly stipend in the junior and senior years, and additional financial aid is available to qualified students. Individual programs are described in detail in the Curricula and Courses section of this catalog.

Teaching Careers

Although UCLA has no undergraduate major in education, students may prepare for a career in teaching and/or education on campus. Information is available from the following offices:

(1) **Education Studies Minor** Program Office, 1009 Moore Hall, for information regarding the minor which is described in detail in the Curricula and Courses section of this catalog.

(2) College of Letters and Science Counseling Service, A316 Murphy Hall, for information regarding the **Diversified Liberal Arts Program** which is described in detail in the Curricula and Courses section of this catalog.

(3) UCLA Center X (1041 Moore Hall, <http://www.gseis.ucla.edu/x/x.html>) for information about the **Teacher Education Program** which offers both a Master of Education (M.Ed.) degree and a Cross-Cultural Language and Academic Development (CLAD) or Bilingual Cross-Cultural Language and Academic Development (BCLAD) Credential in a combined, full-time two-year program.

(4) The Department of Mathematics for details on the **Mathematics/Education Program** which is jointly sponsored by the Department of Mathematics and UCLA Center X of the Graduate School of Education and Information Studies. In their junior year, mathematics majors who have a grade-point average of 3.0 or better and a firm commitment to teaching in urban public schools begin to take introductory education courses. In the senior year, while completing the bachelor's degree in mathematics, students begin teacher-education courses. Students earn a master's in education and a teaching credential in one academic year and two summers beyond the baccalaureate. A similar program for science majors is

planned for Fall Quarter 1999; contact Dr. Arlene Russell, 1037A Young Hall, for details.

(5) UCLA Career Center, for information on employment opportunities in teaching and education.

(6) UCLA Graduate School of Education and Information Studies, Office of Student Services, 1009 Moore Hall, for information on master's and doctoral degree programs in education and current information on requirements for various instructional credentials.

Advising and Academic Assistance

UCLA's academic standards are high, and many students find they need some form of academic assistance. Help is available in several forms: staff and student counselors, faculty advisers, services, and special programs. Students need only to seek it out. This section introduces them to the many kinds of assistance available to undergraduates. Refer to the section on Student Services in the About UCLA section of this catalog for other helpful programs.

College and School Advisers

Each college/school and academic department at UCLA has a staff of academic counselors and advisers who are knowledgeable and experienced. They are eager to help students plan their academic program, monitor their progress toward the bachelor's degree, provide information about college/school and major requirements and requisites, and assist them with academic problems, improving study habits, and program planning. See the *Schedule of Classes* for a listing of counselors and advisers.

Counseling Assistants

Counseling assistants (CAs) in the College of Letters and Science are graduate students who help lower division students with course selection, major requirements, and graduate school information. Many CAs have served as teaching assistants (TAs) and can give unique perspectives on courses and faculty, in addition to academic advice and referrals to student support services. Appointments can be made at Window 1, A316 Murphy Hall (<http://www.college.ucla.edu/up/ca/>). CAs are also available on a walk-in basis on weekday afternoons in Covell Commons and in selected departments across campus.

ASK Peer Counselors

The ASK Peer Counseling Program is an extension of the College of Letters and Science Counseling Service. ASK peer counselors are undergraduate students in the college trained to provide counseling and respond to students' immediate concerns and questions in convenient walk-up settings. No appointments are required. Counselors can provide most petitions, give directions, make referrals, and bridge the gap between campus life and the college office in Murphy Hall.

Students can find ASK counselors weekdays when school is in session at these campus locations: Campbell Hall (southwest corner), Royce quad, and Powell Library (southeast corner) from 10 a.m. to 2 p.m.; the ASK Web Lab, A316C Murphy Hall, from 10 a.m. to 3 p.m.; and adjacent to 1105 Murphy Hall from 10 a.m. to 4 p.m. Students may also e-mail questions to ASK@hup.ucla.edu.

Orientation

Orientation at UCLA provides a comprehensive introduction to campus life. During the summer and before the beginning of Winter and Spring Quarters, special programs offer new undergraduates extensive academic counseling and educational planning. During Orientation students work in small groups with peer counselors and gain insight into necessary academic skills, learn how to plan and construct their academic program, and become familiar with the educational opportunities, student services,

and facilities available at UCLA. Individual counseling sessions help students adjust to University life and fulfill the advising requirements of their college or school. Sessions for family members are also offered.

During the summer, Orientation offers three-day, two-night residence hall live-in programs for first-year students and one-day programs for transfer students. Prior to Winter and Spring Quarters, a one-day program is offered. There is a fee for participation. For more information, contact the Orientation Office in 201 Covell Commons (310-206-6685; <http://www.college.ucla.edu/up/ORIENTATION/>).

College Tutorial Services

College Composition and ESL Tutorials

The College Composition Tutoring Laboratory (<http://www.college.ucla.edu/up/CT/>), in cooperation with the UCLA Writing Programs, offers individual assistance to students enrolled in English Composition A, 2, and 3 and to students writing papers for other UCLA courses. The laboratory is staffed by trained undergraduate peer tutors who have shown outstanding ability in advanced composition courses and who can help students at any stage of the writing process — from generating and organizing ideas to polishing final drafts.

The College ESL Tutoring Laboratory (<http://www.college.ucla.edu/up/CT/ESL.htm>) assists nonnative-speaking students with English grammar, idioms, pronunciation, listening comprehension, and composition. Priority is given to students enrolled in English as a Second Language 33A, 33B, and 33C, and other ESL courses. Most of the ESL tutors are graduate students pursuing degrees in teaching English as a second language.

Both the Composition and ESL Laboratories are located in 228 Covell Commons and offer free individual tutoring by appointment. For tutoring appointments or further information, call (310) 206-1491.

College Mathematics/Sciences Tutorials

The College Mathematics/Sciences Tutorials, located in 230 Covell Commons, provide an organized by-appointment tutorial program for most introductory courses in biology, chemistry, mathematics, and physics. Trained tutors meet in small group sessions on a weekly basis, teaching methods to improve problem-solving skills and test-taking strategies. Requests for tutors must be made during the first three weeks of the term; early registration is strongly advised. Drop-in tutoring is also offered. Schedules vary each term. For further information, call (310) 206-6965 or 825-7305 or visit http://www.college.ucla.edu/up/CT/math_sci.htm.

College Tutorials for Student Athletes

The College Tutorials for Student Athletes (<http://www.college.ucla.edu/up/CT/athletic.htm>) provide tutoring in the evening and on weekends for intercollegiate athletes whose practice and competition schedules prevent them from participating in other tutorial services. Eligible student athletes can receive regular individual or small group assistance in a wide range of courses, provided they request tutoring within the first four weeks of the term. Trained tutors clarify course content, teach study strategies and, in consultation with course instructors, develop problem-solving exercises and practice examinations to build learning and performance skills.

The coordinator is located in 209 Covell Commons. For appointments and further information, call (310) 825-8699.

Academic Advancement Program

The Academic Advancement Program (AAP), a multiracial program, has a threefold mission: (1) to ensure the academic success, retention, and graduation of its more than 6,500 students, (2) to increase the numbers of its students entering graduate and professional schools, and (3) to develop the academic, political, scientific, economic, and community leadership necessary to transform society in the twenty-first century. Programs are proactive rather than reactive, comprehensive rather than fragmented, and oriented toward furthering the long-term academic and per-

sonal growth of AAP students rather than merely solving immediate problems.

AAP encourages and promotes academic achievement and excellence by providing students with tutoring, academic, personal, and career counseling, graduate mentoring, scholarships, research opportunities and stipends, opportunities to participate in innovative science programs, and a computer laboratory. Freshman and Transfer Summer Programs provide an academic transition into the University for entering students.

Students are eligible for AAP if their academic profiles and personal backgrounds may impact their University experience and their retention and graduation from UCLA. Students are also eligible if they are part of any federally funded program that requires counseling, tutoring, or mentoring. For more information, contact the AAP Office in 1232 Campbell Hall (310-206-1550; <http://www.humnet.ucla.edu/aap/>).

Freshman and Transfer Summer Programs

Two six-week academic summer programs are sponsored by AAP, the Freshman Summer Program (FSP) and the Transfer Summer Program (TSP). Both are designed to introduce students to life at UCLA and to prepare students to succeed at UCLA by exposing them to the rigor and demands of academic life and the wide range of campus programs, services, and learning resources available to undergraduates.

Students enroll in two University courses that meet UCLA requirements for graduation and receive close personal attention, in either small groups or individual sessions, from teaching assistants and tutors. They are encouraged to live on campus so that they can participate in the many cultural and social events, interact with students of diverse backgrounds, build a network of friends, and broaden their life experiences and world outlook. For more information, call (310) 206-1571.

Counseling Services

AAP counselors encourage students to explore their talents and abilities, follow their interests and their passions, believe in themselves, set the highest standards for themselves, and aspire to academic and personal excellence. Counselors, including two science counselors, work with students to plan their academic programs, monitor progress toward the bachelor's degree, provide information about requirements and requisites for different majors, and discuss graduate school and career options.

AAP peer counselors are upper division AAP students who work with entering students and assist them in making the transition to the University. They provide a student perspective on life at UCLA.

Program Leading to Undergraduate Success

The Program Leading to Undergraduate Success (PLUS), a federally funded component of AAP, provides intensive personalized services, including counseling, peer counseling, tutoring, workshops, and social and cultural programs for first-generation college, low-income, UCLA freshmen. Application information is available at 1229 Campbell Hall (310-825-9276, fax 310-825-1312; <http://www.geocities.com/~plus>).

Tutorial Services

Providing tutorial services for more than 450 courses, AAP aims to foster excellence, not remediation. Tutoring is done primarily by AAP undergraduates who are themselves successful upper division students. AAP tutors provide students with the intellectual challenge, encouragement, and personal support they need to recognize their own authority as thinkers and learners. The majority of AAP tutoring is done in small groups, which fosters discussion and allows students to listen to, grapple with, and articulate new and different perspectives.

Graduate Mentor Program

The AAP Graduate Mentor Program (GMP) is grounded in the belief that it is never too early for students to prepare for graduate school and that it is never too late to decide to do so. Graduate student mentors help AAP students prepare for graduate school. The primary goal of GMP is to in-

crease the number of AAP students who enroll in graduate or professional schools.

Instructional Media

The **Instructional Media Laboratory** provides individual student access to course- or textbook-related audio, interactive, and videotape programs. Students, assigned by faculty to study specific supplementary materials, may learn at their own pace and at times that suit their individual schedules. The laboratory is located in 270 Powell Library (310-206-1211; <http://www.oid.ucla.edu/lmlab/>).

The **Instructional Media Library** is UCLA's central resource for the collection and maintenance of educational and instructional media. Materials from the collection are loaned to regularly scheduled UCLA classes and may be rented by organizations and individuals from the campus community and beyond. The library is authorized to monitor compliance with University guidelines and federal copyright law governing the use of video recordings. Reference books from educational and feature film distributors are available. The staff assists in researching media on any subject and obtaining materials from outside sources. The library is located in 46 Powell Library (310-825-0755; <http://www.oid.ucla.edu/lmlib/>).

Academic Excellence

Eligible students receive the following honors and awards in recognition of academic achievement.

Dean's Honors List and Provost's Honors

The School of the Arts and Architecture, School of Engineering and Applied Science, and School of Theater, Film, and Television award Dean's Honors to deserving students each term, while the College of Letters and Science awards Provost's Honors each term. The School of Nursing awards Dean's Honors on an annual basis. These honors are based on the grade-point average attained within a specified number of units. Consult the college or school for further information.

Honors at Graduation

The college or school awards honors according to overall GPA at graduation. **To be eligible students must have completed at least 90 (98 for the School of Nursing) University of California units for a letter grade.**

The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. Specific requirements vary for each level and are detailed in the College and Schools section of this catalog. See the quarterly *Schedule of Classes* for the most current calculations of Latin honors.

Departmental Honors

In the College of Letters and Science, departmental honors and highest honors are awarded at graduation on the recommendation of a student's major department, based on successful completion of a departmental honors program. Students should consult their department for its requirements.

Departmental Scholar Program

Departments in all campus units except the School of Nursing may nominate exceptionally promising juniors and seniors as UCLA Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. Nominations are submitted to the college or school dean or provost for recommendation to the dean of the Graduate Division. Students interested in becoming Departmental Scholars should consult their departments well in advance of application dates for graduate admission (see the Calendar at the beginning of this catalog).

Honor Societies

Alpha Lambda Delta and Phi Eta Sigma

Membership in the national freshman honor societies is based solely on academic achievement during the freshman year. To be eligible students must have a 3.5 grade-point average with 12 graded University of California units in the first term of their freshman year, or a cumulative 3.5 GPA at the end of the second and/or third terms. Invitations are issued in Winter Quarter, and initiation is held during Spring Quarter. For more information, contact the Office of the Dean of Students, 1206 Murphy Hall (310-825-3871; <http://www.studentgroups.ucla.edu/aldpes/>).

Golden Key

Golden Key is a national interdisciplinary academic honors organization dedicated to excellence. Students qualify on the basis of objective academic criteria; no more than the top 15 percent of enrolled juniors and seniors may be eligible. The society recognizes and encourages scholastic achievement and excellence in all undergraduate fields of study, unites with collegiate faculties and administrators in developing and maintaining high standards of education, provides economic assistance to outstanding members by means of an annual scholarship for initiates and graduating seniors, and promotes scholastic achievement and altruistic conduct through voluntary service. Invitations are issued in Winter Quarter, and a reception is held in Spring Quarter. For more information, contact the Office of the Dean of Students, 1206 Murphy Hall (310-825-3871; <http://www.studentgroups.ucla.edu/Goldenkey/>).

Mortar Board

Mortar Board (<http://www.studentgroups.ucla.edu/mboard/>) is a national honor society for college seniors which recognizes outstanding and continual scholarship, leadership, and service to the campus community. To be considered for membership, candidates must have completed 90 units and must have attained at least a B average or be in the highest 35 percent scholastically of the junior class, whichever is higher. Applications are available from the Center for Student Programming (105 Kerckhoff Hall, 310-206-5523) and the Office of the Dean of Students (1206 Murphy Hall, 310-825-3871) early in Winter Quarter and are due by mid-February. Approximately 40 members are selected each spring by the outgoing chapter.

Phi Beta Kappa

Phi Beta Kappa is a national honorary society in the humanities, liberal arts, and sciences, founded at the College of William and Mary in 1776. Membership is conferred for high scholastic standing and is determined by vote of the chapter council according to scholarship records. (Students do **not** apply for Phi Beta Kappa membership.)

At UCLA only graduating seniors and selected juniors are elected to membership. The annual election is held in May, with the initiation in June. At present, the minimum grade-point average considered is 3.67 (for 140 or more UC units); the minimum number of UC units considered is 90 (students at the 90-unit level must have at least a 3.85 GPA). A reasonable distribution of courses in the humanities and sciences is also required. A Passed grade is computed approximately as a B, depending on number of courses taken and graded units. Students who are elected are notified by mail. For more information, contact Phi Beta Kappa in the Honors Programs Office, A311 Murphy Hall (310-206-9667; <http://www.college.ucla.edu/up/honors/pbk.htm>).

Outstanding Senior Award

The Outstanding Senior Award offers recognition to graduating seniors who have demonstrated scholastic excellence, creativity in the department, and outstanding service to the University and community. Nominations are accepted during Fall Quarter and close in late January. Awards are presented at the annual UCLA Alumni Association Awards Ceremony in May. Award recipients receive senior class rings and life memberships in the Alumni Association. For more information, contact the UCLA Alumni Association in the West Alumni Center, 325 Westwood Plaza (310-206-0523; <http://www.alumni.ucla.edu/>).

Undergraduate Majors and Degrees

School of the Arts and Architecture

Art	B.A.
Design	B.A.
Ethnomusicology	B.A.
Music	B.A.
World Arts and Cultures	B.A.

School of Engineering and Applied Science

Aerospace Engineering	B.S.
Chemical Engineering	B.S.
Civil Engineering	B.S.
Computer Science	B.S.
Computer Science and Engineering	B.S.
Electrical Engineering	B.S.
Materials Engineering	B.S.
Mechanical Engineering	B.S.

College of Letters and Science

Afro-American Studies	B.A.
Anthropology	B.A., B.S.
Art History	B.A.
Asian American Studies	B.A.
Atmospheric Sciences	
Atmospheric, Oceanic, and Environmental Sciences	B.S.
Chemistry and Biochemistry	
Biochemistry	B.S.
Chemistry	B.S.
General Chemistry	B.S.
Chemistry/Materials Science	B.S.
César E. Chávez Center for Chicana and Chicano Studies	
Chicana and Chicano Studies	B.A.
Classics	
Classical Civilization	B.A.
Greek	B.A.
Greek and Latin	B.A.
Latin	B.A.
Communication Studies	B.A.
Comparative Literature	B.A.
Cybernetics	B.S.
Earth and Space Sciences	
Earth Sciences	B.A.
Geology	B.S.
Geology — Engineering Geology	B.S.
Geology — Paleobiology	B.S.
Geophysics — Applied Geophysics	B.S.
Geophysics — Geophysics and Space Physics	B.S.
East Asian Languages and Cultures	
Chinese	B.A.
Japanese	B.A.
Korean	B.A.
East Asian Studies	B.A.
Economics	
Business Economics	B.A.
Economics	B.A.
Economics/International Area Studies	B.A.
English	
American Literature and Culture	B.A.
English	B.A.
English/Greek	B.A.
English/Latin	B.A.
European Studies	B.A.
French	
French	B.A.
French and Linguistics	B.A.
Geography	
Geography	B.A.
Geography/Environmental Studies	B.A.
Germanic Languages	
German	B.A.
Scandinavian Languages	B.A.
History	B.A.
History/Art History	B.A.
Individual Field of Concentration	B.A.

International Development Studies	B.A.
Italian	
Italian	B.A.
Italian and Special Fields	B.A.
Latin American Studies	B.A.
Linguistics	
African Languages	B.A.
Linguistics	B.A.
Linguistics and Anthropology	B.A.
Linguistics and Computer Science	B.A.
Linguistics and East Asian Languages and Cultures	B.A.
Linguistics and English	B.A.
Linguistics and French	B.A.
Linguistics and Italian	B.A.
Linguistics and Philosophy	B.A.
Linguistics and Psychology	B.A.
Linguistics and Scandinavian Languages	B.A.
Linguistics and Spanish	B.A.
Mathematics	
Applied Mathematics	B.S.
General Mathematics	B.S.
Mathematics	B.S.
Mathematics/Applied Science	B.S.
Mathematics of Computation	B.S.
Mathematics/Economics	B.S.
Microbiology and Molecular Genetics	B.S.
Molecular, Cell, and Developmental Biology	B.S.
Musicology	
Music History	B.A.
Near Eastern Languages and Cultures	
Ancient Near Eastern Civilizations	B.A.
Arabic	B.A.
Hebrew	B.A.
Iranian Studies	B.A.
Jewish Studies	B.A.
Near Eastern Studies	B.A.
Neuroscience	B.S.
Organismic Biology, Ecology, and Evolution	
Biology	B.S.
Ecology, Behavior, and Evolution	B.S.
Marine Biology	B.S.
Plant Biology	B.S.
Philosophy	B.A.
Physics and Astronomy	
Astrophysics	B.S.
General Physics	B.A.
Physics	B.S.
Physiological Science	B.S.
Political Science	B.A.
Psychology	
Cognitive Science	B.S.
Psychobiology	B.S.
Psychology	B.A.
Religion, Study of	B.A.
Slavic Languages and Literatures	
Russian Language and Literature	B.A.
Russian Studies	B.A.
Slavic Languages and Literatures	B.A.
Sociology	B.A.
Spanish and Portuguese	
Portuguese	B.A.
Spanish	B.A.
Spanish and Linguistics	B.A.
Spanish and Portuguese	B.A.
Women's Studies	B.A.
School of Nursing	
Nursing	B.S.
School of Theater, Film, and Television	
Film and Television	B.A.
Theater	B.A.

Undergraduate Minors and Specializations

Minors

John E. Anderson Graduate School of Management

Accounting

Graduate School of Education and Information Studies

Education Studies

College of Letters and Science

American Indian Studies

Anthropology

Applied Developmental Psychology

Arabic and Islamic Studies

Armenian Studies

Asian American Studies

Atmospheric and Oceanic Sciences

Classical Civilization

Cognitive Science

Comparative Literature

English

French

Geochemistry

Geology

Geophysics and Planetary Physics

German

Germanic Languages

Gerontology

Greek

Hebrew and Jewish Studies

Italian

Language, Interaction, and Culture

Latin

Latin American Studies

Lesbian, Gay, Bisexual, and Transgender Studies

Linguistics

Mathematics

Museum Studies

Music History

Naval Science

Near Eastern Languages and Cultures

Neuroscience

Philosophy

Political Science

Portuguese

Russian Language

Russian Literature

Russian Studies

Scandinavian

Spanish

Spanish Linguistics

Teaching English as a Second or Foreign Language

Women's Studies

School of Public Policy and Social Research

Public Policy

Specializations

College of Letters and Science

African Studies

Chicana and Chicano Studies

Computing

Anthropology

Cybernetics

Economics

Geography

Linguistics

Mathematics

Mathematics/Economics

Organismic Biology, Ecology, and Evolution

Psychology

Sociology

Diversified Liberal Arts (Certificate Program)

International Relations

Labor and Workplace Studies

Organizational Studies

Urban Studies

Graduate Study

Graduate Study

The principal characteristic of graduate study is the pursuit of new knowledge through research. At UCLA graduate students benefit from — and contribute to — the resources of one of the outstanding research universities in the country. A distinguished faculty committed to research and teaching, an extensive library system ranked among the best in the nation, and excellent research centers, institutes, and laboratories in virtually every major discipline all provide an extraordinary range of opportunities for graduate endeavor.

Graduate training at UCLA takes place in the classrooms, the laboratories, the libraries, in specialized seminars, through independent research, and in teaching experiences. As a graduate student, education is enriched by the several hundred postdoctoral fellows and visiting scholars from other universities who engage in research and, in some instances, teaching at UCLA every year. This unique research environment promotes the quality of original work and study which is the hallmark of graduate education.

The degree of Master of Arts or Master of Science, or one of several professional degrees such as Master of Business Administration, is intended to develop mastery of a field and prepare students for the practice of a profession. The doctoral degree (Ph.D., Ed.D., and so forth) is designed to prepare students for creative activity and original research, often in association with college or university teaching.

Administration

Graduate Division

The UCLA Graduate Division is responsible for administering policy established by the Academic Senate and its Graduate Council for master's, doctoral, and graduate professional degree programs other than the professional degree programs in law, medicine, and dentistry. It oversees graduate recruitment and admissions (including the recruitment of a diverse student body), fellowships, teaching assistantships, graduate student researcher appointments, and other graduate student support, and the maintenance of high quality standards in all UCLA graduate programs. The dean of the Graduate Division also serves as vice chancellor — academic affairs.

Graduate Council

The Graduate Council is a standing committee of the UCLA Academic Senate. In keeping with the University's commitment to the philosophy of shared governance, the council is responsible for the establishment of policy and standards for graduate education at UCLA; the approval, review, and monitoring of graduate degree programs; and recommendations regarding fellowships and assistantships.

Graduate Adviser

At matriculation, a graduate student usually selects or is assigned a graduate adviser who assists in program planning and completion of degree requirements. Sometimes this role is temporarily assumed by a faculty adviser assigned to the program as a whole. When the student's master's or doctoral committee is established, the chair of the committee assumes the adviser's role.

Graduate Students Association

The Graduate Students Association (GSA) at UCLA shares an equal voice with the Undergraduate Students Association in the governance of the Associated Students. For more details on the GSA, see Student Activities in the About UCLA section of this catalog or visit http://gsa.ucla.edu/~gsa/frame_main.html.

Graduate Admission

Graduate Admissions/Student and Academic Affairs
1255 Murphy Hall
(310) 825-1711

<http://www.gdnet.ucla.edu/asis/infoserv/gdservcs.htm>

Admission Requirements

U.S. applicants to graduate standing must hold a bachelor's degree from a regionally accredited institution comparable in standard and content to that awarded at the University of California. Degrees granted on the basis, for example, of nonacademic prior learning, test scores, and other than organized supervised coursework in academic subjects are not considered comparable. A scholastic average of B or better (or its equivalent if the letter grade system is not used) is required in the last two years of undergraduate coursework and in any postbaccalaureate study.

International applicants who have completed their postsecondary education outside the U.S. are expected to hold a degree, with above average scholarship, from a university or university-level institution. If their examinations have been graded Excellent, Very Good, Good, and Pass, students must have at least a Very Good general rating to qualify for admission. Students who hold a three-year ordinary or pass degree, or who hold a professional diploma in accounting, business, librarianship, social work, physical education, health education, and so forth, or a four-year degree, diploma, or higher certificate from a technical, vocational, or postsecondary specialized school, *should not apply for graduate admission*. Persons with memberships in professional associations such as Institutes of Chartered Accountants, the Institute of Chartered Secretaries and Administrators, and so forth, also do not qualify for graduate admission unless they also hold recognized university-level degrees or titles.

Meeting the minimum requirements does not ensure graduate admission, which is limited by the number of places available in UCLA's schools, college, and departments. Applications are evaluated in terms of scholastic qualifications and formal preparation for the graduate field of study. Departments may have special requirements for admission, which are included under individual departmental listings in this catalog.

Applying for Admission

Applicants are encouraged to apply electronically using the online application available at <http://www.gdnet.ucla.edu>. The paper *Application for Graduate Admission* may be obtained in person or by mail from the prospective school or department.

Applications are accepted Fall Quarter, although some departments also accept applications for Winter and Spring Quarters. Further information is provided in this catalog's departmental listings and in the application brochure. Enrollment in Summer Sessions courses does not constitute admission to graduate standing.

When to Apply

Most departments and schools have deadlines in November and December for the following Fall Quarter. Consult the *Application for Graduate Admission* for specific deadlines for each major. Applications may be considered if received after a program's stated deadline, provided the enrollment limits have not been exceeded.

Supporting papers and materials to be submitted, including official transcripts of record and a \$40 nonrefundable application fee, are specified in the application brochure and at <http://www.gdnet.ucla.edu>. Submitted materials are not returnable.

Graduate Record Examination

Applicants who apply for admission to a department or school that requires Graduate Record Examination (GRE) scores should arrange to take the examination no later than December so scores arrive on time.

GRE scores should be sent directly to the prospective department and not to the Graduate Division.

GRE applications and information about both paper and computer-based testing are available from offices of the Educational Testing Service, P.O. Box 6000, Princeton, NJ 08541-6000. For information on GRE Fee Waivers, write to the associate program director at the above address.

Letters of Recommendation

Most graduate professional schools, departments, and interdepartmental programs at UCLA require applicants to submit three letters of recommendation. Letters typically augment, validate, or explain information provided in the application and should be written by people qualified to analyze students' abilities and academic promise. In some cases, these letters may mean the difference between acceptance and rejection. Letters should be sent directly to the prospective department. Forms to be used are included in the application brochure and at <http://www.gdnet.ucla.edu>.

Mandatory Medical Insurance Requirement

UCLA requires, as a condition of registration, that all **graduate students** and all **international students** on nonimmigrant visas have *adequate* medical insurance coverage during all periods of enrollment. See Mandatory Medical Insurance Requirement under Graduate Registration later in this section.

International Applicants

International applicants should have an academic degree or professional title earned at a university and are evaluated on the basis of grades (marks) and class or rank achieved. Students should submit official transcripts of record, in duplicate, for all college and university work. Specific instructions are given in the application brochure.

Proficiency in English

International students who hold a bachelor's or higher degree from a university in a country where the official language is English and in which English is the spoken tongue and the medium of instruction are exempt from both the **Test of English as a Foreign Language (TOEFL)** and the UCLA English as a Second Language Placement Examination (ESLPE). *All other applicants* must take the TOEFL, administered by the Educational Testing Service in some 95 foreign centers. Applications are available from TOEFL/TSE Publications, P.O. Box 6151, Princeton, NJ 08541-6151 (609-771-7100) or at <http://www.toefl.org>.

Students whose native language is not English are required to take the **UCLA English as a Second Language Placement Examination (ESLPE)** in addition to the TOEFL, before the term in which they are to register. Failure to sit for the ESLPE results in a hold on student records. Those graduate students who believe that their initial ESLPE score is not reflective of their English language proficiency due to having recently arrived in the U.S. may sit for the examination a second time in the subsequent term only (retaking the examination in the same term is not counted as a valid result). In cases where students retake the examination in their second term of study, the most recent examination score is held to be

valid. Unauthorized retakes of the examination result in an invalid examination score. Depending on the ESLPE results, students may be required to complete one or more courses in the English as a Second Language 33 series, beginning in their first term in residence at UCLA. These courses must be passed with a grade of C or better if taken for a letter grade, or B or better if taken on an S/U basis. Students should expect to spend a longer period of time at the University than would normally be necessary to complete a degree program if they are required to take any English as a second language courses. If they do not achieve a minimum score on the ESLPE, their admission is deferred until they have acquired the necessary proficiency in English. Neither the TOEFL nor any other English proficiency test can be submitted or accepted in lieu of the ESLPE.

International students or permanent residents who are not native speakers of English, before they are allowed to serve as teaching assistants, must take and pass either the **Test of Spoken English (TSE)** offered at TOEFL Centers in their home countries or the **SPEAK** examination (institutional version of the TSE) on arrival at UCLA. They can "pass" with a score of 50 or "pass conditionally" with a score of 45 if they also are enrolled in English as a Second Language 32 or 34 at UCLA. Students should consult with their departments to determine if they require a higher score. If students are to serve as teaching assistants during their first term at UCLA, it is very important that they either take and pass the TSE before arrival, or arrive on campus early enough to take the SPEAK examination before instruction begins. UCLA's Office of Instructional Development (OID) conducts the SPEAK testing. Students should contact either their departments or the TA Training Program at (310) 206-2622 or 825-7867 or at <http://www.oid.ucla.edu/TATP/speak.html> for more information and the SPEAK examination schedule.

No Degree Objective

UCLA has no special limited or unclassified categories of graduate admission. Under some circumstances, however, applicants may be admitted for coursework without a degree objective. For example, teachers with a master's degree who wish some refresher study, or international students on a year's stay in the U.S., may wish to apply in this manner. Requirements for admission are the same as those for degree programs, and the academic program must agree to accept the student for the no degree objective (NDO) status. All admission to no degree objective programs, except for students in official Education Abroad Programs, must be specially approved by the dean of the Graduate Division, as must any University financial assistance for students on NDO status.

Duplication of Degrees

The University of California, in general, discourages the duplication of advanced degrees. At the same time, it recognizes that a professional degree does not duplicate an academic one, and that pressing needs may exist for degrees in different areas (see Concurrent and Articulated Degree Programs later in this section). Students who are applying for a second academic degree at the same level or lower than the one they already hold are required to show compelling cause to the department. All degree requirements and University regulations apply just as they do for a first degree. Courses already applied to the earlier degree may not be applied to the second.

Summer Sessions Courses

Enrollment in Summer Sessions courses does not constitute admission to graduate standing, nor does it substitute for the required continuous registration in Fall, Winter, and Spring Quarters. Students who wish to apply Summer Sessions courses to their subsequent graduate program should consult in advance with their departmental adviser. This is also true if they have been readmitted to graduate standing and wish to resume graduate study in Summer Sessions. Information and applications are available from the Office of Summer Sessions, 1147 Murphy Hall. Also see Academic Residence and Transfer of Credit later in this section.

If students take Summer Sessions courses following the award of their bachelor's degree, the grades do not appear on the undergraduate tran-

script (they are included on a separate transcript). After students are accepted by the Graduate Division, Summer Sessions grades are included on the graduate transcript and computed in the grade-point average.

Readmission

Students who are granted a formal leave of absence do not have to apply for readmission if they resume their graduate work in accordance with the terms of their leaves. All other continuing graduate students who fail to register for any regular session, or who fail to complete a term through cancellation or withdrawal, must compete for readmission with new applicants.

Students who have registered at any time as a graduate student at UCLA and are returning after an absence (except a formal leave of absence) must file an *Application for Graduate Admission*. Forms are available from the departments and should be submitted to Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall, UCLA, Box 951428, Los Angeles, CA 90095-1428. The following materials must accompany the application:

- (1) A check or money order for \$40 (nonrefundable) made payable to The Regents of the University of California.
- (2) The Graduate Petition for Change of Major, if appropriate. (Students who are reapplying in a new major should request this form along with the *Application for Graduate Admission*.) The UCLA graduate transcript must also be submitted.
- (3) Transcripts of all academic work completed since registration at UCLA as a graduate student.

Admission to the Schools of Dentistry, Law, and Medicine

Applicants for M.S. and Ph.D. programs in departments of the School of Medicine or Dentistry should apply for admission to the Graduate Division as described above. For admission to D.D.S., J.D., and M.D. degree programs in the Schools of Dentistry, Law, and Medicine, write to the respective schools for their announcement booklets and for information and application procedures.

Special Programs and Training

UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences

The life and basic biomedical sciences departments at UCLA offer a mechanism for a combined recruitment, admission, and first-year program that provides Ph.D. students in the molecular, cellular, and integrative life sciences with maximal choice and flexibility in selecting a research specialization. Through UCLA ACCESS, students are able to select research projects from faculty mentors according to changing perceptions, interests, and goals without regard to traditional departmental boundaries. The first year of each degree program has a common curriculum and advising structure.

The following Ph.D. programs use UCLA ACCESS to recruit and admit students: Biochemistry and Molecular Biology, Microbiology and Molecular Genetics, Molecular Biology, Molecular, Cell, and Developmental Biology, and Physiological Science in the College of Letters and Science; Anatomy and Cell Biology, Biological Chemistry, Experimental Pathology, Human Genetics Microbiology and Immunology, Pharmacology, and Physiology in the School of Medicine. For specific information, refer to the individual department listings in the Curricula and Courses section of this catalog.

Admission

Applicants apply to UCLA ACCESS rather than to an individual department and must have completed an undergraduate major in a life or physical sciences discipline with superior scholastic achievement. Students should have preparation in physics, biology, and chemistry, as well as specialized courses within the major which may include cell biology, neu-

robiology, immunology, structural or computational biology, microbiology, virology, plant molecular biology, developmental biology, biochemistry, or molecular biology. In certain cases, background deficiencies may be remedied concurrently with graduate studies if recommended by the UCLA ACCESS steering committee. In addition to the UCLA *Application for Graduate Admission*, students should submit their scores on the Graduate Record Examination (GRE) General Test (Subject Test is optional) and three letters of recommendation from individuals who can provide direct knowledge of their academic record and potential for superior achievement in independent research. Admission is limited to Fall Quarter.

Applications and further information are available from the Program Coordinator, UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051, or at <http://www.uclaaccess.ucla.edu/NewLookFrame.html>.

First-Year Course Requirements

Individual requirements vary based on background and scientific interest and are determined by the steering committee. In general a formal course of study consists of three lecture courses, three laboratory rotations, and three seminar courses. In addition, participation is required in related activities on an informal basis.

Three survey **lecture courses** to be selected from a list of approved courses maintained in the program office are required (one in molecular biology, one in cellular biology, and an elective in one of several areas).

Students must enroll in one **seminar course** each term that includes reading and reporting on current research literature.

During their first nine months in residence, students rotate for one term each through three **laboratories** selected from the UCLA ACCESS faculty list. They enroll in a 500-level course for six units of credit for each rotation.

An **additional course** in ethics (Microbiology and Molecular Genetics CM234) is required.

All departments participating in UCLA ACCESS consider **teaching experience** to be an integral part of the graduate program. Students are required to complete two terms of teaching beginning in their second year. They are also required to complete a course on approaches and methods for successful teaching.

Transfer to the Degree-Granting Program

Students are admitted to UCLA graduate standing through UCLA ACCESS on a provisional basis for up to four terms. At the end of Spring Quarter, academic progress is evaluated by the steering committee. Students who receive a satisfactory evaluation select a faculty mentor as their doctoral committee chair. With concurrence of the mentor and the degree-granting program, students then transfer from UCLA ACCESS to that program for the remainder of their Ph.D. studies.

In the event students are unable to identify a suitable mentor and program by the end of their first year, one additional laboratory rotation approved by the steering committee is available during the summer quarter. Students who are unable to arrange for a laboratory after four rotations are recommended for release from their provisional graduate standing.

Graduate Cross-Enrollment Program with USC

As an integral part of an Academic Resource Sharing program linking UCLA with the University of Southern California, the Graduate Cross-Enrollment Program makes possible graduate student exchanges in many departments. The program is limited to specialized courses that would not otherwise be available to UCLA students and is in effect only during the regular academic year (not in summer).

Students who have completed at least one term of graduate study at UCLA, are in good academic standing, and have obtained the necessary approvals may enroll in a 501 course through their department. When they have completed the course at USC, their grade is forwarded to UCLA to

be recorded on the transcript (S/U grading only). Only eight units of cross-enrollment courses may be applied toward requirements for the master's degree, and these courses may not be used to satisfy the minimum five-graduate-course requirement. Applications, available from Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall, should be completed before the start of the term in which the course is offered.

UC Intercampus Exchange Program

Students who have completed one term of graduate study at any campus of the University and are in good academic standing may attend another campus as an Intercampus Exchange Graduate Student with the approval of their department chair, the chair of the department or group in which they wish to study at the host campus, and the dean of the Graduate Division at both the home and host campuses. The privilege should be used only by students whose graduate study may be enhanced by work with certain faculty or use of facilities and resources accessible only at another campus.

Although students are considered to be in residence at their home campus, as an Intercampus Exchange Student they have library, health service, and recreation center privileges at the host campus. Grades are transferred to their home campus and entered on the official record.

Applications are available from Graduate Admissions/Student and Academic Affairs and should be filed at least four weeks before the beginning of the term in which students expect to enter the program. The program is available only during the regular academic year (not in summer).

Graduate students may also take advantage of the **Education Abroad Program** described in the About UCLA section of this catalog.

Postdoctoral and Visiting Scholars

The University makes opportunities and facilities available to qualified scholars — those holding doctoral degrees or foreign equivalents — to continue advanced study and research under faculty guidance.

A postdoctoral scholar is one who (1) has been awarded a doctoral degree or the foreign equivalent where at least three years of undergraduate study are requisite to admission to the graduate program, (2) has been awarded a fellowship, traineeship, or equivalent support (including academic appointments such as postgraduate researcher) for studies at the postdoctoral level, and (3) is pursuing a program of research and training under the direction of a faculty member with the approval of the department or research unit, and by the dean of the Graduate Division. Enrollment as a postdoctoral scholar is normally for a period of one to three years and is limited to a period not to exceed five years, including time spent in postdoctoral training at other institutions. Interested candidates should make advance arrangements with the relevant department or research unit.

The same opportunities are made available to visiting scholars — senior scholars and distinguished visitors holding doctoral degrees or foreign equivalents — who wish to pursue independent research or advanced study at UCLA, working with a colleague for a limited time, normally no more than one year. Visiting scholars are distinguished from postdoctoral scholars in that they are not in training under faculty supervision but rather are themselves peers of our faculty, visiting from other universities and institutions where they hold appointments. Visiting scholars ordinarily have adequate support funds from sources outside the University.

Further information on postdoctoral and visiting scholars is available from Graduate Student Support, 1228 Murphy Hall.

Graduate Registration

Enrollment and Degree Services
1113 Murphy Hall
(310) 825-1091
<http://www.registrar.ucla.edu>

Registration consists of paying fees and enrolling in classes. The UCLA Student Billing Statement (BAR), mailed monthly to students' UCLA mail-

ing addresses by the Student Accounting Office, is used to pay registration fees and other University charges. Enrollment in classes is completed online or by telephone through URSA (University Records System Access). Students must complete both processes by the established deadlines to be officially registered and enrolled for the term.

Paying Fees

Details on **fee payment, enrollment procedures, and deadlines** are in the quarterly *Schedule of Classes*, available for purchase at the UCLA Store several weeks before the beginning of each term. To obtain a copy, write to UCLA Store, Attn: Mail Out, 308 Westwood Plaza, Los Angeles, CA 90024-1645, or call (310) 825-6064. The *Schedule of Classes* is available at <http://www.registrar.ucla.edu/schedule/>.

Eligible students must pay fees by the applicable deadlines. Payments may be mailed, paid by credit card through URSA OnLine, or deposited in the UCLA Administrative Main Cashier's Drop Slot (1125 Murphy Hall). Payments submitted after the published deadline must be made in person at 1125 Murphy Hall and are assessed an additional \$50 late payment fee.

Mandatory Medical Insurance Requirement

UCLA requires, as a condition of registration, that all **graduate students** and all **international students** on nonimmigrant visas have *adequate* medical insurance coverage during all periods of enrollment.

The following plans are NOT acceptable and do NOT fulfill the University requirement for adequate medical/health insurance: (1) travel insurance plans of any kind, (2) any plans purchased outside the U.S. and/or not issued by a U.S. company, (3) reimbursement arrangements or vouchers, including those from home governments and consulates in the U.S.

UCLA provides a student Medical Insurance Plan (MIP) that fulfills the University requirement for adequate medical insurance. The MIP fee is included each term in the amount due on the BAR statement for all graduate and international students. This is the only way that MIP can be purchased.

Students who do not purchase MIP must have an adequate private medical insurance plan with all of the following minimum benefits:

- (1) A *minimum* of \$100,000 in lifetime benefits.
- (2) Coverage of at least 75 percent of medical expenses, with a deductible of \$500 or less and a copayment of 20 percent or less.
- (3) A policy issued in the U.S. by a U.S. carrier.
- (4) Inclusion of Medical Evacuation and Repatriation benefits for those on J-1 or J-2 visas.

If the private medical insurance plan does not meet all of the above requirements, students must purchase MIP.

Students who decide to waive out of MIP because they have adequate private medical insurance must complete the Medical Insurance Waiver Request included each term with the BAR statement and submit the form when they pay their registration fees. Students whose fees are paid by financial aid, graduate fellowship funds, or other sources must submit their MIP waiver by the published registration deadline each term. Students may waive out of MIP at <http://www.saonet.ucla.edu/health/insuranc/mip-forms/auth.html>; the online waiver deadline is two days prior to the official fee payment deadline published in the quarterly *Schedule of Classes* calendar.

This information serves as notice of the mandatory medical insurance requirement; it is each student's responsibility to obtain the necessary information before they register. Changes and exceptions requested after students have registered cannot be honored. MIP cancellation requests must be made to the Ashe Student Health and Wellness Center Insurance Office within 10 days from the MIP effective date.

For further information on MIP or adequate medical insurance requirements, call the Ashe Center Insurance Office at (310) 825-4073, option 4.

Enrolling in Classes

The quarterly *Schedule of Classes* contains up-to-date listings of class times, meeting rooms, instructors, and all information necessary for enrolling in classes. Using the *Schedule* and with the aid of academic counseling from the school or college advisers, students can assemble a program of courses.

University Records System Access Enrollment

Through **University Records System Access (URSA)**, UCLA students enroll in classes and obtain academic, financial, and personal information from their University records. URSA can be accessed either through **URSA OnLine** at <http://www.ursa.ucla.edu/> or through **URSA Telephone** at (310) 208-0425. URSA operates Sunday from 6 p.m. through 1 a.m. Tuesday and Tuesday through Saturday from 6 a.m. to 1 a.m., including holidays.

The easiest way for most students to enroll is through URSA OnLine, which also provides enrollment appointment times. The site's intuitive interface makes it easy to view course descriptions and times, enroll in classes, add, drop, or exchange classes, sign onto class waitlists, and confirm class enrollment through a printout of the Study List. Students can also check their BAR account, make online credit card payments, and obtain refund information.

By using URSA Telephone, students can obtain enrollment appointment times, enroll in classes, add, drop, or exchange classes, sign onto class waitlists, and confirm class enrollment through a reading of their Study List, which includes the day, time, and location of classes, examination codes, and instructor names. Students may also verify that their registration fees have been paid and that they have no outstanding holds, factors that could effect their ability to enroll. In addition, they may check financial aid information.

In-Person Enrollment

For classes that require written approval or specialized processing, students may enroll at computer terminals at 1113 Murphy Hall Monday through Friday from 9 a.m. to 5 p.m.

Study Lists

At 11:59 p.m. on Friday of the second week of instruction the Study List of enrolled courses becomes "official," and all wait lists are eliminated. Students should obtain a reading of their Study List through URSA after all enrollment transactions. **Students are responsible for all courses and the grading basis as listed on URSA, and they cannot receive credit for courses not listed.** Errors or omissions should be corrected before the academic dean's deadline for changes by petition. Unapproved withdrawal from or neglect of a course entered on the Study List results in a failing grade.

Beginning with the third week of instruction, changes to the Official Study List can be made with a fee via URSA through the end of the last day of instruction. Consult the *Schedule of Classes* for full enrollment details.

Change of Major

Continuing graduate students may petition for a change of major after discussing plans with the new department. Forms for this purpose are available from the departments and should be filed with Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall. Deadlines are generally the same as those for the graduate admissions procedure, but students should consult with the adviser in the new program before filing an application.

Full-Time Graduate Program

Three courses (or 12 units) per term are considered the normal enrollment for graduate students and are required for students not in doctoral candidacy to be counted for full-time standing in the University's official enrollment records. Therefore, students are directed by their departments to enroll full time whenever possible.

Throughout their appointments, **teaching assistants** are required to be registered and enrolled in at least eight quarter units and **graduate student researchers** in at least 12 quarter units. Those assistants/researchers who take a leave of absence, or withdraw, terminate their appointments. Course 375 for teaching assistants and independent studies at the 500 level for graduate student researchers may be counted in reaching the eight- or 12-unit load.

Graduate students holding fellowships must be enrolled in at least eight units, both before and after advancement to candidacy. The eight-unit minimum required per term may include, among others, the 500 series (individual study or research).

Veterans are required to make normal progress toward the degree as stated by the major department. Information on Department of Veterans Affairs regulations is available from the Veterans Affairs coordinator, 1113 Murphy Hall.

Continuous Registration

Graduate students are normally required to register in all three terms of each academic year, including the term in which their degrees or certificates are to be awarded. Students who are granted a formal leave of absence or are eligible to pay the filing fee for a degree (see below) are exempt from this requirement. They must be registered in order to receive financial aid, use University facilities, or take any University examination except the master's comprehensive or doctoral final oral examination (defense of the dissertation).

Students who fail to register or to file for an official leave of absence by the end of the second week of instruction are assumed to have withdrawn from UCLA. They then have to reapply and compete for readmission with all other graduate applicants if they wish to return to graduate study at UCLA.

Continuing graduate students studying or doing research outside California throughout a term may pay half the registration fee, plus all other fees in full. Petitions for the reduced fee are available from the departments.

Employment and Degree Progress

Policy governing the employment of graduate students considers them primarily as students rather than employees and emphasizes their need to make timely progress toward their degree. Students are limited to a maximum of 12 quarters of appointment in academic apprentice teaching titles and a maximum of 18 quarters in a combination of academic apprentice teaching and research titles. Appointment to any title limits employment to 50 percent time during the academic year.

University policy prohibits the employment of graduate students in academic titles. This policy was established to ensure that students (1) make timely progress toward their degree, (2) not be subject to the conflicting roles of student and faculty member, and (3) not be involved in the instruction of their peers.

Registration in the Final Term for Award of the Degree

(1) Students must register in the final term in which the degree is to be conferred if they are (a) completing coursework, (b) using library or other University facilities, (c) taking up faculty time other than for a final reading of the thesis or dissertation or to administer the comprehensive or final examination, (d) a doctoral student and were not registered the term immediately preceding the term in which their dissertation is filed, or (e) receiving University funds in the form of a fellowship or appointment as a teaching assistant, reader, or graduate student researcher. Students who were not continuously registered or on leave of absence and are required to register to receive their degree must apply for readmission.

(2) If only the thesis or dissertation and/or comprehensive or final examination remain to be completed in the final term, students may be eligible to pay the filing fee instead of registering (see below).

(3) Students who were registered in the preceding term and have completed all degree requirements, including final examinations and filing the thesis/ dissertation, during the interval between terms and before the first

day of instruction are not required to register (or pay the filing fee) to receive their degree at the end of the following term.

Filing Fee

Students who have completed all requirements for a degree except filing the thesis or dissertation and/or taking the master's comprehensive or doctoral final oral examination may be eligible to pay a filing fee of half the registration fee instead of registering and paying all required fees. Applications are available from Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall. For eligibility conditions and further information on the filing fee and registration in the final term, consult *Standards and Procedures for Graduate Study at UCLA*, available in 1255 Murphy Hall or in individual departments.

Health Assessment and Evaluation

New students enrolling in the School of Dentistry, Education and Information Studies, Medicine, Nursing, or Public Policy and Social Research must complete and return to the Ashe Student Health and Wellness Center the Health Evaluation forms provided by their departments. For clearance information, call (310) 794-7896.

Graduate Fees and Financial Support

Fees

Although the exact cost of attending UCLA varies according to academic program, personal habits, tastes, and financial resources, there are some fees that all UCLA students must pay. Each entering and readmitted student is required to submit a Statement of Legal Residence to the Registrar's Office. Legal residents of California are not required to pay tuition at the University. Students classified as nonresidents must pay annual tuition in addition to registration fees, as published in the quarterly *Schedule of Classes* and online at <http://www.registrar.ucla.edu/fees/>. For a full definition of residence and nonresidence, see the Appendix.

Fees are current as of publication but are subject to change without notice by The Regents. See <http://www.registrar.ucla.edu/fees/> for updates.

Annual Expenses for 1999-00	
University registration fee	\$ 713.00
Educational fee	3,086.00
Ackerman Student Union fee	51.00
Graduate Students Association fee	16.50
Wooden Recreation Center fee	36.00
Mandatory medical insurance	579.00
Seismic fee for Ackerman/Kerckhoff	113.00
Total for California residents	\$ 4,594.50
Nonresident tuition fee	9,384.00
Total for nonresidents	\$13,978.50

Students in the Schools of Dentistry, Law, Management M.B.A. program, Medicine, Nursing, and Theater, Film, and Television should refer to the quarterly *Schedule of Classes* for explanation of additional fees.

Other Fees

Miscellaneous fees charged to UCLA graduate students include a \$50 charge for late payment of registration fees (after the fee deadline) or late filing of the Study List (after Friday of the second week of classes); \$50 for advancement to doctoral candidacy; a \$20 late fee if the BAR statement has an unpaid balance in excess of \$25; and \$5 or less for most petitions and other special requests. A \$60 fine is assessed if any check for registration fee payment is returned by a bank for stopped payment, insufficient funds, or any other reason. A complete list of fees may be found in the *Schedule of Classes*.

Reduced Nonresident Tuition

The annual nonresident tuition fee for graduate doctoral students who have advanced to candidacy is reduced by 75 percent. Doctoral students may receive this reduced nonresident tuition rate for a maximum of three years. After three years, the full nonresident rate is assessed.

Fee Refunds

Students who formally withdraw from the University or take an approved leave of absence may receive partial refunds of fees. For the refund schedule and more information, see Withdrawal in the Academics section of this catalog or consult the *Schedule of Classes* for policy details and specific refund dates for each term.

Estimated Annual Budgets for Graduate California Residents

Expenses cover the three regular session terms of the 1999-00 academic year and do not include Summer Sessions. Students admitted in fall 1999 to the D.D.S., J.D., M.B.A., M.S.N., M.F.A. in Theater, M.F.A. in Film and Television, and M.D. degree programs must add the professional school fee (varies by school), and nonresidents must add \$9,384 annual tuition to their total expenses for an accurate estimate. Budgets for the Schools of Medicine, Dentistry, and Nursing are higher, reflecting the expense of specialized books and supplies; figures are available from the health professions counselor. The budgets are designed to serve as a guide and are subject to change.

	Commuter from Home	Off-Campus Housing
University fees	\$ 4,594.00	\$ 4,594.00
Books and supplies	1,221.00	1,221.00
Food and rent	2,475.00	9,009.00
Transportation	2,097.00	1,917.00
Personal	1,899.00	1935.00
Total Budget	\$12,286.00	\$18,676.00

For more information on housing, contact the UCLA Community Housing Office, 350 De Neve Drive, (310) 825-4491.

Financial Support

Graduate Student Support
1228 Murphy Hall
(310) 825-1025
<http://www.gdnet.ucla.edu/asis/infoserv/gdservcs.htm>

As a major center for graduate study, UCLA offers its qualified graduate students substantial support through several types of financial assistance.

Information on available funding for entering students is included in the *Application for Graduate Admission*. Readmitted students should also refer

quest the *Application for Graduate Admission*, and continuing graduate students should complete the Fellowship and Assistantship Application for Continuing Students. Completed applications must be returned by **January 8**. (Some departments have earlier deadlines; consult the application brochure for details.)

UCLA Graduate Student Support, a booklet describing the full range of financial assistance available, is published annually and mailed to continuing students by the Graduate Division. Students should contact their department for more detailed information.

Fellowships

The University administers several awards on the basis of scholarly achievement. Most awards are available in open competition, though some are restricted to new students or to specific departments. Some fellowship and scholarship awards are made from University funds; others are made from endowment funds held in trust by the University and given by interested friends and alumni. Still others come from annual donations by educational foundations, industry, government, and individual benefactors.

Most fellowship, traineeship, and grant awards are for one academic year (three terms). Fellowships and grants provide stipends in varying amounts for qualified students. Nonresident tuition fellowships cover the tuition, for periods of one to three terms, of selected graduate students who are not California residents.

Assistantships

Academic apprenticeships train qualified students for careers in teaching and research, and compensate them for their services. **Teaching assistantships** provide experience in teaching undergraduates, with faculty supervision. (Teaching assistants, associates, and fellows are eligible to receive partial payment at the beginning of the term in the form of an interest-free advance loan check. Interested students should apply to their departments.) **Graduate student researcher appointments** give students experience working on faculty-supervised research projects.

Awards Based on Financial Need

Because the cost of a graduate education may present a financial hardship, students who require assistance in meeting educational costs are encouraged to apply for aid based on their financial need. Need is defined as the difference between allowable school-related expenses and financial resources. Financial aid applicants must file the Free Application for Federal Student Aid (FAFSA).

Financial aid awards include work-study and low-interest loans. Students are usually awarded a financial aid "package" which is a combination of these forms of assistance. Further information is available from the Financial Aid Office, A129J Murphy Hall.

Requirements for Graduate Degrees

Graduate students earn a master's or doctoral degree by distinguished achievement in advanced study and research. In addition to coursework, there are various means of evaluating achievement in study, including qualifying and comprehensive examinations and various kinds of laboratory and fieldwork. Achievement in research is primarily assessed through evaluation of the master's thesis or doctoral dissertation. Professional master's and doctoral degree programs require professional training. Demonstration of achievement in these fields may take various forms, including fieldwork, completion of projects, and training that involves professional licensure.

University Minimum Standards

The requirements described here for master's and doctoral degrees are minimum standards set by the University. Individual schools or departments may set higher standards and may require additional courses and/or examinations for their master's degree. Each department also sets ad-

ditional requirements for doctoral degrees according to the demands of the field of study. Students are advised to consult *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu> and the departmental graduate adviser for details. Policies and regulations are outlined in *Standards and Procedures for Graduate Study*, which is available from Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall or at <http://www.gdnet.ucla.edu>.

Transfer of Credit

There are two general regulations governing transfer of credit. No courses completed before the award of the bachelor's degree may be applied toward a graduate degree unless students are UCLA Departmental Scholars (see Academic Excellence in the Undergraduate Study section of this catalog). Also, courses taken for any other degree may not be applied toward a master's degree at UCLA unless students are enrolled in a Graduate Council-approved concurrent degree program (see Concurrent and Articulated Degree Programs later in this section).

Transfer of Credit from Within the University

Students may petition to have units and grade points for graduate work completed at other campuses of the University applied toward satisfaction of master's degree requirements at UCLA. Such courses may fulfill up to one half of both the total course and graduate course requirements, and one third of the academic residence requirement, but may not have been used to fulfill the requirements for another degree.

Transfer of Credit from Outside the University

With approval of the dean of the Graduate Division and the major department, courses completed with grades of B or better in graduate standing at institutions outside the University of California may apply toward UCLA master's programs. However, courses taken for any degree awarded at another institution may not be applied toward a graduate degree at UCLA. A maximum of two courses (eight quarter units or five semester units) may be applied, but they cannot be used to reduce either the minimum graduate course requirement or the academic residence requirement. (To convert semester units into quarter units, multiply the semester units by 1.5 — for example, 12 semester units \times 1.5 = 18 quarter units. To convert quarter units into semester units, multiply the quarter units by .666 — for example, 12 quarter units \times .666 = 7.99 or 8 semester units.)

Transfer of Credit from Summer Sessions

Regular session courses offered in UCLA Summer Sessions by regular faculty qualify for credit toward a higher degree with departmental approval. Courses offered by visiting faculty may apply, with a recommendation from the department chair. Students should consult their departmental graduate adviser about applying Summer Sessions courses to their graduate program.

Transfer of Credit from UCLA Extension

Extension courses can be applied only if they are **concurrent** courses prefixed by XLC (offered for students in degree programs and open to Extension students by petition) in the 100, 200, or 400 series, completed with grades of B or better. By petition to the dean of the Graduate Division and with departmental approval, a maximum of two such courses may be applied toward the nine-course minimum and the five-graduate-course requirements for the master's degree. The master's program, then, would include at least three courses in the 200 or 500 series for academic degrees, or three courses in the 200, 400, or 500 series for professional degrees.

If the master's program requires more than nine courses, concurrent Extension courses may be applied toward one half of the course requirements over the minimum of nine.

Grades earned in Extension courses or in courses taken outside the University of California are not included in computing the grade-point average nor may they be used to remove scholarship deficiencies. Correspondence courses are not applicable to graduate degrees.

Academic Residence

Master's Degree

The minimum residence requirement consists of three academic terms in graduate standing at the University of California, including at least two terms at UCLA.

Doctoral Degree

The minimum residence requirement is two years (six terms) in graduate standing at the University of California, including one year (usually the second) in continuous residence at UCLA. If students earned a master's degree at UCLA, one year of this requirement will have been met. In most cases a longer period of residence is necessary, and from three to five years is generally considered optimal.

Academic residency for both degrees is established by successfully completing a minimum of one graduate or upper division course (four units) during a term.

Students may earn one term of residence for summer study in either of these ways: (1) enroll in two six-week Summer Sessions taking at least two units of upper division and/or graduate work in each session OR (2) enroll in one eight-week session for at least four units of credit. Residence earned through Summer Sessions enrollment is limited to one third of the degree requirements.

To maintain satisfactory progress toward the degree, UCLA requires at least a B average in all courses taken in graduate standing at the University and in all courses applied toward a graduate degree, including those taken at another UC campus.

Foreign Language Requirements

Foreign language requirements are determined by individual departments and programs. If their program has a language requirement, students should fulfill it either before they begin graduate study or as soon as possible thereafter. All foreign language requirements must be satisfied before advancement to candidacy.

Many departments require graduate degree candidates to demonstrate proficiency in one or more foreign languages, so that they can acquire broad knowledge in their field of study and keep abreast of foreign developments in the field. Students are urged to complete language requirements as early as possible in their graduate career. If the department requires two or more foreign languages, students must complete at least one before the University Oral Qualifying Examination (unless the department requires that both be completed before the examination).

Some departments allow students to fulfill language requirements either by passing departmental examinations or by completing coursework in a foreign language. Certain departments may require additional languages, special competence, or other special procedures. In some departments, English satisfies the foreign language requirement if it is not the native language.

For further details on foreign language requirements, consult the departmental graduate adviser.

Program of Study and Scholarship

Master's Degree

At least nine graduate and upper division courses (or any number of fractional courses totaling 36 units) must be completed in graduate standing; at least five (20 units) of the nine must be graduate-level courses.

UCLA offers master's degrees under two plans: Plan I, the Master's Thesis, and Plan II, the Master's Comprehensive Examination. Some departments offer both plans, and students must consult with their department to determine the plan for meeting their degree requirements. University minimum requirements are the same under either plan.

Master's Thesis (Plan I)

After advancement to candidacy, students under Plan I must submit a thesis reporting on results of their original investigation of a problem.

While the problem may be one of only limited scope, the thesis must show a significant style, organization, and depth of understanding of the subject.

A thesis committee, consisting of at least three faculty members who hold regular professorial appointments at the University, is nominated by the department and appointed by the dean of the Graduate Division for each student (consult the Graduate Division for more details on committee members' eligibility requirements). The thesis committee, which must be appointed before students may be advanced to candidacy, approves the subject and plan of the thesis, provides the guidance necessary to complete it, then reads and approves the completed manuscript. Approval must be unanimous among committee members.

Once the thesis committee and other concerned faculty members have approved the subject for the thesis, work may begin. Students are responsible for preparing the thesis in the proper form and for observing filing deadlines.

Master's Comprehensive Examination (Plan II)

Following advancement to candidacy, students under Plan II must pass a comprehensive examination administered by a committee consisting of at least three faculty members appointed by the department. In some departments the comprehensive examination may serve as a screening examination for admission to doctoral programs. Information concerning this examination and its format is available in the departments.

Doctoral Degree

Doctoral programs are individualized and permit a high degree of specialization. The University does not specify course requirements for doctoral programs. Individual programs set their own requirements, which may include specific courses, and these must be completed before students take the University Oral Qualifying Examination. Students determine their course of study in consultation with a graduate adviser until the doctoral committee is appointed.

Doctoral Examinations before Advancement to Candidacy

Prior to advancement to candidacy, doctoral candidates fulfill the coursework, teaching, and/or examinations required by the major department or group. They are supervised during this period by a departmental adviser and/or departmental guidance committee. This committee administers a departmental written and, in some cases, oral examination (not to be confused with the University Oral Qualifying Examination) after students complete the recommended or required work. Once all departmental and foreign language requirements are met, the department chair consults with the student and then nominates a doctoral committee.

University Oral Qualifying Examination

The doctoral committee, consisting of at least four faculty members nominated by the department, is appointed by the dean of the Graduate Division (consult the Graduate Division for details on committee membership). To determine qualifications for advancement to candidacy, the committee administers the University Oral Qualifying Examination and, at its option, a written examination.

Advancement to Candidacy

Master's Degree

When students have completed approximately half the program for the master's degree (usually at least two terms), they should formally apply for advancement to candidacy. Application forms are available from the departments and must be filed there no later than the second week of the term in which students expect to receive their degree (by the end of the second week of the first Summer Session for a September degree).

Students may not be advanced to candidacy until all departmental requirements for advancement, including foreign language examinations, have been satisfied. They then have one year from the date of advancement to complete all requirements for the degree, including their thesis or comprehensive examination. Candidacy expires at the end of one year

and reinstatement during the term in which they plan to receive the degree is by petition only.

Doctoral Degree

Students are eligible for advancement to doctoral candidacy after passing the University Oral Qualifying Examination with no more than one negative vote, completing four terms of academic residence and any additional departmental requirements, and maintaining a 3.0 grade-point average in graduate standing. They are officially advanced to candidacy on the date the completed application for candidacy form is received in Graduate Admissions/Student and Academic Affairs, provided the information on the form is correct and complete and the examination was conducted in accordance with Graduate Council regulations. Students are billed the advancement to candidacy fee on their BAR statement.

Candidate in Philosophy Degree

In several departments, as approved by the Graduate Council, the intermediate degree of Candidate in Philosophy (C.Phil.) is awarded to qualified students on advancement to candidacy for the Ph.D. degree.

The C.Phil. is not a terminal degree but gives formal recognition to a definite state of progress toward the doctorate. Academic requirements are the same as for advancement to candidacy for the Ph.D. (see above). Four terms in academic residence at UCLA are required. (Also refer to Academic Residence earlier in this section.)

The C.Phil. may not be conferred after or simultaneously with the Ph.D. For departments offering the C.Phil., see the degree chart at the end of this section. For further details, consult the Graduate Division.

Doctoral Dissertation

Once the doctoral committee approves the subject for the dissertation, the in-candidacy stage of the doctoral program begins and is devoted primarily to independent study and research and to the preparation of the dissertation, which demonstrates ability for independent investigation. The doctoral committee guides the progress toward its completion. Students are responsible for following instructions on the preparation of the dissertation and for observing filing deadlines.

Final Preparation and Filing of Thesis or Dissertation

For guidance in the final preparation of the thesis or in the preparation and submission of the dissertation and accompanying abstract, students may

- (1) Consult the theses and dissertations adviser, Office of the University Archivist, 390 Powell Library.
- (2) Read *Regulations for Thesis and Dissertation Preparation*, available in Graduate Admissions/Student and Academic Affairs or in the Archivist's Office.
- (3) Attend an orientation meeting on manuscript preparation and filing procedures conducted soon after the start of each term (see the Calendar at the beginning of this catalog).

Master's Thesis

When all members of the committee have approved the thesis and students are ready to file it, they must initiate the final steps in the process by submitting the original signature (approval) page, title page, and any other required forms to Graduate Admissions/Student and Academic Affairs where completion of degree requirements is verified. After final approval by the dean of the Graduate Division, students must file the thesis with the theses and dissertations adviser by the published deadline (approximately two weeks before the degree is to be awarded).

Doctoral Dissertation

When all members of the committee have approved the dissertation and students are ready to file it, they must submit the original signature (approval) page and title page to Graduate Admissions/Student and Aca-

demical Affairs where completion of degree requirements is verified. After final approval by the dean of the Graduate Division, students must file two paper copies of the dissertation with the theses and dissertations adviser by the published deadline (approximately two weeks before the degree is to be awarded). Consult the *Schedule of Classes* Calendar for exact dates.

Doctoral Final Oral Examination

A final oral examination may be required at the option of any member of the doctoral committee, and in some departments is required of all doctoral candidates. The examination, for which *all* committee members must be present, may be held before students have prepared the final copy of their dissertation, but passing the examination (with no more than one negative vote of the committee members) does not imply approval of the final manuscript. Consult the doctoral committee chair or graduate adviser for further information.

Interdepartmental Degree Programs

In addition to graduate degree programs offered within schools and departments, UCLA offers interdisciplinary programs involving two or more participating departments. A total of 28 interdepartmental programs offer bachelor's, master's, and doctoral degrees in some combination; several units offer all three degrees. These programs are administered by interdepartmental committees made up of faculty whose membership is determined by research interest, not by departmental affiliation. By cutting across the usual lines of faculty division, a subject area is studied from the perspectives of different disciplines and a greater degree of program flexibility is achieved.

Interdepartmental degree programs that currently lead to advanced degrees are listed below. All are described more fully in the Curricula and Courses section of this catalog. For further information, students should contact the chair or graduate adviser of the specific program that interests them.

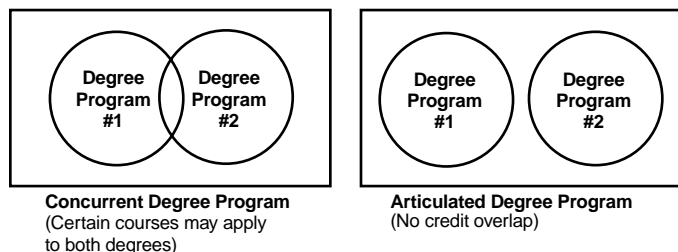
African Area Studies (M.A.)
 Afro-American Studies (M.A.)
 American Indian Studies (M.A.)
 Applied Linguistics (Ph.D.)
 Archaeology (M.A., Ph.D.)
 Asian American Studies (M.A.)
 Biomedical Engineering (M.S., Ph.D.)
 Biomedical Physics (M.S., Ph.D.)
 Environmental Science and Engineering (D.Env.)
 Folklore and Mythology (M.A., Ph.D.)
 Indo-European Studies (Ph.D.)
 Integrated Manufacturing Engineering (M.Engr.)
 Islamic Studies (M.A., Ph.D.)
 Latin American Studies (M.A.)
 Molecular Biology (Ph.D.)
 Neuroscience (Ph.D.)
 Romance Linguistics and Literature (M.A., Ph.D.)

Concurrent and Articulated Degree Programs

Each of the programs described thus far leads to a single degree — either master's or doctoral. UCLA also offers concurrent and articulated degree programs, which allow students to earn two degrees simultaneously by combining two free-standing degree programs into a coordinated course of study. Students may petition to design their own articulated program (with departmental and Graduate Division approval), but they may not apply credits for one degree to the other. Concurrent degree programs, which may not be individually designed, allow some credit overlap.

These programs accomplish several important objectives: they enable the University to respond to societal changes by creating new fields of study;

they prepare students more fully for the world's complexities by combining the cultural (political/social/economic) aspects of their field with the tools of a professional degree; and they allow faculty members to cross departmental lines and interact on a broader scale.



Concurrent Degree Programs

By allowing a specified amount of credit to apply to both degrees, concurrent degree programs permit students to reduce the total number of courses required for the two degrees and thereby reduce the time normally required if courses were taken in sequence. Programs leading to concurrent degrees are offered in the following disciplines:

American Indian Studies, Interdepartmental M.A. — Law, J.D.
 Architecture and Urban Design, M.Arch. I — Urban Planning, M.A.
 Asian American Studies, Interdepartmental M.A. — Public Health, M.P.H.
 Education, M.A., Ph.D., M.Ed., or Ed.D. — Law, J.D.
 History, M.A. — Information Studies, M.L.I.S.
 Islamic Studies, Interdepartmental M.A. — Public Health, M.P.H.
 Latin American Studies, Interdepartmental M.A. — Urban Planning, M.A.
 Management, M.B.A. — Computer Science, M.S.
 Management, M.B.A. — Information Studies, M.L.I.S.
 Management, M.B.A. — Latin American Studies, Interdepartmental M.A.
 Management, M.B.A. — Law, J.D.
 Management, M.B.A. — Medicine, M.D.
 Management, M.B.A. — Nursing, M.S.N.
 Management, M.B.A. — Public Health, M.P.H.
 Management, M.B.A. — Urban Planning, M.A.
 Social Welfare, M.S.W. — Law, J.D.
 Urban Planning, M.A. — Law, J.D.

Articulated Degree Programs

Articulated degree programs permit no credit overlap, and students must complete degree requirements separately for each degree. Programs leading to articulated degrees are offered in the following disciplines:

African Area Studies, Interdepartmental M.A. — Public Health, M.P.H.
 African Area Studies, Interdepartmental M.A. — Film and Television, M.F.A.
 Latin American Studies, Interdepartmental M.A. — Education, M.Ed. in Curriculum
 Latin American Studies, Interdepartmental M.A. — Information Studies, M.L.I.S.
 Latin American Studies, Interdepartmental M.A. — Public Health, M.P.H.
 Medicine, M.D. — Graduate Division health science major, Ph.D.
 Oral Biology, M.S. or Ph.D. — Dentistry, D.D.S. or Certificate

Inquiries about concurrent and articulated degree programs should be directed to graduate advisers in the departments and schools involved. Students should contact Graduate Admissions/Student and Academic Affairs for information on designing articulated programs.

General Policies and Regulations

Standards of Scholarship

To maintain satisfactory progress toward a graduate degree, UCLA requires at least a B (3.0) average in all courses taken in graduate standing

at the University and in all courses applied toward advanced degrees. This standard applies to all graduate students, including candidates in certificate programs. In courses graded on an S/U basis, the grade of S (Satisfactory) is awarded for work that would otherwise receive a B or better. Grades S and U are not included in calculating grade-point averages.

Scholarship Probation

Students are on probation and are subject to dismissal if their cumulative average in all work attempted in graduate standing falls below a B (3.0) or if work in any two consecutive terms falls below a B average. The dean of the Graduate Division, in consultation with the department, determines student eligibility to continue graduate study in probationary status. Students who are allowed to continue must make timely progress toward improving their grade-point average.

Disqualification and Appeal

If students are subject to disqualification for reasons other than failure to maintain the minimum grade-point average, they have their records reviewed by the Graduate Division, in consultation with the graduate adviser. If disqualification results, they may submit a written appeal to the dean of the Graduate Division for reconsideration.

Appeals are considered only if based on appropriate cause such as (1) procedural error, (2) judgments based on nonacademic criteria, (3) personal bias, or (4) specific mitigating circumstances contributing to performance. Disagreements over evaluation of academic quality are not considered appropriate causes for appeal. Refer to *Standards and Procedures for Graduate Study at UCLA* for specific details on how to submit an appeal or contact Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall.

In cases of appropriate cause, the dean of the Graduate Division refers the appeal to the Graduate Council's Committee on Degree Programs. Students are required to submit a written statement on the basis for the appeal and are entitled to a personal appearance before the committee. After obtaining information on the matter from any appropriate person or office, the committee makes a recommendation to the dean of the Graduate Division, who makes the final decision. In reporting the decision, the committee includes the basis for the decision, its effective date, and any specific recommendations.

Graduate Student Complaints

Because of the separation of functions within the University, students are sometimes uncertain where they should direct their complaints. The following information may be helpful.

Students who have complaints of a scholastic or professional nature involving faculty should take them up with the faculty member concerned or, if that is not feasible, with the chair of the department. If the department as a whole is involved, students should take the matter to the appropriate divisional or school dean. Should the issue not be resolved at that level, they may appeal to the dean of the Graduate Division, 1237 Murphy Hall.

Complaints of misconduct against individual students should be made at the Office of the Dean of Students, 1206 Murphy Hall. Complaints of misconduct against officially recognized student organizations may be made at the Center for Student Programming (105 Kerckhoff Hall) or Student and Campus Life (1104 Murphy Hall).

Complaints concerning alleged violation of the policies and regulations governing graduate study should be made to the dean or associate dean of the Graduate Division, 1237 Murphy Hall.

Complaints from teaching assistants about workloads and evaluations are governed by the provisions of the Teaching Assistant Grievance Procedures, which are spelled out in detail in the *Academic Apprentice Personnel Manual*. Copies are available from departments and from Graduate Student Support, 1228 Murphy Hall.

Complaints about a violation of University policy regarding the conduct of one or more faculty members should be handled as described in the Non-discrimination, Harassment, and Faculty Code of Conduct sections in the Appendix.

Graduate Majors, Degrees, and Foreign Language Requirements

Graduate Majors	Degrees	Language Requirements
African Area Studies	M.A.	1 language: African Consult the program concerning additional foreign languages which may be required or recommended.
Afro-American Studies	M.A.	1 language
American Indian Studies	M.A.	Completion of Linguistics 114 or Anthropology 243P
Anthropology	M.A. Ph.D.	1 language 1 language, special proficiency With departmental approval, a program of courses or other work may be substituted for a language.
Applied Linguistics	C.Phil., Ph.D.	2 languages or 1 language, special proficiency
Applied Linguistics and Teaching English as a Second Language	M.A.	None
Applied Linguistics and Teaching English as a Second Language	M.A.	For students whose native language is English, a program of language courses
Teaching English as a Second Language	Certificate Program	Not admitting new students at this time.
Archaeology	M.A. C.Phil., Ph.D.	1 language Consult the program concerning additional foreign languages which may be required or recommended. 2 languages Consult the program concerning additional foreign languages which may be required or recommended.
Architecture	M.Arch. I, M.Arch. II, M.A. Ph.D.	None 2 languages or proficiency in mathematics, statistics, and/or computing
Art	M.A., M.F.A.	None
Art History	M.A. Ph.D.	2 languages: French and German unless otherwise specified Consult the department concerning additional foreign languages which may be required or recommended. 2 languages: French and German unless otherwise specified, with additional language needs to be determined by student's committee
Asian American Studies	M.A.	1 language: two years of Asian at university level or equivalent or research tool
Atmospheric Sciences	M.S., C.Phil., Ph.D.	None
Biological Chemistry	M.S., Ph.D.	None
Biomathematics	M.S., Ph.D.	None
Biomedical Physics	M.S., Ph.D.	None
Chemistry and Biochemistry		
Biochemistry and Molecular Biology	M.S., C.Phil., Ph.D.	None
Chemistry	M.S., C.Phil., Ph.D.	None
Classics		
Classics, Greek, Latin	M.A.	1 language: French, German, or Italian, either by passing course 5 with a minimum grade of C or by examination
Classics	Ph.D.	2 languages: French, German, or Italian, either by passing course 5 with a minimum grade of C or by examination
Comparative Literature	M.A., C.Phil., Ph.D.	2 languages, special proficiency Consult the department concerning additional foreign languages which may be required or recommended.
Dentistry		
Dentistry	D.D.S., Postgraduate Certificate Programs	None
Oral Biology	M.S., Ph.D.	None
Design	M.A., M.F.A.	None
Earth and Space Sciences		
Geochemistry	M.S., C.Phil., Ph.D.	None
Geology	M.S., C.Phil., Ph.D.	None
Geophysics and Space Physics	M.S., Ph.D.	None
East Asian Languages and Cultures	M.A. C.Phil., Ph.D.	1 year of Japanese for Chinese majors; 1 year of Chinese for Japanese majors 2 languages: French and German Consult the department concerning additional foreign languages which may be required or recommended.

Graduate Majors	Degrees	Language Requirements
Economics	M.A., C.Phil., Ph.D.	None
Education		
Education	M.A., M.Ed., Ed.D., Ph.D.	None
Educational Administration (joint with UC Irvine)	Ed.D	None
Special Education (joint with CSULA)	Ph.D.	None
Multiple and Single Subject Instruction, Administrative Services	Certificate Programs	None
Engineering and Applied Science		
Aerospace Engineering	M.S., Ph.D.	None
Biomedical Engineering	M.S., Ph.D.	None
Chemical Engineering	M.S., Ph.D.	None
Civil Engineering	M.S., Ph.D.	None
Computer Science	M.S., Ph.D.	None
Electrical Engineering	M.S., Ph.D.	None
Engineering	Engr., M.Engr.	None
Engineering and Applied Science	Certificate of Specialization	None
Integrated Manufacturing Engineering	M.Engr.	None
Manufacturing Engineering	M.S.	None
Materials Science and Engineering	M.S., Ph.D.	None
Mechanical Engineering	M.S., Ph.D.	None
English	M.A. C.Phil., Ph.D.	Undergraduate foreign language study (required for admission to the graduate program), 1 language Undergraduate foreign language study (required for admission to the graduate program), 2 languages; or 1 language, special proficiency
Environmental Science and Engineering	D.Env.	None
Ethnomusicology	M.A. C. Phil., Ph.D.	1 language: French or German 2 languages: French and German, and language relevant to dissertation research
Film and Television	M.A., M.F.A. C.Phil., Ph.D.	None 1 language
Folklore and Mythology	M.A. Ph.D.	1 language: French, German, Spanish, or other language by petition to program 2 languages Consult the program concerning additional foreign languages which may be required or recommended. Not admitting new students at this time.
French	M.A. C.Phil., Ph.D.	1 language: German, Italian, Latin, or Spanish Consult the department concerning additional foreign languages which may be required or recommended. 2 languages, level 5 and 6: German, Latin, Spanish, or Russian Consult the department concerning additional foreign languages which may be required or recommended.
Geography	M.A., C.Phil., Ph.D.	Research tool
Germanic Languages		
Germanic Languages	M.A. C.Phil., Ph.D.	1 language: French Consult the department concerning additional foreign languages which may be required or recommended. 2 languages
Scandinavian	M.A.	1 language: French or German and Old Icelandic
History	M.A. C.Phil., Ph.D.	1 language Minimum of 2 languages (except U.S. history which requires 1 language) Consult the department concerning additional foreign languages which may be required or recommended.
Human Genetics	M.S., Ph.D.	None
Indo-European Studies	C.Phil., Ph.D.	2 languages: French and German
Information Studies	M.L.I.S., Ph.D. Certificate of Specialization	1 or 2 languages required for admission to the graduate program Consult the department concerning additional foreign languages which may be required or recommended. With departmental approval, a program of courses or other work may be substituted for a language. None

Graduate Majors	Degrees	Language Requirements
Islamic Studies	M.A. C.Phil., Ph.D.	1 language: French or German Consult the program concerning additional foreign languages which may be required or recommended. 2 languages: French and German Consult the program concerning additional foreign languages which may be required or recommended.
Italian	M.A. C.Phil., Ph.D.	1 language: French or German Consult the department concerning additional foreign languages which may be required or recommended. 2 languages: French, German, Latin, or Spanish Consult the department concerning additional foreign languages which may be required or recommended.
Latin American Studies	M.A.	2 languages: Spanish and Portuguese required for admission to the graduate program Consult the program concerning additional foreign languages which may be required or recommended. With program approval, a program of courses or other work may be substituted for a language.
Law	J.D., LL.M.	None
Linguistics	M.A. C.Phil., Ph.D.	1 language: French, German, Italian, Japanese, Russian, Spanish or, with departmental approval, a contact language for field research 2 languages: French, German, Italian, Japanese, Russian, Spanish or, with departmental approval, a contact language for field research
Management	M.B.A., M.S., C.Phil., Ph.D.	None
Mathematics	M.A., M.A.T. C.Phil., Ph.D.	None 1 language: French, German, or Russian or, with departmental approval, a program of courses or other work may be substituted for a language
Medicine	M.D., Certificate of Postgraduate Medical Study	None
Microbiology and Immunology	M.S., Ph.D.	None
Microbiology and Molecular Genetics	M.A., Ph.D.	None
Molecular and Medical Pharmacology Pharmacology	M.S., Ph.D.	None
Molecular Biology	Ph.D.	None
Molecular, Cell, and Developmental Biology	M.A., Ph.D.	None
Music	M.A. M.M. D.M.A. C.Phil., Ph.D.	1 language: French, German, Italian, or Spanish Consult the department concerning additional foreign languages which may be required or recommended. 2 languages for historical musicology 1 language — voice and choral conducting: French, German, Italian, or Spanish 1 language: French, German, or Italian 2 languages — voice and choral conducting: French, German, Italian 2 languages — composition: French, German, Italian, Latin, Russian, or Spanish Consult the department concerning additional foreign languages which may be required or recommended. 2 languages — music education: French and German
Musicology	M.A. C.Phil., Ph.D.	1 language: French, German, Italian, Latin, or Spanish Consult the department concerning additional foreign languages which may be required or recommended. 2 languages: French, German, Italian, Latin, or Spanish Consult the department concerning additional foreign languages which may be required or recommended.
Near Eastern Languages and Cultures	M.A. C.Phil., Ph.D.	1 major European language (other than English) Consult the department concerning additional foreign languages which may be required or recommended. 2 major European languages (other than English) Consult the department concerning additional foreign languages which may be required or recommended.
Neurobiology Anatomy and Cell Biology	M.S., C. Phil., Ph.D.	None
Neuroscience	Ph.D.	None
Nursing	M.S.N., Ph.D.	None
Organismic Biology, Ecology, and Evolution Biology	M.A., C.Phil., Ph.D.	None
Pathology and Laboratory Medicine Experimental Pathology	M.S., Ph.D.	None

Graduate Majors	Degrees	Language Requirements
Philosophy	M.A. C.Phil., Ph.D.	1 language: French, German, Greek, Latin With departmental approval, a program of courses or other work may be substituted for a language. 1 language: French, German, Greek, or Latin, special proficiency Consult the department concerning additional foreign languages which may be required or recommended.
Physics and Astronomy Astronomy Physics	M.S., M.A.T., Ph.D. M.S., M.A.T., Ph.D.	None M.A.T. not admitting new students at this time. None
Physiological Science	M.S., Ph.D.	None
Physiology	M.S., Ph.D.	None
Political Science Political Science Public Administration	M.A. C.Phil., Ph.D. M.P.A.	None 1 language, examination arranged through a foreign language department or substitute program of proficiency in a research methodology None Not admitting new students at this time.
Psychiatry and Biobehavioral Sciences	Clinical Psychology Internship Certificate Program	None
Psychology	M.A., C.Phil., Ph.D.	None
Public Health Biostatistics Environmental Health Sciences Epidemiology Health Services Preventive Medicine and Public Health Public Health	M.S., Ph.D. M.S., Ph.D. M.S., Ph.D. M.S., Ph.D. M.S. M.P.H., M.S., Dr.P.H., Ph.D.	None None None None None None Not admitting new students at this time. None
Public Policy	M.P.P.	None
Romance Linguistics and Literature	M.A. C.Phil., Ph.D.	1 Romance language (required for admission to the graduate program) Consult the program concerning additional foreign languages which may be required or recommended. 2 languages Consult the program concerning additional foreign languages which may be required or recommended.
Slavic Languages and Literatures	M.A. C.Phil., Ph.D.	1 language: French or German Consult the department concerning additional foreign languages which may be required or recommended. 2 languages: French and German (required for admission to the graduate program)
Social Welfare	M.S.W., Ph.D.	None
Sociology	M.A., C.Phil., Ph.D.	None
Spanish and Portuguese Portuguese Spanish Hispanic Languages and Literatures	M.A. M.A. C.Phil., Ph.D.	1 language 1 language 2 languages
Statistics	M.S. C.Phil., Ph.D.	Proficiency in a computer programming language Proficiency in a computer programming language
Theater	M.A., M.F.A. C.Phil., Ph.D.	None 1 language
Urban Planning	M.A., Ph.D.	None
World Arts and Cultures Dance Dance/Movement Therapy	M.A., M.F.A. M.A.	None None Not admitting new students at this time.

Academics

Academic Policies

Units and Grading Policy

Students at UCLA are responsible for understanding the grading policies and regulations established by the Academic Senate. Should any semantic variations exist between explanations in this catalog and regulations in the Manual of the Academic Senate, the manual prevails in all cases. Copies of the Senate manual are available for review in the Academic Senate Office, 3125 Murphy Hall.

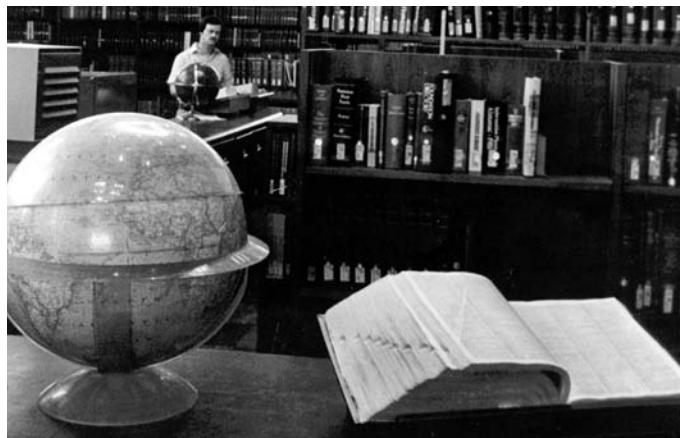
Grades

Instructors are required to assign a final grade for each student registered in a course. The following grades are used to report the quality of a student's work at UCLA:

Undergraduate Students

A+	Extraordinary
A	Superior
B	Good
C	Fair
D	Poor
F	Fail
P	Passed (achievement at grade C level or better)
NP	Not Passed
I	Incomplete
IP	In Progress
DR	Deferred Report

The grades A, B, C, and D may be modified by a plus (+) or minus (–) suffix, to either raise or lower the grade-point average (GPA). The A+ grade does **not** raise the GPA because it carries the same number of grade points as the A grade. The grades A, B, C, and P denote satisfactory progress toward the bachelor's degree, but a D grade must be offset by higher grades in the same term for students to remain in good academic standing. An F grade yields no unit or course credit.



Graduate Students

A	Superior Achievement
B	Satisfactorily demonstrated potentiality for professional achievement in field of study
C	Passed the course but did not do work indicative of potentiality for professional achievement in field of study
F	Fail
S	Satisfactory (achievement at grade B level or better)
U	Unsatisfactory
I	Incomplete
IP	In Progress
DR	Deferred Report

The grades A, B, and C may be modified by a plus or minus suffix. The grades A, B, and S denote satisfactory progress toward the degree, but a C grade must be offset by higher grades in the same term for students to remain in good academic standing. Courses in which a C grade is received, however, may be applied toward graduate degrees unless otherwise prohibited by the requirements of the degree program.

The Schools of Dentistry, Medicine, and Law maintain their own grading codes. Students who are interested in programs in any of these schools should consult the appropriate school announcement.

Grade Points

In computing scholarship standing, a course counts as four quarter units. Partial or multiple courses are counted proportionally (for example, one-half course is equal to two units).

Grade points per unit are assigned by the Registrar as follows:

A+	4.0
A	4.0
A–	3.7
B+	3.3
B	3.0
B–	2.7
C+	2.3
C	2.0
C–	1.7
D+	1.3
D	1.0
D–	0.7
F, NP, U	0.0

Courses in which students receive a P or S grade may count toward satisfaction of degree requirements, but these grades, as well as DR, I, IP, and NR, are disregarded in determining the grade-point average. (If an I grade is later removed and a letter grade assigned, units and grade points are included in subsequent GPAs.) NR indicates that no grade was received from the instructor.

Computing Grade-Point Average

The grade-point average is determined by dividing the number of grade points earned by the number of units attempted. The number of grade points earned for a course equals the number of grade points assigned times the number of course units. For example, suppose a student takes three four-unit courses and receives grades of A–, B–, and C+.

Grade	Grade Points	Course Units	Total Grade Points
A–	3.7	4	14.8
B–	2.7	4	10.8
C+	2.3	4	9.2
Total		12	34.8

To determine the GPA for the term, divide the total grade points earned (34.8) by the total course units attempted (12). The GPA is 2.9

For satisfactory standing, undergraduate students must maintain a C average (2.0 GPA) and graduate students a B average (3.0 GPA) in all courses taken at any campus of the University (except UCLA Extension).

Only grades earned in regular session or Summer Sessions at any UC campus and grades earned by Arts and Architecture and Letters and Science undergraduate students in UCLA Extension courses prefixed by XLC are computed in the UCLA grade-point average. Grades earned at another institution or in UCLA Extension courses other than those prefixed by XLC do not affect the GPA.

Other schools and agencies may calculate GPAs differently from the University when evaluating records for admission to graduate and professional school programs. Students should contact them about their policies in this regard.

Passed/Not Passed Grades

Undergraduate students in good standing who are enrolled in at least 12 units (14 in the School of Engineering and Applied Science) may take certain courses on a Passed/Not Passed (P/NP) basis.

By alleviating grading pressures, this option allows students to explore areas in which they have little or no previous experience. The grade P is assigned for a letter grade of C or better. Units earned this way count toward satisfaction of degree requirements but do not affect the GPA. Students receive neither units nor course credit for an NP grade.

Students may enroll in one course each term on a P/NP basis (two courses if they have not elected the P/NP option in the preceding term). They may not elect this option for Summer Sessions courses without an approved petition. Their department or school may require that they take some or all courses in their major for a letter grade. Certain other courses or programs may also be exempt from the P/NP option; consult the college or school for details.

Students may make program changes to or from P/NP grading through the sixth week of instruction (see the *Schedule of Classes* Calendar for exact dates); changes after the first two weeks of class require a petition (available for purchase in the school supplies section at any UCLA Store).

Certain undergraduate courses are offered only on a Passed/Not Passed basis and are designated PN in the *Schedule of Classes*.

Satisfactory/Unsatisfactory Grades

Graduate students in good standing (minimum 3.0 GPA) may enroll for Satisfactory/Unsatisfactory (S/U) grading in one graduate or upper division course outside the major field each term, in addition to any courses offered only on an S/U grading basis within the major. The grade S is assigned for a letter grade of B or better, but units earned in this manner are not counted in computing the GPA. Students receive neither units nor degree credit for a U grade. They may not elect the S/U option for Summer Sessions courses without an approved petition.

Courses taken on an S/U basis outside the major, and 500-series courses within the major, are applicable toward degree and/or academic residency requirements if so approved. Interdepartmental majors may not apply S/U courses to degree requirements, except for 500-series courses. Program changes to or from S/U grading may be made through the tenth week of instruction (see the *Schedule of Classes* Calendar); changes after the first two weeks of class require a petition (available for purchase in the school supplies section at any UCLA Store).

Certain graduate courses are offered only on a Satisfactory/Unsatisfactory basis and are designated SU in the *Schedule of Classes*.

Incomplete Grades

Once an Incomplete (I) grade is assigned, it remains on the transcript along with the passing grade students may later receive for the course. The instructor may assign the I grade when work is of passing quality but is incomplete for a good cause (such as illness or other serious problem). It is the student's responsibility to discuss with the instructor the possibility of receiving an I grade as opposed to a nonpassing grade.

If an I grade is assigned, students may receive unit credit and grade points by satisfactorily completing the coursework as specified by the instructor. Students should not reenroll in the course; if they do, it is recorded twice on the transcript. If the work is not completed by the end of the next full term in residence, the I grade lapses to an F, NP, or U as appropriate. The college or school may extend the deadline in unusual cases (not applicable to graduate students).

Consult the *Schedule of Classes* for procedure instructions.

In Progress Grades

For certain courses extending over more than one term (identified by T1, T2, T3, or T4 in the *Schedule of Classes*), evaluation of student performance is deferred until the end of the final term of the course. Provisional grades of In Progress (IP) are assigned in the intervening term(s) and are replaced with the final grade when students complete the full sequence. The school or college faculty or the Graduate Council determines credit if they do not complete the full sequence and petition for partial credit.

Deferred Report Grades

Students may receive a Deferred Report (DR) grade when the instructor believes their work to be complete but cannot assign a grade because of disciplinary proceedings or other problems. If students are given a disciplinary DR grade, the Office of the Dean of Students assists them in resolving the problem. For graduate students, the dean of the Graduate Division sets a deadline by which the DR lapses to an F if the problem is not resolved and a grade assigned. The DR is changed to a grade, or perhaps to an Incomplete, when the instructor provides written confirmation that the situation is resolved. The DR grade is not included in determining the grade-point average.

Repetition of Courses

Certain courses, as noted in their course descriptions, may be repeated for credit. Other courses taken at the University (except UCLA Extension) may be repeated only according to the following guidelines:

- (1) To improve the grade-point average, students may repeat only those courses in which they receive a grade of C– or lower; NP or U grades may be repeated to gain unit credit. Courses in which a letter grade is received may not be repeated on a P/NP or S/U basis. Courses originally taken on a P/NP or S/U basis may be repeated either on the same basis or for a letter grade.
- (2) Repetition of a course more than once requires the approval of the college or school or the dean of the Graduate Division, and is granted only under extraordinary circumstances.
- (3) Degree credit for a course is given only once, but the grade assigned each time the course is taken is permanently recorded on the transcript.
- (4) For undergraduates who repeat a total of 16 units or less, only the most recently earned letter grades and grade points are computed in the

GPA. After repeating 16 units, however, the GPA is based on all letter grades assigned and total units attempted.

(5) For graduate students, all courses in which a letter grade is given, including repeated courses, are used in computing the GPA.

Credit by Examination

Students with high scholastic standing may earn credit for regular University courses by taking examinations rather than enrolling in the courses. This is accomplished by establishing, with a UCLA faculty member, an individual plan of study which may include oral and written work in addition to other requirements. To be eligible for this privilege, undergraduate students must have completed a minimum of 12 units at UCLA. Graduate students must be registered at the time of the examination and are limited to a maximum of three courses taken in this manner.

The results of these courses are entered on the record in the same way as regular courses, and corresponding grade points are assigned. Graduate credit earned by examination may be applied toward minimum course requirements for master's degrees but cannot apply to academic residence requirements for master's or doctoral degrees.

Students need approval from the appropriate instructors, the department, and the college or school or the dean of the Graduate Division, from whom petitions for credit by examination (with fee) are available.

Correction of Grades

All grades except DR, I, and IP are final when filed by the instructor in the end-of-term course report. Thereafter, a grade change may be made only in case of a clerical or procedural error or other unusual circumstances. No grade may be revised by reexamination or, with the exception of the I and IP grades, by completing additional work. Students who are dissatisfied with a grade should review their work with the instructor and receive an explanation of the grade assigned. All grade changes are recorded on the transcript. See the Appendix for further details and procedures for appealing grades.

Class Standing

Undergraduate classification is determined by the number of units completed.

Classification	Completed Units
Freshman	0.0 – 44.9
Sophomore	45.0 – 89.9
Junior	90.0 – 134.9
Senior	135.0 or more

In all campus units except the School of Engineering and Applied Science, students are required to earn a minimum of 180 units from all college-level coursework for the bachelor's degree at UCLA. A maximum of 208 units is allowed in the School of Nursing and School of Theater, Film, and Television; in the School of the Arts and Architecture and College of Letters and Science a maximum of 216 units (228 for double majors and special programs) is allowed. In the School of Engineering and Applied Science, the minimum units allowed are between 180 and 200 (depending on the program); 213 maximum units are allowed. If students exceed the maximum, they may not be allowed to continue, except in rare cases approved by their college or school. See the degree requirements under each college and school for further details.

Graduate classification is based on the degree objective and whether or not students are advanced to candidacy for a doctorate.

Other Academic Policies

Concurrent Enrollment and Transfer of Credit

Concurrent enrollment means taking courses for credit in UCLA regular session (Fall, Winter, or Spring Quarter) and at another college institution (including UCLA Extension) at the same time. Concurrent enrollment is not permitted except in extraordinary circumstances, and no credit is given for courses taken concurrently elsewhere without the approval of the college or school. This does not apply to UCLA Summer Sessions.

Undergraduate Students

During the summer or during a term when students are not registered at UCLA, they may elect to take courses for credit at UCLA Extension, a community college, or another four-year institution (see limitations below). The UCLA Office of Undergraduate Admissions and Relations with Schools makes the final decision on credit transferability, but it is the students' responsibility to select courses with catalog descriptions similar to courses offered in regular session at UCLA. They should avoid courses that are closely related to those they have already taken, as they cannot receive credit twice for the same or similar courses. Students who wish to apply a specific course from another college toward satisfaction of degree requirements at UCLA should consult their college, school, or department counselor before taking the course.

Only grades earned in regular session or Summer Sessions at any UC campus other than UC Santa Cruz (unless the letter-grade option is elected at UCSC) and grades earned by Arts and Architecture and Letters and Science undergraduate students in UCLA Extension courses prefixed by XLC are computed in the UCLA grade-point average. Students may, however, receive unit credit and satisfy course requirements with transferable work taken elsewhere. When they have completed the work, they must have the other college send a copy of their transcript to the UCLA Office of Undergraduate Admissions and Relations with Schools (UARS); they must also fill out a Transfer Credit Evaluation Request form at UARS, 1147 Murphy Hall.

Students who wish to receive degree credit for work taken through **UCLA Extension** should take courses that correspond in number to the undergraduate courses offered in regular session. The designation XL or XLC before the number of the Extension course signifies that the course is equivalent to the regular session course bearing the same number. Grades earned by Arts and Architecture and Letters and Science undergraduate students in courses prefixed by XLC are computed in the UCLA grade-point average. No degree credit is given for courses numbered X300 through X499. Remember that concurrent enrollment in Extension and regular session is not permitted.

The maximum number of **community college** units allowed toward the bachelor's degree is 105 quarter units (70 semester units). The UCLA Office of Undergraduate Admissions and Relations with Schools does not grant transfer credit for community college courses beyond 105 quarter units, but students may still receive subject credit for this coursework to satisfy lower division requirements. Consult the college or school counselors for possible further limitations. (To convert semester units into quarter units, multiply the semester units by 1.5 — for example, 12 semester units \times 1.5 = 18 quarter units. To convert quarter units into semester units, multiply the quarter units by .666 — for example, 12 quarter units \times .666 = 7.99 or 8 semester units.)

Graduate Students

With approval of the dean of the Graduate Division, certain courses completed outside of UCLA regular session may be applied toward the master's degree. For more details, see Transfer of Credit under Requirements for Graduate Degrees in the Graduate Study section of this catalog.

Transcripts and Student Records

The Registrar prepares, maintains, and permanently retains a record of each student's academic work. Student files of pertinent documents are maintained up to five years following the last date of attendance. Students

may view their documents in Academic Record Services, 1134 Murphy Hall, by calling (310) 825-3801 to make an appointment. Advance notice of 24 hours is required for viewing.

The permanent record is the transcript, which reflects all undergraduate and graduate work completed in UCLA regular session and Summer Sessions. It lists chronologically the courses, units, grades, cumulative GPA, transfer credits, and total units.

The University Records System Access (URSA) allows all UCLA students to obtain course confirmation, UCLA grades for any completed term, GPA, completed units, and outstanding holds. Students may also confirm registration fee payment, update and review selected student information, and change their security code. Students may access the system for up to 10 years after their graduation or last term of attendance. For additional information, consult the *Schedule of Classes*.

As needed, students may obtain a free printout of their grades for the most recent graded term from the Registrar's Office, 1113 or 1134 Murphy Hall, by presenting their valid current-term BruinCard.

To have official transcripts sent to other schools, institutions, or agencies, complete a Transcript Request form (available in the Murphy Hall North Lobby) or write to the Registrar's Office, Attn: Transcripts, UCLA, Box 951429, Los Angeles, CA 90095-1429. Requests must include the student name while in attendance at UCLA, Social Security number and/or student I.D. number, dates of attendance, and student signature for release.

To reduce the risk of fraud and tampering, UCLA transcripts are printed on customized security paper. Transcripts are issued in blue envelopes marked "Official Transcripts Enclosed." Requests for additional notations or enclosures are considered special handling and may incur additional fees.

Each transcript costs \$5; additional fees apply for transcripts requiring special handling and/or mailing services. Call (310) 825-3801 for prices and to make arrangements for special services. Although fax services are available, transcripts that are faxed are not considered official and may not remain confidential. Continuing students and former students with UCLA Student Billing (BAR) accounts may charge transcript orders to their accounts. Other requests must be accompanied by a check made payable to Regents-UC. Transcript fees are subject to change at any time. Requests are not processed if students have outstanding financial, academic, or administrative obligations (holds) to the University. Transcripts of work completed elsewhere must be requested directly from the campus or institution concerned.

Transcripts for UCLA Extension courses must be ordered from UCLA Extension, P.O. Box 24901, Los Angeles, CA 90024.

Verification of Student Status

The Registrar issues a verification transcript to verify fee payment and enrollment status as students are eligible. Verification cannot be issued if registration fees for the term have not been paid. Verification transcripts cost \$5 each and are issued at 1134 Murphy Hall.

Verifications for loan forms and student aid guarantors are processed through the National Student Loan Clearinghouse, a nonprofit industry-sponsored organization representing schools, guarantors, lenders, servicers, and secondary markets for the sole purpose of standardizing, simplifying, and automating enrollment verifications and deferment processing. UCLA provides student enrollment verification data, including student names, mailing addresses, Social Security numbers, and enrollment status, to the clearinghouse on a regular basis. Release of this information to the clearinghouse has been approved by the U.S. Department of Education and ruled in compliance with the Federal Family Educational Rights and Privacy Act (FERPA). The \$5 verification transcript fee is waived for student loan requests when proof of need is presented.

Submit all verification request forms (including "good student" auto insurance discounts and health insurance verifications) to Academic Record

Services, 1134 Murphy Hall. Forms for clearinghouse participants are forwarded to the clearinghouse by Academic Record Services.

Certificate of Resident Study for International Students

International students who must leave the University and the country before completing a degree or certificate program may request a Certificate of Resident Study in addition to a formal transcript. The certificate cannot be awarded if the studies involved are covered by a diploma or other certificate. The chair of the major department recommends the award of the certificate through a petition to the college, school, or Graduate Division. To be eligible to receive the certificate, students must have completed a program of at least nine courses with a minimum GPA of 2.0 (2.5 for Graduate Division students) and have satisfactorily completed a research project over a period of nine months or more.

UCLA BruinCard

The UCLA BruinCard is a mandatory student identification card that is used to electronically confirm student status and eligibility for services. Supportive photo identification, such as a driver's license or passport, is required when the card is issued.

The primary benefit of the BruinCard is convenience. It is a versatile card that serves the following functions: confirmation of student status; I.D. card for faculty, staff, and students; residence halls access card; library card; recreation card; debit card (if activated) for purchases at all campus stores and restaurants; AT&T Calling Card (if this feature is elected); and time-management card for departments using the Kronos system.

Students with a hold from an office with which they have an outstanding obligation (financial, academic, or administrative) may not receive services until the hold is released by the initiating office. For details on outstanding holds and initiating offices, check with URSA Telephone (310) 208-0425 or URSA OnLine.

BruinCard centers at 123 Kerckhoff Hall, 107 UCLA Wilshire Center, and 150A Sproul Hall are open weekdays from 9 a.m. to 4 p.m. (310-825-2336). To report lost or stolen cards, call (310) 206-3199.

Change of Name or Address

Students who wish to change their name on official University records should fill out a UCLA Correction or Change of Name form (available in the Murphy Hall North Lobby) and submit it to Academic Record Services, 1134 Murphy Hall. All name changes are recorded on the transcript. If students change their address, they should notify Enrollment and Degree Services in 1113 Murphy Hall as soon as possible.

Leaving UCLA

Intercampus Transfer

Undergraduate students registered in a regular session at any campus of the University (or those previously registered who have not since registered at any other school) may apply for transfer to another campus of the University. Obtain the *UC Application for Undergraduate Admission and Scholarships* and submit the required application fees with the application form. The filing periods are the same as those for new applicants (see Undergraduate Admission in the Undergraduate Study section of this catalog). Applications are available from the Office of Undergraduate Admissions and Relations with Schools, 1147 Murphy Hall, UCLA, Box 951436, Los Angeles, CA 90095-1436, other University of California Undergraduate Admissions Offices, or the local community college.

Graduate students who wish to enroll as degree candidates at other UC campuses must apply for admission to those Graduate Divisions.

Absence during a Term

Students who need to be absent from classes temporarily for reasons beyond their control should notify their instructors. Regardless of the reasons for absence, they are required to complete all coursework. If they cannot complete the work on time because the absence is late in the term

or prolonged, they may request that the instructors assign an Incomplete grade (see Incomplete Grades earlier in this section).

One-Term Absence for Undergraduates

Undergraduate students who have completed at least one term at UCLA and fail to register for the following term may return to the University the next subsequent term as continuing students. Students who plan to attend another institution (including UCLA Extension) during their absence should consult their college or school counselor before enrolling elsewhere (see Concurrent Enrollment and Transfer of Credit earlier in this section). Students who are absent for two or more consecutive terms are no longer considered continuing students and must apply for readmission (see Readmission in the Undergraduate Study section of this catalog for procedures and deadlines).

Leave of Absence for Graduate Students

Graduate students in good standing may be granted leaves of absence, normally for periods of one to three terms, on approval from the appropriate department and the Graduate Division. The maximum amount of official leave of absence allowed is six terms (two academic years). Leaves must be requested before the end of the second week of classes (see Withdrawal below for fee refund procedures and more information). Request forms are available from Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall. For details on leaves of absence, see *Standards and Procedures for Graduate Study at UCLA*, available in the Graduate Division offices or in individual departments. Students on leaves of absence are not eligible to use University facilities (except libraries) or faculty time and cannot receive University financial support. Leaves of absence as described here do not apply to undergraduates.

Graduate students who fail to register for a term and do not take an official leave of absence are considered to have withdrawn from the University and must compete for readmission with all other applicants.

Cancellation

Before the first day of classes, students may cancel registration by mailing a written notice to Enrollment and Degree Services, Attn: Cancellation Clerk, 1113 Murphy Hall, UCLA, Box 951429, Los Angeles, CA 90095-1429. Refund is as follows: fees paid by new undergraduate students are refunded except for the nonrefundable \$100 acceptance of admission fee and a \$10 service fee; fees paid by new M.B.A. and Dentistry students are refunded except for their respective nonrefundable acceptance of admission fee; for new graduate, continuing, and reentering students, a service fee of \$10 is deducted from the amount of fees paid. A \$20 cancellation fee is also deducted if medical insurance was purchased.

Undergraduates who return to the University for the following term are considered continuing students. Students who are absent longer than one term must apply for readmission (see Readmission in the Undergraduate Study section of this catalog for procedures and deadlines). If they cancel in their first term at UCLA, they must reapply for admission.

Graduate students who cancel their registration and do not apply for a formal leave of absence must compete for readmission to return to the University.

Withdrawal

Withdrawing from the University means discontinuing attendance in all courses in which students are enrolled. Students who withdraw during a term need to file a Notice of Withdrawal, available from their academic dean's office (undergraduates) or departmental office (graduate students).

When students officially withdraw, a percentage of the registration fee is refunded depending on the date the withdrawal form is filed with the academic dean.

Claims for refund must be presented within the academic (fiscal) year to which the claim is applicable. Consult the *Schedule of Classes* for policy details and specific refund dates.

Students may withdraw only if they have not taken any final examinations or otherwise completed the work in any classes. For undergraduates, one withdrawal places no restriction on readmission or continuation if they started the term in good academic standing. If they withdraw after one or more previous withdrawals or while in academic difficulty, a restriction may be placed on their continuance in undergraduate standing. Before withdrawing, they are urged to consult faculty, departmental, or college advisers to consider the full implications of this action.

Undergraduates may also withdraw from a term retroactively, provided no final examinations have been taken and no coursework has been completed. No withdrawals are accepted once they have officially graduated from the University.

Students who register and subsequently discontinue coursework or stop payment on registration checks without an approved petition for withdrawal, leave of absence, or cancellation receive F, NP, or U grades, as appropriate, for all courses in which they are enrolled for that term. A \$60 fine is assessed if any check for registration fee payment is returned by a bank for stopped payment, insufficient funds, or any other reason. No fees are refunded, and future registration privileges may be curtailed or revoked. Transcripts are not issued if students have outstanding financial obligations to the University.

Undergraduate Students

If students return to the University for the term following withdrawal, they are considered continuing students. If they return later than the following term, they must apply for readmission.

Graduate Students

If students do not register for a term, they are considered to have withdrawn from the University and must apply for readmission when they return.

Graduation from UCLA

Approximately eight out of every 10 UCLA freshmen eventually receive a baccalaureate degree, either from UCLA or from another campus or institution. According to a recent survey of UCLA alumni, one third of all UCLA baccalaureate recipients go on to graduate school. For information on academic requirements for graduation, see Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

Undergraduate Students

The awarding of the bachelor's degree does not happen automatically but is the culmination of several steps that begin when students identify the term they expect to complete degree requirements through URSA Telephone (consult the *Schedule of Classes* for complete instructions on using URSA to declare degree candidacy). This must be done before students complete 160 units (172 for the School of Engineering and Applied Science) or a **\$13 late candidacy fee** is assessed. The identified term must fall within the academic year (four quarters) subsequent to the term in which students reach or expect to reach the 160-/172-unit mark. Exceptions can be made by the degree auditor depending on the program of study (for example, double majors).

Students may request a review of their degree progress by a counselor in their college or school office at any time. Advisers in the major department are also available for counseling on departmental requirements.

The "degree expected term" students specify through URSA Telephone is used by the degree auditors to review coursework and begin the audit of the completion of degree requirements. Students cannot graduate without such an audit. If the expected graduation date changes, update the degree term through URSA Telephone. Once students have completed 160/172 or more units, a fee is assessed each time they change the "degree expected term" through URSA Telephone.

Students who are current-term or past-term candidates over the unit limit can only change the "degree expected term" in person at 1113 Murphy Hall. They must use the UCLA Declaration of Candidacy form (available

for purchase in the school supplies section at any UCLA Store) for this purpose.

Consult the *Schedule of Classes* for the deadline to declare candidacy for the current term (with fee if 160/172 or more units completed). Declaration of candidacy after the published deadline may result in a degree award date for the following term and additional candidacy penalty fees.

Students can confirm their “degree expected term” at any time through URSA Telephone at (310) 208-0425. Declaring candidacy is not a guarantee of graduation. Students who have requested through URSA that no public information (including their name) be released are not included in the program booklet for Commencement ceremonies.

Students who intend to complete degree requirements as nonregistered students (for example, taking a course through UCLA Extension or at another institution or needing to remove an Incomplete grade) must file a request to graduate “in absentia” with the degree auditor by the candidacy deadline for the “degree expected term.” Students graduating “in absentia” are assessed the special order diploma fee in addition to the declaration of candidacy fee.

Students in the School of the Arts and Architecture, School of Nursing, School of Engineering and Applied Science, and School of Theater, Film, and Television are audited for degree requirements by staff members in their respective counseling/student affairs offices and should consult them regarding questions on degree requirements and school degree audit procedures.

A computer-generated **Degree Progress Report (DPR)** serves as the degree check for students in the College of Letters and Science. The DPR contains a detailed evaluation of transfer credit, courses and grades for each completed term, degree requirements completed, and requirements still outstanding. Students can view and print their DPR through URSA OnLine or order one at A316 Murphy Hall.

A “Summary of Shortages for the Bachelor’s Degree” statement is mailed to each current-term candidate who does not satisfy degree requirements that term. Students who receive such notices should contact a degree auditor immediately to discuss their expected completion of the requirements. If students expect to satisfy degree requirements in a later term, they must change their “degree expected term” over URSA Telephone or at 1113 Murphy Hall. They may be assessed applicable fees, with the option to submit payment or be billed through BAR.

Graduate Students

Candidates for both master’s and doctoral degrees must be advanced to candidacy and complete all degree requirements, including the master’s thesis or comprehensive examination, or doctoral dissertation, before the degree is conferred (consult the *Schedule of Classes* for filing deadlines).

For full details on degree requirements and procedures for graduate students, see the Graduate Study section of this catalog.

Final Transcript

Official transcripts with the graduation date included are available approximately seven weeks after the end of the term. Students who require earlier proof of graduation should contact their degree auditor.

Degree Date

Degrees are awarded at the end of Fall, Winter, and Spring Quarters and at the end of Summer Session C (mid-September). For the School of Law and School of Medicine, degrees are awarded at the end of Fall and Spring Semesters. Consult the respective University calendars (quarter, summer sessions, semester) for the actual degree award date, which is the final day of the term.

Diplomas

Diplomas for both undergraduate and graduate students are available approximately three to four months after the degree award date. Information about obtaining the diploma in person (no fee) or by mail (with fee) is sent to students approximately seven weeks after the end of their final term. To expedite receipt of the diploma, students are encouraged to return the diploma mailer form and remit the mailing fee. Recorded information regarding diploma availability may be obtained by calling the Diploma Hot Line at (310) 825-8883. The Registrar’s Office retains diplomas for five years from graduation date.

If the original diploma is destroyed, a duplicate may be ordered by contacting the Registrar’s Office, Diploma Reorder, 1113 Murphy Hall. There is a fee for the replacement diploma, and it bears a reissue date and the signatures of the current officials of the state and University.

Commencement

Each school and college conducts an academic ceremony for its graduates. Some of the ceremonies feature an address by the Chancellor, student speakers, and recognition of candidates who have achieved high academic distinction and honors. Check with the school or college for eligibility requirements, programs, and time schedules.

Academic regalia (caps, gowns, and hoods) are available for rent/purchase at Graduation Etc. (A Level of Ackerman Union, 310-825-2587, <http://www.uclastore.ucla.edu>). In addition, graduation announcements, diploma covers, and diploma mounting are available.

Further information, including the schedule of ceremonies, maps and parking information, what to expect, and commencement updates, is available from the University commencement website at <http://www.commencement.ucla.edu/>.

College and Schools

School of the Arts and Architecture

Daniel Neuman, Dean

UCLA
303 East Melnitz Building
Box 951427
Los Angeles, CA 90095-1427
(310) 206-6465
<http://www.arts.ucla.edu>

The School of the Arts and Architecture at UCLA plays a vital role in the cultural and artistic life of the campus and community. Providing a full range of course offerings and degree programs, the school consists of six departments — Architecture and Urban Design, Art, Design, Ethnomusicology, Music, and World Arts and Cultures. Students have unparalleled opportunities to learn from and interact with distinguished faculty members who rank among the most innovative artists and architects of our time.

A balance of practice and theory, built on the academic foundation of the liberal arts, assures the understanding and appreciation of both the interdependence and integration of creativity, performance, and research. In educating the whole person, the school strives to empower and inspire the next generation of citizens to serve as cultural leaders of the twenty-first century.

Also under the School of the Arts and Architecture umbrella is an impressive array of public arts units, including the UCLA Performing Arts, one of the largest arts presenters in the nation, UCLA at the Armand Hammer Museum of Art and Cultural Center which houses the Grunwald Center for the Graphic Arts, the UCLA Fowler Museum of Cultural History, and the renowned Murphy Sculpture Garden. These institutions offer extraordinary access to leading anthropological, historical, and contemporary visual arts exhibitions and collections, and presentations by the world's most outstanding performing artists.

In addition to providing a rich and diverse environment on campus, the school offers students the opportunity to participate in community outreach programs designed around concerts, exhibitions, symposia, and dance productions presented in cooperation with groups throughout the greater Los Angeles area.

The departments of the School of the Arts and Architecture are integral to the rich and varied cultural life of the campus. The Department of Architecture and Urban Design provides architecture students with a unique opportunity to study buildings, cities, and their interdependence in one of the most structurally and ethnically diverse cities in the world. Students in the Department of Art are taught to understand the broad panorama of the visual arts emphasizing experimentation. The Department of Design focuses on electronic and digital imagery in visual communication design and on the computational devices and computer applications most likely to be sought by industry in the twenty-first century. Students in the Department of Ethnomusicology study the performance and context of music-making from a global perspective, and the Department of Music offers concentrations in composition, music education, performance, and jazz studies. The Department of World Arts and Cultures offers an innovative interdisciplinary arts curriculum based on the vital relationship between dance/performance and theory/criticism.

Informative brochures on the school are available from the Office of Recruitment and Outreach, 1100 Dickson Art Center, UCLA, Box 951620, Los Angeles, CA 90095-1620, (310) 825-9708.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, (310) 825-8328.

Majors and Degrees Offered

Architecture (M.Arch. I, M.Arch. II, M.A., Ph.D.)

Art (B.A., M.A., M.F.A.)

Dance (M.A., M.F.A.)

Dance/Movement Therapy (M.A.)

Design (B.A., M.A., M.F.A.)

Ethnomusicology (B.A., M.A., C.Phil., Ph.D.)

Music (B.A., M.A., M.M., C.Phil., D.M.A., Ph.D.)

World Arts and Cultures (B.A.)

Note: New students are not being admitted to the M.A. in Design or the M.A. in Dance/Movement Therapy at this time.

Undergraduate Study

Admission

In addition to the University of California Undergraduate Application, departments in the School of the Arts and Architecture require auditions, portfolios, or evidence of creativity. Detailed information on departmental requirements is mailed to students on receipt of their application. The annual deadline date for applications is November 30 for admission in the following Fall Quarter.

Study Lists

Each term the student Study List must include from 12 to 17 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 17 units if they have an overall grade-point average of 3.0 (B) or better and have attained at least a B average in the preceding term with all courses passed. Consult the Student Services Office no later than the end of the third week of instruction.

Graduate Courses

Undergraduate students who wish to take courses numbered in the 200 series for credit toward the degree must petition for advance approval of the department chair and the dean of the school and must meet the specific qualifications. Courses numbered in the 400 and 500 series may not be applied toward the degree.

Concurrent Enrollment

Enrollment at another institution or UCLA Extension while enrolled at UCLA is not permitted.

Requirements for Bachelor of Arts Degrees

Each student must meet six kinds of requirements for the B.A. degree: University, school, and unit requirements, as well as major, scholarship, and residence requirements. The requirements are as follows.

University Requirements

For information on the Subject A or English as a Second Language (ESL) and American History and Institutions requirements, see Under-

graduate Degree Requirements in the Undergraduate Study section of this catalog.

School of the Arts and Architecture students enrolled in English as a Second Language 33A, 33B, 33C, 35 must take the courses for a letter grade.

School Requirements

The general requirements of the School of the Arts and Architecture must be completed with a grade-point average of 2.0 or better.

Unit Requirements

Students must complete for credit, with a passing grade, no less than 180 units and no more than 216 units, of which at least 64 units must be upper division courses (numbered 100 through 199). Credit for 199 courses is limited to 16 units, eight of which may be applied to the major. All 199 courses must be taken for a letter grade.

UCLA Extension courses with the prefix X on those numbered in the 1 through 199, 200, 300, 400, or 800 series may not be applied toward the degree.

Credit earned through the College Board Advanced Placement Tests may be applied toward the general education requirements. Portions of Advanced Placement Test credit may be evaluated by corresponding UCLA course numbers (e.g., History 1C). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

Students may petition to be reviewed for a double major on an individual basis. Contact the Student Services Office for an outline of criteria required.

Major Requirements

A major is composed of not less than 14 courses (56 units), including at least nine upper division courses (36 units). All majors include both lower and upper division courses. Those listed under Preparation for the Major (lower division) should be completed before upper division major work is undertaken.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. All courses in the major department must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the departmental adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Any department offering a major in the School of the Arts and Architecture may require a general final examination.

Individual Majors

Highly motivated students who believe that no single major accommodates their specific interests and goals may propose designing their own major. Proposals are prepared with faculty guidance and sponsorship and must explain the intent concerning the anticipated program of study and reasons why the academic goals cannot be achieved within an existing major. Proposals must be submitted no later than the end of the sophomore year. Transfer students must complete at least one term of residency at UCLA before proposing an individual major. Students interested in designing an individual major should consult with the Director of Student Services, School of the Arts and Architecture, 1100 Dickson Art Center, (310) 825-9707.

Scholarship and Minimum Progress

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A C average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements.

Minimum Progress

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if

they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

Residence Requirements

Students are "in residence" while enrolled and attending classes at UCLA as a major in the School of the Arts and Architecture. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the School of the Arts and Architecture. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Courses in UCLA Extension (either class or correspondence) may not be applied toward any part of the residence requirements.

English Composition and Critical Reading and Writing Requirements

English Composition and Rhetoric

English Composition 3 with a minimum grade of C must be completed by the end of the third term at UCLA and may not be taken on a Passed/Not Passed basis. An Advanced Placement (AP) Test score of 4 also meets this requirement.

Critical Reading and Writing

One course from Comparative Literature (formerly Humanities) 2A, 2B, 2C, 2D, or English 4 with a minimum grade of C must be completed by the end of the second year at UCLA and may not be taken on a Passed/Not Passed basis. An Advanced Placement (AP) Test score of 5 also meets this requirement. Comparative Literature 2A, 2B, 2C, or 2D may not be applied toward the humanities/literature requirement if taken to meet this requirement.

Foreign Language Requirement

Students may meet this requirement by (1) scoring 3, 4, or 5 on the Advanced Placement (AP) foreign language test in French, German, or Spanish, or scoring 4 or 5 on the AP foreign language test in Latin, (2) presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to UCLA's level three or above with a grade of Passed or C or better.

International students may petition to use an advanced course in their native language for this requirement. Students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

Computing/Mathematics/Statistics Requirement

One course (four units) in mathematics or statistics or an introductory course in computers selected from Anthropology M80, Computer Science 1, 2, Economics M40, Geography M40, Mathematics 1, 2, 3A, 3B, 3C, 31A, 31B, Program in Computing 1, 10A, 10B, 10C, Sociology M18, Statistics 10, M11, M12, M21A, M21C. An SAT I mathematics score of 600 or better or an SAT II mathematics subject test score of 550 or better also meets this requirement.

Additional Upper Division Nonmajor Requirements

In addition to the general education requirements, students are required to take a minimum of 12 units of upper division nonmajor courses. Courses that do not apply on this requirement are studio, performance, activity, independent study, debate, creative dramatics, internships, production, workshop, and field studies courses. Consult the school counselor prior to enrolling.

General Education (GE) Requirements

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all general education requirements prior to enrolling at UCLA are not required to complete the School of the Arts and Architecture general education requirements. Written verification from the college dean at the other UC campus is required. Verification letters should be sent to the Student

Services Office, School of the Arts and Architecture, 1100 Dickson Art Center, UCLA, Box 951620, Los Angeles, CA 90095-1620.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA's lower division general education requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. The IGETC significantly eases the transfer process, as all of UCLA's general education requirements are fulfilled when students complete it. If they select the IGETC, they must complete it entirely before enrolling at UCLA. Otherwise, students must fulfill the School of the Arts and Architecture general education requirements.

Arts and Architecture GE Course List

Courses marked with one asterisk (e.g., History *4. Introduction to History of Religions) are listed in more than one category and can fulfill GE requirements in only one of the cross-listed categories.

**If Comparative Literature 2A, 2B, 2C, or 2D is taken to meet the Arts and Architecture critical reading and writing requirement, it may not also be applied toward the humanities/literature requirement.

A. Science

Two courses from different departments:

Anthropology

- 7. Human Evolution
- 10. Principles of Human Evolution: Genetic Basis
- 12. Principles of Human Evolution: Comparative Analysis

Astronomy

- 2A, 2B. Introduction to the Physical Universe
- 3. Astronomy: Nature of the Universe
- 3H. Introductory Astronomy and Astrophysics
- 4. Universe of Stars and Stellar Systems
- 5. Life in the Universe
- 6. Cosmology: Our Changing Concepts of the Universe
- 81. Astrophysics I: Stars and Nebulae
- 82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology

Atmospheric Sciences

- 2, 2E. Air Pollution
- 3, 3E. Introduction to the Atmospheric Environment
- 4. California Weather and Climate
- 5. Climates of Other Worlds
- 6, 6E. Climate and Climatic Change
- 8. Clouds, Rain, and Storms
- 10. Introduction to the Earth System

Chemical Engineering

- 2. Technology and the Environment

Chemistry and Biochemistry

- 2. Introductory Chemistry
- 15. Survey of Organic Chemistry and Biochemistry

Civil and Environmental Engineering

- 3. Fundamentals of Environmental Engineering Science

Earth and Space Sciences

- 1. Introduction to Earth Science
- 2. Earth History
- 5. Environmental Geology of Los Angeles
- 8. Earthquakes
- 9. Origin and Evolution of Solar System
- 15. Introduction to Oceanography
- 16. Major Events in History of Life
- 17. Dinosaurs and Their Relatives
- 20. Natural History of Southern California

Geography

- 1. Physical Environment
- 2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World

5. People and the Earth's Ecosystems

Life Sciences

- 1. Evolution, Ecology, and Biodiversity
- 2. Cells, Tissues, and Organs
- 3. Introduction to Molecular Biology
- 4. Genetics

Microbiology and Molecular Genetics

- 6. Introduction to Microbiology
- 7. Developments in Biotechnology
- 10. Applied Medical Microbiology

Molecular, Cell, and Developmental Biology

- 30. Biology of Cancer
- 40. AIDS and Other Sexually Transmitted Diseases
- 70. Genetic Engineering and Society
- 80. The Green World: Plant Biology for Now and the Future

Organismic Biology, Ecology, and Evolution

- 10. Plants and Civilization
- 12. Biodiversity and Extinction: Crisis and Conservation
- 13. Evolution of Life
- 21. Field Biology
- 25. Oceans
- 50. Desert Life

Physics

- 1A. Physics for Scientists and Engineers: Mechanics
- 1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields
- 1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity
- 3A. General Physics: Mechanics of Solids and Fluids
- 3B. General Physics: Heat, Sound, Electricity and Magnetism
- 3C. General Physics: Light, Relativity, and Modern Physics
- 6A. Physics for Life Sciences Majors: Statics and Dynamics
- 6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics
- 6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport
- 10. Physics

Physiological Science

- 3. Introduction to Human Physiology
- 5. Issues in Human Physiology: Diet and Exercise
- 6. The Human Machine: Physiological Processes
- 13. Introduction to Human Anatomy

Psychology

- 15. Introductory Psychobiology

B. Social Sciences

Three courses, with at least one from each group:

B1. Group A

Economics

- 1, 2. Principles of Economics
- 5. Introductory Economics

History

- 1A, 1B, 1C. Introduction to Western Civilization
- 2A. Power, Ethics, and Technological Change
- 2B. Social Knowledge and Social Power
- 3A, 3B, 3C. Introduction to History of Science
- 3D. Themes in History of Medicine
- *4. Introduction to History of Religions
- 8A. Colonial Latin America
- 8B. Political Economy of Latin American Underdevelopment, 1750 to 1930
- 8C. Latin American Social History
- 9A. Introduction to Asian Civilizations: History of India
- 9C. Introduction to Asian Civilizations: History of Japan
- 9D. Introduction to Asian Civilizations: History of the Near and Middle East
- 10A, 10B. Introduction to Civilizations of Africa
- 11A, 11B. History of China
- 13A. History of the U.S. and Its Colonial Origins: Colonial Origins and First Nation Building Acts
- 13B. History of the U.S. and Its Colonial Origins: 19th Century
- 13C. History of the U.S. and Its Colonial Origins: 20th Century

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- 20. World History to A.D. 600
- 21. World History, 1200 to 1800
- 22. Contemporary World History, 1870 to the Present

Political Science

- 10. Introduction to Political Theory
- 20. World Politics
- 30. Introduction to Political Economy
- 40. Introduction to American Politics
- 50. Introduction to Comparative Politics

B2. Group B

Afro-American Studies

- M5. Social Organization of Black Communities

American Indian Studies

- *10. Introduction to American Indian Studies

Ancient Near East (Near Eastern Languages)

- *10. Jerusalem: The Holy City

Anthropology

- 8. Archaeology: An Introduction
- 9. Culture and Society
- 33. Culture and Communication

Asian American Studies

- *21. Asians and Pacific Islanders in American Society
- *99. History of Asians in America

Chicana and Chicano Studies

- 10B. Chicanos in American Society

Classics

- *M70. Survey of Medieval Greek Culture

Communication Studies

- 10. Introduction to Communication Studies

Geography

- 3. Cultural Geography
- 4. Globalization: Regional Development and World Economy

History

- *M70. Survey of Medieval Greek Culture

Lesbian, Gay, Bisexual, and Transgender Studies

- *M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

Portuguese (Spanish and Portuguese)

- *46. Brazilian Culture and Civilization

Psychology

- 10. Introductory Psychology

Social Sciences

- 20. Racial Minorities in the U.S.

Sociology

- 1. Introductory Sociology
- 2. Changing Society and Making History
- 3. Sociology of Everyday Life
- 4. Jobs and Careers: Sociological Approach
- M5. Social Organization of Black Communities
- 24. Conversation and Society
- 31. Dilemmas of Third World Development

Women's Studies

- 10. Introduction to Women's Studies: Feminist Perspectives on Women and Society
- *M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

C. Humanities

Three courses, with at least one course in three of the four groups:

C1. Arts

Afro-American Studies

- M103A. African American Theater History: Slavery to Mid-1800s
- M103B. African American Theater History: Minstrel Stage to Rise of the American Musical
- M103E. African American Theater History: The Depression to the Present
- M109. Women in Jazz
- M110A, M100B. African American Musical Heritage
- M145. Ellingtonia

Art History

- 50. Ancient Art
 - 51. Medieval Art
 - 54. Modern Art
 - 55A. Introduction to African Art
 - 55B. Arts of Pre-Columbian America
 - 56A. Art of India and Southeast Asia
 - 56B. Introduction to Chinese Art
 - 57. Renaissance and Baroque Art
- (Art history courses cannot fulfill GE requirements for Art majors.)

Chicana and Chicano Studies

- M103C. Origins and Evolution of Chicano Theater
- M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement (except World Arts and Cultures majors)
- M103H. Contemporary Chicano Theater: Chicano Theater since 1980 (except World Arts and Cultures majors)
- M108A. Music of Latin America
- M114. Chicanos in Film/Video
- M115. Musical Aesthetics in Los Angeles
- M116. Chicano/Latino Music in the U.S.

Classics

- 42. Cinema and the Ancient World
- 51A. Art and Archaeology of Classical World: Greece
- 51B. Art and Archaeology of Classical World: Rome

Design

- 10. Nature of Design
- (Design course cannot fulfill GE requirements for Design majors.)

English

- M111B. Anglo-American Folk Song

Ethnomusicology

- 15. American Life in Music
 - 20A, 20B, 20C. Musical Cultures of the World
 - 106A, 106B, 106C. Music of the American Indians
 - M108A, 108B. Music of Latin America
 - M109. Women in Jazz
 - M110A, M110B. African American Musical Heritage
 - M111. Ellingtonia
 - 113. Music of Brazil
 - M115. Musical Aesthetics in Los Angeles
 - M116. Chicano/Latino Music in the U.S.
 - 117. American Popular Music
 - 118. Development of Rock
 - 120A, 120B. Development of Jazz
 - 121. Cross-Cultural Perspectives in Jazz
 - 123. Music of Bebop
 - M124. Anglo-American Folk Song
 - M126. Folk Music of Western Europe
 - 128. Folk Music of Eastern Europe
 - 130. Folk Music of the Mediterranean
 - M131. Development of Latin Jazz
 - CM132. Celtic Folk Music
 - 136A, 136B. Music of Africa
 - 146. Folk Music of South Asia
 - 147. Survey of Classical Music in India
 - C150. Music and Politics in East Asia
 - C156A, 156B. Music in China
 - 157. History of Chinese Opera
 - 158A, 158B, 158C. Studies in Chinese Instrumental Music
 - 160A. Survey of Music in Japan
 - 174. Aesthetics of Music
- (Ethnomusicology courses cannot fulfill GE requirements for Music or Ethnomusicology majors.)

Film and Television

- 106A. History of the American Motion Picture
- 106B. History of the European Motion Picture
- 106C. History of African, Asian, and Latin American Film
- 107. Experimental Film
- 108. History of Documentary Film

- 110A. History of Broadcasting
- 110C. World Media Systems
- 112. Film and Social Change
- 113. Film Authors
- 114. Film Genres
- 116. Film Criticism
- M117. Chicanos in Film/Video
- 127. Problems and Ethical Issues in Film and Telecasting

Folklore and Mythology

- CM106. Anglo-American Folk Song
- CM132. Celtic Folk Music
- M154A, M154B. African American Musical Heritage
- M181. Folk Music of Western Europe
- CM184. Dance and Folklore

Lesbian, Gay, Bisexual, and Transgender Studies

- M137. Gay and Lesbian Perspectives in Pop Music

Music

- 15. Art of Listening
 - M131. Development of Latin Jazz
 - 136A, 136B, 136C. Historical Survey of Music Theater
 - 158. New Orleans Jazz
- (Music courses cannot fulfill GE requirements for Music or Ethnomusicology majors.)

Music History

- 2A, 2B. Introduction to Literature of Music
 - 5. History of Rock and Roll
 - 7. Film and Music
 - 13. 20th-Century Music of the Western World
 - 130. Music of the U.S.
 - 131. American Popular Song
 - 132. Mozart
 - 133. Bach
 - 134. Beethoven
 - 135A, 135B, 135C. History of Opera
 - M137. Gay and Lesbian Perspectives in Pop Music
 - 139. History and Literature of Church Music
 - 156. Studies in Musical Genres
 - 189A, 189B. The Symphony
- (Musicology courses cannot fulfill GE requirements for Music or Ethnomusicology majors.)

Russian (Slavic Languages)

- *30. Russian Literature and World Cinema

Spanish (Spanish and Portuguese)

- *62A, *62B, *62C. Hispanic Literatures and Film

Theater

- 101A, 101B, 101C. History of World Theater and Drama
- 102A. Theater of Japan
- 102B. Theater of Southeast Asia
- 102C. Cross-Cultural Currents in Theater
- 102E. Theater of Non-European World
- M103A. African American Theater History: Slavery to Mid-1800s
- M103B. African American Theater History: Minstrel Stage to Rise of the American Musical
- M103C. Origins and Evolution of Chicano Theater
- M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement (except World Arts and Cultures majors)
- M103E. African American Theater History: The Depression to the Present
- 103F. Native American Theater
- M103H. Contemporary Chicano Theater: Chicano Theater since 1980 (except World Arts and Cultures majors)
- 104A, 104B, 104C. History of American Theater
- 105. Main Currents in Theater
- 106. History of American Theater and Drama
- 107. Drama of Diversity
- 111A. Selected Topics on History of European Theater from Primitive Times to 1640
- 111B. Selected Topics on History of European Theater from 1640 to 1900
- 111C. Selected Topics on History of European Theater from 1900 to the Present

Women's Studies

- M109. Women in Jazz

World Arts and Cultures

- M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement
 - M103H. Contemporary Chicano Theater: Chicano Theater since 1980
 - 128. Dance and the Visual Media
 - 132A. Philosophical Bases and Trends in Dance
 - 134. History of Dance in Culture and Performance
 - 135. Dance in the U.S.
 - 144. Costume and Scenic Design Concepts for Dance Theater
 - 181A. Dance Cultures of Asia
 - 181B. Dance in Southeast Asia
 - 181C. Dance in East Asia
 - 181D. Dance in South Asia
 - 182. Dance in Africa and the African Diaspora
 - 183. Dance in Latino American Cultures
 - CM184. Dance and Folklore
 - C187. Dance in Native American Cultures
- (World arts and cultures courses cannot fulfill GE requirements for World Arts and Cultures majors.)

C2. Culture and Civilization

American Indian Studies

- *10. Introduction to American Indian Studies

Asian American Studies

- *21. Asians and Pacific Islanders in American Society
- *99. History of Asians in America

Chicana and Chicano Studies

- 10A. Introduction to Chicano Life and Culture

Chinese (East Asian Languages)

- 50. Chinese Civilization

Classics

- 10. Survey of Classical Greek Culture
- 20. Survey of Roman Civilization
- *30. Introduction to Classical Mythology
- *M70. Survey of Medieval Greek Culture

Folklore and Mythology

- 15. Introduction to American Folklore Studies

French

- 14. Introduction to French Civilization, in English

German (Germanic Languages)

- 100A. German Civilization and Culture before 1700
- 100B. Modern German Civilization and Culture from 1700 to 1919
- 100C. German Civilization and Culture in the 20th Century

History

- *M70. Survey of Medieval Greek Culture

Italian

- 42A. Italy through the Ages, in English: Holy Roman Empire to Sack of Rome
- 42B. Italy through the Ages, in English: Late Renaissance to Postmodern Period
- 46. Italian Cinema and Culture

Japanese (East Asian Languages)

- 50. Japanese Civilization

Jewish Studies (Near Eastern Languages)

- 10. Social, Cultural, and Religious Institutions of Judaism

Korean (East Asian Languages)

- 50. Korean Civilization

Lesbian, Gay, Bisexual, and Transgender Studies

- *M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

Near Eastern Languages

- 50A. Introduction to Near Eastern Languages and Cultures: Ancient Near East
- 50B. Introduction to Near Eastern Languages and Cultures: Medieval Near East
- 50C. Introduction to Near Eastern Languages and Cultures: Modern Near East

Portuguese (Spanish and Portuguese)

- M42. Civilization of Spain and Portugal
- M44. Civilization of Spanish America and Brazil
- *46. Brazilian Culture and Civilization

Romanian (Slavic Languages)

99. Introduction to Romanian Civilization

Russian (Slavic Languages)

99A. Introduction to Russian Civilization
99B. Russian Civilization in the 20th Century

Slavic (Slavic Languages)

99. Introduction to Slavic Civilization

Spanish (Spanish and Portuguese)

M42. Civilization of Spain and Portugal
M44. Civilization of Spanish America and Brazil

Women's Studies

*M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

C3. Literature

Classics

*30. Introduction to Classical Mythology
40. Survey of Greek Literature in Translation
41. Survey of Latin Literature in Translation

Comparative Literature (formerly Humanities)

1A. World Literature: Antiquity to Early Middle Ages
1B. World Literature: Late Middle Ages to the 17th Century
1C. World Literature: Age of Enlightenment to the 20th Century
1D. Great Books from the World at Large
**2A. Survey of Literature: Antiquity to Early Middle Ages
**2B. Survey of Literature: Late Middle Ages to the 17th Century
**2C. Survey of Literature: Age of Enlightenment to the 20th Century
**2D. Survey of Literature: Great Books from the World at Large

English

10A. English Literature to 1660
10B. English Literature, 1660 to 1832
10C. English Literature, 1832 to the Present
70. Major British Authors before 1800
75. Major British Authors, 1800 to the Present
80. Major American Authors
85. The American Novel
90. Shakespeare
95A. Introduction to Poetry
95B. Introduction to Drama
95C. Introduction to Fiction
96. The Short Story in England and America

French

12. Introduction to Study of French Literature (in French)

German (Germanic Languages)

50A. Masterworks of German Literature in Translation: Medieval Period through Classicism
50B. Masterworks of German Literature in Translation: Romanticism to the Present

Italian

50A. Masterpieces of Italian Literature in English: Middle Ages and Renaissance
50B. Masterpieces of Italian Literature in English: Baroque Period to the Present

Japanese (East Asian Languages)

60. Image of Japan: Humanistic Tradition

Portuguese (Spanish and Portuguese)

40A, 40B. Portuguese, Brazilian, and African Literature in Translation

Russian (Slavic Languages)

25. The Russian Novel in Translation
*30. Russian Literature and World Cinema

Scandinavian

50. Introduction to Scandinavian Literature

Spanish (Spanish and Portuguese)

60A, 60B, 60C. Hispanic Literatures in Translation
61A, 61B, 61C. Hispanic Literatures in Spanish
*62A, *62B, *62C. Hispanic Literatures and Film

Selected upper division courses

in English and in other language and literature departments

C4. Philosophy/Religion

Ancient Near East (Near Eastern Languages)

*10. Jerusalem: The Holy City
130. Ancient Egyptian Religion

Anthropology

156. Comparative Religion

Chinese (East Asian Languages)

160. Chinese Buddhism
175. Introduction to Chinese Thought

Classics

88A. Lower Division Seminar: Socrates
M145A. Ancient Greek and Roman Philosophy
M145B. Later Ancient Greek Philosophy
166A. Greek Religion
166B. Roman Religion

East Asian Languages and Cultures

60. Introduction to Buddhism

History

*4. Introduction to History of Religions

Indic (East Asian Languages)

175. Introduction to Indic Philosophy

Iranian (Near Eastern Languages)

170. Religion in Ancient Iran

Islamic (Near Eastern Languages)

110. Introduction to Islam

Japanese (East Asian Languages)

C160. Japanese Buddhism
161. Religious Life in Modern Japan
175. Introduction to Japanese Thought

Jewish Studies (Near Eastern Languages)

130. Modern Jewish Religious Movements and Their Ideologies

Korean (East Asian Languages)

160. Korean Buddhism
175. Introduction to Traditional Korean Thought
187. Popular and Folk Religion in Korea

Philosophy

1. Beginnings of Western Philosophy
2. Introduction to Philosophy of Religion
4. Philosophical Analysis of Contemporary Moral Issues
5A. Philosophy in Literature
6. Introduction to Political Philosophy
7. Introduction to Philosophy of Mind
8. Introduction to Philosophy of Science
9. Principles of Critical Reasoning
21. Skepticism and Rationality
22. Introduction to Ethical Theory
31. Logic, First Course
32. Logic, Second Course
M103A. Ancient Greek and Roman Philosophy
M103B. Later Ancient Greek Philosophy

Honors

Dean's Honors

To receive Dean's Honors in the School of the Arts and Architecture, students must have at least 12 graded units per term with a grade-point average of 3.8 for less than 16 units of work (3.7 GPA for 16 or more units). The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

Honors at Graduation

Honors at graduation are awarded to students with superior grade-point averages. To be eligible, students must have completed 90 or more units for a letter grade at the University of California. The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility. See the quarterly *Schedule of Classes* for the most current calculations of Latin honors.

Counseling and Program Planning

The School of the Arts and Architecture offers advising, program planning in the major and general education requirements, and individual meetings with departmental counselors. Prior to registration and enrollment in classes, each new student is assigned to a counselor in the major department. For further counseling information, contact the Student Services Office, School of the Arts and Architecture, 1100 Dickson Art Center, (310) 206-3564.

Graduate Study

The advanced degree programs offered in the School of the Arts and Architecture provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, the special collections of the Arts and Music Libraries, and the University's exhibition and performance halls.

The School of the Arts and Architecture cooperates with the UCLA John E. Anderson Graduate School of Management in offering a Master of Business Administration (M.B.A.) in Entertainment Management. Participating students serve term-long internships with such professional arts organizations as the Los Angeles County Museum of Art, the Mark Taper Forum, and the Los Angeles Philharmonic Orchestra.

A program in teaching is offered by the Graduate School of Education and Information Studies in each of the arts areas.

Fellowships, grants, and assistantships are available through the dean of the Graduate Division.

Admission

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. In general, samples of creative work (auditions, portfolios, computer programs, etc.) are required. Detailed information can be found in the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

Other Requirements

Requirements to fulfill each degree objective vary according to the degree and the department. See the Curricula and Courses section of this catalog for introductory information and procedures. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available on the Graduate Division website at <http://www.gd-net.ucla.edu/departments.html>.

School of Dentistry

No-Hee Park, Dean

UCLA
53-038 Dentistry
Box 951762
Los Angeles, CA 90095-1762

(310) 206-6063
<http://www.dent.ucla.edu>

The UCLA School of Dentistry has developed a national and international reputation for its teaching and research activities. Challenging educational, training, and research programs prepare dental students for professional careers dedicated to patient treatment and service. The curriculum is carefully designed to prepare students for changes in treatment

modalities and health care delivery systems. Students become actively involved in preventive and clinical dental care immediately in their training and soon make valuable contributions to the clinical health team. The clinical instruction system emphasizes a patient care approach in which each patient is treated comprehensively. Students interact with their colleagues, faculty, and dental auxiliary personnel in much the same way as they later will interact in a private or group practice.

Opportunity exists for dental students to undertake programs designed to meet their special needs; mandatory fourth-year selectives encourage more advanced training in an area of particular interest. In addition to basic and applied research programs within the school, students participate in community service programs such as the Wilson-Jennings-Bloomfield UCLA Venice Dental Center, the Roybal Children's Dental Center, and the Mobile Dental Clinic, the latter in conjunction with the University of Southern California. A graduate program and a number of resident specialty programs foster new lines of research which lead to better treatment options. An active continuing education program directed by UCLA faculty members provides a variety of short courses for members of the dental profession and their auxiliaries.

The UCLA School of Dentistry, which occupies facilities in the Center for the Health Sciences, offers a D.D.S. (Doctor of Dental Surgery) degree program, a number of resident programs, and Oral Biology M.S. and Ph.D. degree programs. Articulated D.D.S. and M.S. or certificate programs are also available. This catalog provides detailed information only on the M.S. and Ph.D. programs in Oral Biology, for which admission to the School of Dentistry is not required.

Degrees Offered

Dental Surgery (D.D.S.)
Oral Biology (M.S., Ph.D.)

Predental Curriculum

For details on the three-year predental curriculum, see the College of Letters and Science later in this section.

D.D.S. Degree Program

The UCLA dental curriculum leading to the degree of Doctor of Dental Surgery (D.D.S.) is based on the quarter system. The course of study usually takes four academic years of approximately nine months each, with three required Summer Quarters between the first/second, second/third, and third/fourth years. The curriculum is designed to provide students with clinical competence and broad experience in all phases of clinical dentistry within the four years.

The dental curriculum consists of three principal areas: basic health sciences courses, didactic dental courses, and clinical experience. The first two years of the curriculum are chiefly devoted to didactic, laboratory, and general clinical coursework. The final two years emphasize training and instruction in the clinical fields, including endodontics, fixed prosthodontics, operative dentistry, oral diagnosis and treatment planning, oral radiology, oral and maxillofacial surgery, anesthesiology, orthodontics, pediatric dentistry, periodontics, and removable prosthodontics.

For further details on the D.D.S. program and a listing of the courses offered, see <http://www.dent.ucla.edu> or write to the Office of Student Affairs and Admissions, School of Dentistry, A3-042 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

Resident Programs

The School of Dentistry offers the following opportunities for resident study: a one-year general practice residency program; a one-year advanced education in general dentistry program; a one-year residency in maxillofacial prosthodontics; a four- or six-year oral and maxillofacial surgery residency training program; a three-year prosthodontics, periodontics, and combined orthodontic/pediatric dentistry program; two-year pro-

grams in the specialties of endodontics and orofacial pain and dysfunction; and a 27-month program in orthodontics and pediatric dentistry.

Information on the resident programs can be obtained by writing directly to Resident Programs, School of Dentistry, A3-042 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

Graduate School of Education and Information Studies

Harold G. Levine, Interim Dean

UCLA
2320 Moore Hall
Box 951521
Los Angeles, CA 90095-1521
(310) 206-9260
<http://www.gseis.ucla.edu>

The UCLA Graduate School of Education and Information Studies (GSEIS) includes two departments — the Department of Education and the Department of Information Studies. Together, the two departments embody the school's commitment to understand and improve teaching and learning, educational practice, information policy, and information systems in a diverse society. Research and doctoral training programs bring together faculties committed to expanding the range of knowledge in education, information science, and associated disciplines. The professional training programs seek to develop librarians, teachers, and administrators within the enriched context of a research university.

GSEIS is committed to developing expertise in both old and new methods of information storage and retrieval and to bringing innovative approaches in educational technology and information access to the schools and classrooms of the state and nation. In addition, GSEIS faculty members are engaged in research, teaching, and program development in the areas of management and leadership of schools and libraries, information policy formation, and information systems designs in organizations of all kinds.

Through its scholarship, its graduate training programs, and its partnerships with schools and educational professionals, GSEIS honors its commitment to improve practice in schools, universities, and libraries, enhance theoretical and applied research, expand the role of the university in policy creation, and advance the careers of professional leaders and specialists.

Together our commitment is to the highest quality professional education and to the application of research to the challenges facing a diverse and increasingly urbanized world.

The school offers programs of study leading to the degrees of M.A. in Education, Master of Education (M.Ed.), Master of Library and Information Science (M.L.I.S.), Doctor of Education (Ed.D.), Ph.D. in Education, Ph.D. in Library and Information Science, joint Ed.D. in Educational Administration with UC Irvine, and joint Ph.D. in Special Education with California State University, Los Angeles. Several credential programs are available through the Department of Education, and a post-M.L.I.S. certificate program is offered by the Department of Information Studies.

Degrees Offered

Education (M.A., M.Ed., Ed.D., Ph.D.)
Educational Administration (Joint Ed.D. with UC Irvine)
Library and Information Science (M.L.I.S., Ph.D.)
Special Education (Joint Ph.D. with California State University, Los Angeles)

School of Engineering and Applied Science

A.R. Frank Wazzan, Dean

UCLA
6426 Boelter Hall
Box 951600
Los Angeles, CA 90095-1600
(310) 825-2826
<http://www.seas.ucla.edu>

Since its inception as the College of Engineering in 1945, the School of Engineering and Applied Science has been on the cutting edge of technological advances. In addition to the school's strengths in traditional engineering programs, it is advancing research in the evolving fields of biomedical engineering, wireless communications and networking, and micromachines. Researchers are also creating innovative methods of handling increasing Internet traffic and imaginative uses of new materials.

As we approach the twenty-first century, the pace of technological development quickens, and engineers need to adapt faster to help meet societal needs and maintain U.S. leadership in the marketplace. Engineers must greatly expand their knowledge in their own disciplines and must be able to work as team members across disciplines to solve increasingly complex problems.

UCLA meets the needs of the marketplace by seeing that laboratory breakthroughs translate into technologies and products. Faculty members engage in mutual collaborations with industry, from applied research to technology goal setting. The school's educational mission nurtures innovation and provides a balanced approach to teaching and research.

Students receive their professional education through classroom investigation and real-world applications. The curriculum includes exposure to the humanities, social sciences, and fine arts and addresses the need to educate men and women about their responsibility to create, protect, and manage technology with due regard for ethics and human values. The challenges and rewards of a career in engineering have never been greater. Students who can commit to a high standard of achievement are invited not only to join but also to contribute to the great success story of UCLA.

Degrees Offered

Aerospace Engineering (B.S., M.S., Ph.D.)
Biomedical Engineering (M.S., Ph.D.)
Chemical Engineering (B.S., M.S., Ph.D.)
Civil Engineering (B.S., M.S., Ph.D.)
Computer Science (B.S., M.S., Ph.D.)
Computer Science and Engineering (B.S.)
Electrical Engineering (B.S., M.S., Ph.D.)
Engineering (M.Engr., Engr.)
Engineering and Applied Science (Graduate Certificate of Specialization)
Integrated Manufacturing Engineering (M.Engr.)
Manufacturing Engineering (M.S.)
Materials Engineering (B.S.)
Materials Science and Engineering (M.S., Ph.D.)
Mechanical Engineering (B.S., M.S., Ph.D.)

Undergraduate Study

Students in the School of Engineering and Applied Science (SEAS) may elect one of the eight four-year curricula listed below.

- (1) Bachelor of Science in Aerospace Engineering
- (2) Bachelor of Science in Chemical Engineering

- (3) Bachelor of Science in Civil Engineering
- (4) Bachelor of Science in Computer Science
- (5) Bachelor of Science in Computer Science and Engineering
- (6) Bachelor of Science in Electrical Engineering
- (7) Bachelor of Science in Materials Engineering
- (8) Bachelor of Science in Mechanical Engineering

For the departmental areas of instruction, consult the listings of the individual departments or refer to the *Announcement of the UCLA School of Engineering and Applied Science*, available from the Office of Academic and Student Affairs, 6426 Boelter Hall.

Admission

Applicants for admission to the school must satisfy the general admission requirements of the University as outlined in the section entitled Undergraduate Admission in the Undergraduate Study section of this catalog. Students must select a specific major within the school when applying for admission. In the selection process many elements are considered, including grades, test scores, and academic preparation.

Freshman applicants are strongly advised to take the tests required by the University for admission on or before December 2. Reports of test scores are needed to give full consideration to admission requests; students should ask the testing agencies to send their results directly to the UCLA Undergraduate Admissions Office.

Applicants are accepted at either the freshman or junior level. Students who begin their college work at a California community college are expected to remain at the community college to complete the lower division requirements in chemistry, mathematics, physics, and the recommended engineering courses before transferring to the University. Experience indicates that transfer students who have completed the recommended lower division program in engineering at California community colleges are able to complete the remaining requirements for one of the B.S. degrees in six terms (two academic years) of normal full-time study. Some students who select certain majors, such as Computer Science and Engineering or Chemical Engineering, may be required to complete additional lower division courses as requisites for the major sequence.

Admission as a Freshman

While many students take their first two years in engineering at a community college, an applicant may qualify for admission to the school in freshman standing. It is anticipated that admission will require that the following subjects be taken when satisfying the University admission requirements:

Algebra	2 years
Plane geometry	1 year
Trigonometry	.5 year
Chemistry and physics with laboratory	2 years

Freshman applicants whose entire secondary schooling was outside the U.S. must pass, with satisfactory scores, the Scholastic Assessment Test I: Reasoning Tests (verbal and mathematics sections) and Scholastic Assessment Test II: Subject Tests in Writing, Mathematics, and Physics or Chemistry before a letter of admission to engineering can be issued. Arrangements to take the tests in another country should be made directly with the Educational Testing Service, 1947 Center Street, Berkeley, CA 94704. Test scores should be forwarded to UCLA.

Credit for Advanced Placement Tests

Students may fulfill part of the school requirements with credit allowed at the time of admission for College Board Advanced Placement Tests with scores of 5, 4, or 3. Students with Advanced Placement Test credit may exceed the 213-unit maximum by the amount of this credit. Advanced

Placement Test credit for freshmen entering in Fall Quarter 1999 fulfills requirements in the School of Engineering and Applied Science as indicated on the Advanced Placement chart for the school.

Some portions of Advanced Placement Test credit are evaluated by corresponding UCLA course number. If students take the equivalent UCLA course, a deduction of UCLA unit credit is made prior to graduation.

Students who have completed 36 quarter units after high school graduation at the time of the examination receive no Advanced Placement Test credit.

Admission as a Junior

Applicants for admission to the school in junior standing should have completed 90 quarter units (60 semester units) in good standing, including the following minimum subject requirements:

- (1) Chemistry courses equivalent to UCLA's Chemistry and Biochemistry 20A, 20B, 20L (only Chemistry and Biochemistry 20A is required for the computer science and engineering degree; the computer science degree does not require chemistry; the chemical engineering curriculum also requires Chemistry and Biochemistry 30, 30L, 130A/130AL, which do not need to be taken prior to admission to UCLA);
- (2) mathematics courses equivalent to UCLA's Mathematics 31A, 31B, 32A, 32B, 33A, 33B;
- (3) physics courses equivalent to UCLA's Physics 1A, 1B, 1C, 4AL, 4BL, depending on curriculum selected.

Transfer students must complete a course equivalent to UCLA's English Composition 3 and a second more advanced course in English composition.

Students transferring to the school from institutions which offer instruction in engineering subjects in the first two years, particularly California community colleges, are given credit for certain engineering core requirements.

All lower division requirements should be completed by the end of the spring term prior to anticipated enrollment at UCLA.

Requirements for Bachelor of Science Degrees

The requirements for the B.S. degrees in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Science, Computer Science and Engineering, Electrical Engineering, Materials Engineering, and Mechanical Engineering consist of completing the minimum number of required units (from 180 to 200 units, depending on the curriculum selected), the general University requirements, and the school requirements for scholarship and senior residence. Students must also satisfy the curricular requirements for the curriculum they choose to follow.

University Requirements

University requirements in scholarship, Subject A or English as a Second Language (ESL), and American History and Institutions are discussed in detail in Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

Scholarship and Minimum Progress Requirements

In addition to the University requirement that students must earn at least a C (2.0) average in all courses taken at any University of California campus, at least a 2.0 grade-point average must be achieved in all upper division University courses offered in satisfaction of the subject and elective requirements of the curriculum. A 2.0 minimum grade-point average in upper division mathematics, upper division core courses, and the major field is also required for graduation.

Full-time undergraduate students in the School of Engineering and Applied Science must complete a minimum of 36 units in three consecutive terms in which they are registered.

Senior Resident Requirement

Of the last 48 units completed for the bachelor's degree, 36 must be earned in residence in the School of Engineering and Applied Science on this campus. No more than 16 of the 36 units may be completed in Summer Sessions at UCLA.

Advanced Placement Credit: School of Engineering and Applied Science

Advanced Placement Test	Credit Allowed
Art History	8 lower division units toward humanities
Biology	4 lower division units toward life sciences
Chemistry	8 lower division units (credit determined on an individual basis)
Computer Science Computer Science (A Test) Computer Science (AB Test)	Four units maximum for both computer science tests. 2 lower division units free electives Computer Science PASCAL (4 units)
Economics Macroeconomics Microeconomics	Score 3 — 4 lower division units free electives Score 4 or 5 — Economics 2 (4 units) Score 3 — 4 lower division units free electives Score 4 or 5 — Economics 1 (4 units)
English Composition and Literature Language and Composition	Eight units maximum for Composition and Literature <i>and</i> for Language and Composition. Score 3 — 8 lower division units (4 units humanities, 4 units free electives), Subject A Score 4 — English Composition 3 (4 units), 4 units humanities, Subject A Score 5 — English Composition 3 (4 units), English 4 (4 units), Subject A Score 3 — 8 lower division units free electives, Subject A Score 4 — English Composition 3 (4 units), 4 lower division units free electives, Subject A Score 5 — English Composition 3 (4 units), English 4 (4 units), Subject A
Environmental Science	Score 3 — 4 lower division units free electives Score 4 or 5 — Geography 5 (4 units)
Government and Politics Comparative United States	4 lower division units toward social sciences 4 lower division units toward social sciences
History European United States	History 1C, 4 lower division units toward social sciences (8 units) Score 3 — 8 lower division units toward social sciences Score 4 or 5 — History 13A-13B-13C (8 units)
Languages and Literature French Language French Literature German Language Latin (Vergil, Latin Literature) Spanish Language Spanish Literature	Score 3 — French 4 (4 units), 4 lower division units free electives Score 4 — French 5 (4 units), 4 lower division units free electives Score 5 — French 6 (4 units), 4 lower division units free electives 8 lower division units toward humanities Score 3 — German 3 (4 units), 4 lower division units free electives Score 4 — German 4 (4 units), 4 lower division units free electives Score 5 — German 5 (4 units), 4 lower division units free electives Score 3 — Latin 1 (4 units per test) Score 4 or 5 — Latin 3 (4 units per test) Score 3 — Spanish 4 (4 units), 4 lower division units free electives Score 4 — Spanish 5 (4 units), 4 lower division units free electives Score 5 — Spanish 6 (4 units), 4 lower division units free electives 8 lower division units toward humanities
Mathematics Mathematics (AB Test) Mathematics (BC Test)	Students who take both mathematics tests receive a maximum of eight units of credit. Score 3 — 4 lower division units Score 4 or 5 — Mathematics 31A (4 units) Score 3 — 8 lower division units Score 4 or 5 — Mathematics 31A, 31B (8 units)
Music Music Literature (no longer offered) Music Theory	If students have credit for both Music Theory <i>and</i> Music Literature, maximum credit is four lower division units for Music Theory and four lower division units for Survey of Music. 8 lower division units toward humanities 8 lower division units free electives
Physics Physics (B Test) Physics (C — Mechanics) Physics (C — Electricity and Magnetism)	If students have credit for Physics B and C — Mechanics <i>or</i> Physics B and C — Electricity and Magnetism <i>or</i> Physics B, C — Mechanics, and C — Electricity and Magnetism, maximum credit is four lower division units for Physics B and four lower division units for Physics C. If students have credit for Physics C — Mechanics and C — Electricity and Magnetism, maximum credit is eight lower division units for Physics C. 8 lower division units free electives 4 lower division units (credit determined on an individual basis) 4 lower division units (credit determined on an individual basis)
Psychology	4 lower division units toward social sciences
Statistics	4 lower division units free electives

Study Lists and Credit Limitations

Study Lists require approval of the dean of the school or a designated representative. It is the student's responsibility to present a Study List which reflects satisfactory progress toward the Bachelor of Science degree, according to standards set by the faculty. Study Lists or programs of study which do not comply with these standards may result in enforced withdrawal from the University or other academic action. Students are expected to enroll in at least 12 units each term. Students enrolling in less than 12 units must obtain approval by petition to the dean prior to enrollment in courses. The normal program is 16 units per term. Students may not enroll in more than 18 units per term unless an Excess Unit Petition is approved in advance by the dean.

Students must attain a minimum grade of C to satisfy the English Composition 3 requirement, which must be met before completing 90 quarter units (a grade of C- does not satisfy this requirement). Undergraduates who have not taken (or otherwise satisfied the requirement for) English Composition 3 at the time they are admitted must complete the course at UCLA during Fall, Winter, or Spring Quarter.

After 213 quarter units, enrollment may not normally be continued in the school. Students may petition the dean for special permission to continue work required to complete the degree. This regulation does not apply to Departmental Scholars.

After students have completed 105 quarter units (regardless of where these units have been completed), they do not receive unit credit or subject credit for courses completed at a community college.

Credit earned through the College Level Examination Program (CLEP) may not be applied toward the bachelor's degree.

No credit is granted toward the bachelor's degree for college foreign language courses equivalent to quarter levels one and two if the equivalent of level two of the same language was completed with satisfactory grades in high school.

Credit for Transfer Students

A course in digital computer programming, using a higher-level language such as FORTRAN, PASCAL, C, or C++, satisfies the computer programming requirement. Applicants to majors in Computer Science, Computer Science and Engineering, and Electrical Engineering should take C or C++.

Many sophomore courses in circuit analysis, strength of materials, and properties of materials may satisfy Electrical Engineering 100, Civil and Environmental Engineering 108, and Materials Science and Engineering 14 requirements respectively. Check with the Office of Academic and Student Affairs.

Preparation for the Majors

The following lower division courses or their equivalents are required preparation for engineering majors:

Mathematics

Analytic geometry and calculus, eight units; calculus of several variables, eight units; matrices and differential equations, four units; infinite series, four units (total of 24 quarter units minimum).

UCLA equivalent courses: Mathematics 31A, 31B, 32A, 32B, 33A, 33B.

Physics

Calculus-based courses in mechanics of solids, vibration, wave motion, sound, fluids, heat, kinetic theory, electricity, magnetism, electromagnetic waves, light and relativity, with laboratory (total of 19 quarter units minimum).

UCLA equivalent courses: Physics 1A, 1B, 1C, 4AL, 4BL, depending on curriculum selected.

Chemistry

Two quarters or two semesters of general chemistry with laboratory (total of 10 quarter units minimum).

UCLA equivalent courses: Chemistry and Biochemistry 20A, 20B, 20L. Only Chemistry and Biochemistry 20A is required for the computer sci-

ence and engineering degree; chemistry is not required for the computer science degree. The chemical engineering curriculum also requires Chemistry and Biochemistry 30, 30L, 130A/130AL.

Engineering

Digital computer programming, using a higher-level language such as FORTRAN, PASCAL, or C (four units); other courses: statics, dynamics, graphics and descriptive geometry, surveying, circuit analysis, properties of materials, strength of materials, additional chemistry, additional computer science.

UCLA equivalent courses: Civil and Environmental Engineering 15; Computer Science 11; Electrical Engineering 5C; Mechanical and Aerospace Engineering 20; engineering core courses; free electives. See specific undergraduate curricula for core courses, SEAS general education (GE) courses, and free electives.

Additional Courses

Life sciences (four units), English composition (four units), humanities/social sciences (total of 16 quarter units minimum).

UCLA equivalent courses: SEAS general education (GE) courses.

Curricular Requirements

The curricula for the bachelor's degrees include the following categories, depending on curriculum selected:

- (1) Twelve to 16 engineering major field courses (48 to 64 units), depending on curriculum followed.
- (2) One to 10 engineering core courses (four to 40 units), depending on curriculum selected.
- (3) Mathematics courses, ranging from four to 12 upper division units; see curricula in individual departments.
- (4) SEAS general education (GE) course requirements: (a) English Composition 3, which must be completed with a minimum grade of C within the first 90 units; (b) six courses from the humanities and social sciences, with at least two courses from each category; (c) one life sciences course (this requirement is automatically satisfied for Chemical Engineering majors).

All lower division courses taken to satisfy items b and c must be selected from the College of Letters and Science GE requirements list (see the Curricula and Courses section of this catalog or online GE Requirements at <http://www.registrar.ucla.edu/GE/>). Students interested in taking a foreign language to satisfy this requirement must first consult with an academic counselor in the Office of Academic and Student Affairs.

For item b, at least three courses must be in the same academic department or must otherwise reflect coherence in subject matter. Of the three, at least two must be upper division courses selected from an approved list available in the Office of Academic and Student Affairs.

Computer Science, Computer Science and Engineering, and Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements.

Lists of courses approved to satisfy specific curricular requirements are available from the Office of Academic and Student Affairs.

The aerospace engineering, chemical engineering, civil engineering, computer science and engineering, electrical engineering, materials engineering, and mechanical engineering curricula are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), the nationally recognized accrediting body for engineering programs. The computer science curriculum is accredited by the Computing Sciences Accreditation Board (CSAB), the nationally recognized accrediting body for computer science programs.

Advising and Program Planning

As new undergraduates, students must have their course of study approved by an academic counselor. After the first term, curricular and ca-

reer advising is accomplished on a formal basis. Students are assigned a faculty adviser in their particular specialization in their sophomore year or earlier.

In addition all undergraduate students are assigned, by major, to an academic counselor in the Office of Academic and Student Affairs who provides them with advice regarding general requirements for the degrees and University and school regulations and procedures. It is the students' responsibility to periodically meet with their academic counselor in the Office of Academic and Student Affairs, as well as with their faculty adviser, to discuss curriculum requirements, programs of study, and any other academic matters of concern.

Students normally follow the curriculum in effect when they enter the school. California community college transfers may also select the curriculum in the catalog in effect at the time they began their community college work in an engineering program, providing attendance has been continuous since that time.

All SEAS undergraduate students may use the computerized SEAS Academic Program Planner, an interactive self-advising system which informs users immediately if their programs meet the requirements for graduation. Students beginning upper division coursework in the major are required to submit an Academic Program Proposal to the Office of Academic and Student Affairs for approval by the associate dean.

Academic counselors in the Office of Academic and Student Affairs are available to assist with University procedures and to answer any questions students may have in regard to general requirements.

Passed/Not Passed Grading

Students may take one course per term on a Passed/Not Passed basis if they are in good academic standing and are enrolled in at least three and one-half courses (14 units) for the term. Only SEAS general education courses (with the exception of English Composition 3) and free electives may be taken on a Passed/Not Passed basis. For more details on P/NP grading, see Units and Grading Policy in the Academics section of this catalog or consult the Office of Academic and Student Affairs.

Honors

Departmental Scholars

Students who are exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. See Academic Excellence in the Undergraduate Study section of this catalog and the *Announcement of the UCLA School of Engineering and Applied Science* for details.

Dean's Honors List

Students following the engineering curricula are eligible to be named to the Dean's Honors List each term. Minimum requirements are a course load of at least 15 units (12 units of letter grade) with a grade-point average equal to or greater than 3.7. Students are not eligible for the Dean's Honors List if they receive an Incomplete (I) or Not Passed (NP) grade or repeat a course. Only courses applicable to an undergraduate degree are considered toward eligibility for Dean's Honors.

Honors at Graduation

Students who have achieved scholastic distinction may be awarded the bachelor's degree with honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained an overall grade-point average at graduation which places them in the top five percent of the school (GPA of 3.815 or better) for *summa cum laude*, the next five percent (GPA of 3.729 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.552 or better) for *cum laude*. See the quarterly *Schedule of Classes* for the most current calculations of Latin honors.

Based on grades achieved in upper division courses, engineering students must have a 3.815 grade-point average for *summa cum laude*, a 3.729 for *magna cum laude*, and a 3.552 for *cum laude*. For all designations of honors, students must have a minimum 3.25 grade-point average

in their major field courses. To be eligible for an award, students should have completed at least 80 upper division units at the University of California.

Tau Beta Pi

The UCLA chapter of Tau Beta Pi, the national engineering honor society, encourages high scholarship, provides volunteer tutors, and offers many services and programs "to foster a spirit of liberal culture in engineering colleges."

Special Programs and Activities

Extracurricular Activities

The faculty strongly encourages students to participate in the many extracurricular activities available on campus, especially those of most relevance to engineering. Among these are the student engineering society (the Engineering Society, University of California), student publications, and programs of the many technical and professional engineering societies in the Los Angeles area.

The student body takes an active part in shaping policies of the school through elected student representatives on the school's Executive Committee.

Women in Engineering

Women make up approximately 20 percent of the undergraduate and 15 percent of the graduate enrollment in the School of Engineering and Applied Science. Today's opportunities for women in engineering are excellent, as both employers and educators try to change the image of engineering as a "males only" field. Women engineers are in great demand in all fields of engineering.

The Society of Women Engineers (SWE), recognizing that women in engineering are still a minority, has established a UCLA student chapter which sponsors field trips and engineering-related speakers (often professional women) to introduce the various options available to women engineers. The UCLA chapter of SWE, in conjunction with other Los Angeles schools, also publishes an annual résumé book to aid women students in finding jobs and presents a career day for women high school students.

Continuing Education

Continuing education in engineering is developed and administered by the UCLA Extension (UNEX) Department of Engineering, Information Systems, and Technical Management in close cooperation with the School of Engineering and Applied Science. The department offers evening classes, short courses, certificate programs, special events, and education and training at the workplace. The office (540 UNEX, 10995 Le Conte Avenue) is open Monday through Friday. Call (310) 825-4100 for engineering and information systems class programs, (310) 825-3344 for short course programs, (310) 825-0328 for environmental management, and (310) 825-3858 for technical management programs. The fax number is (310) 206-2815.

Graduate Study

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the graduate engineering programs are required to take the General Test of the Graduate Record Examination (GRE). In some cases applicants are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area. Applicants for the graduate computer science programs are required to take the GRE General Test and Subject Test in Mathematics or Computer Science. Specific information about the GRE may be obtained from the department of interest.

Students entering the Engineer/Ph.D. program normally are expected to have completed the requirements for the master's degree with at least a 3.25 grade-point average and to have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having an M.S. degree.

Graduate students without adequate preparation may be admitted provisionally and may be required to take additional coursework which may not be applied toward the degree. After students arrive at UCLA, the adviser helps them plan a program to remedy any such deficiencies.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the department in which students are interested, School of Engineering and Applied Science, UCLA, Los Angeles, CA 90095. Students may also submit an online application at <http://www.seas.ucla.edu>. From there connect to the homepage of the preferred department or program and then to the online graduate application.

Undergraduate Courses

No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199, Civil and Environmental Engineering 106A, 108, 199, Computer Science M152A, M152B, 171L, 199, Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199, Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199, Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Individual departments within the school may impose certain restrictions on the applicability of other undergraduate courses toward graduate degrees. Consult with the graduate adviser on departmental requirements and restrictions.

Master of Science Degrees

Major Fields or Subdisciplines

The M.S. program is centered around one major field. The major fields and subdisciplines offered at the M.S. level in most cases parallel those listed below for the Ph.D. program. There are some differences (e.g., manufacturing engineering in the Department of Mechanical and Aerospace Engineering is offered only at the M.S. level). Contact the department concerned regarding possible differences between the M.S. and Ph.D. fields and subdisciplines. Students are free to propose to the school any other field of study, with the support of their adviser.

Course Requirements

A total of nine courses is required for the M.S. degrees, including a minimum of five graduate courses. (Some fields require more than five; obtain specific information from the department of interest.) A majority of the total formal course requirement and of the graduate course requirement must consist of courses in the School of Engineering and Applied Science. In the thesis plan, seven of the nine courses must be formal courses, including at least four from the 200 series. The remaining two courses may be 598 courses involving work on the thesis. In the comprehensive examination plan, at least five of the nine courses must be in the 200 series; the remaining four courses may be either 200-series graduate or upper division undergraduate courses. No 500-series courses may be applied toward the comprehensive examination plan requirements.

Thesis Plan

The thesis must either describe some original piece of research that students have done, usually but not necessarily under the supervision of the thesis committee, or else provide a critical exposition of some topic in their major field of study. Students would normally start to plan the thesis at least one year before the award of the M.S. degree is expected. There is no examination under the thesis plan.

Comprehensive Examination Plan

The comprehensive examination, which is offered every term, is required in written form only. The comprehensive examining committee may conduct an oral query after review of the written examination. In case of failure, students may be reexamined once with the consent of their departmental graduate adviser.

Cooperative Degree Program

The School of Engineering and Applied Science has established a joint degree program with the John E. Anderson Graduate School of Management which allows students to earn two master's degrees simultaneously: the M.B.A. and the M.S. in Computer Science. Contact the Office of Academic and Student Affairs for details.

Master of Engineering Degree

The Master of Engineering (M.Engr.) degree is granted to graduates of the interdepartmental Integrated Manufacturing Engineering (IME) Program which educates and trains future manufacturing engineering leaders. For further information, contact the Integrated Manufacturing Engineering Program, 48-121 Engineering IV, UCLA, Box 951597, Los Angeles, CA 90095-1597, (310) 825-7780, fax: (310) 206-4830, e-mail: imeinfo@ime.ucla.edu, website: <http://ime.ucla.edu>.

The M.Engr. degree is also granted to graduates of the Engineering Executive Program, a two-year work-study program consisting of graduate-level professional courses in the management of technological enterprises. For full details, write to the Office of Academic and Student Affairs, School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601, (310) 825-1704.

Engineer Degree

The School of Engineering and Applied Science offers an Engineer (Engr.) degree at a level equivalent to completion of preliminaries in the Ph.D. program. The Engineer degree represents considerable advanced training and competence in the engineering field but does not require the research effort involved in a Ph.D. dissertation.

Requirements for the Engineer degree are identical to those of the Ph.D. degree up to and including the oral preliminary examination, except that the Engineer degree is based on coursework. The minimum requirement is 15 (at least nine graduate) courses beyond the bachelor's degree, with at least six courses in the major field (minimum of four graduate courses) and at least three in each minor field (minimum of two graduate courses in each).

The Ph.D. and Engineer degree programs are administered interchangeably in the sense that a student in the Ph.D. program may exit with an Engineer degree or even pick up the Engineer degree enroute to the Ph.D. degree; similarly, a student in the Engineer degree program may continue to the Ph.D. after receiving the Engineer degree. The time spent in either of the two programs may also be applied toward the minimum residence requirement and time limitation for the other program.

Doctoral Degrees

Major Fields or Subdisciplines

Biomedical Engineering Interdepartmental Program

Bioacoustics, speech, and hearing; biochemical engineering; biomechanics, biomaterials, and tissue engineering; biomedical instrumentation; biomedical signal and image processing; neuroengineering.

Chemical Engineering Department

Chemical engineering.

Civil and Environmental Engineering Department

Environmental engineering, geotechnical engineering, structures (structural mechanics and earthquake engineering), water resource systems engineering.

Computer Science Department

Artificial intelligence, computer networks, computer science theory, computer system architecture, programming languages and systems (software systems, data and knowledge-based systems), scientific computing (biomedical engineering systems, physical systems).

Electrical Engineering Department

Applied mathematics (established minor field only), communications and telecommunications, control systems, electromagnetics, integrated circuits and systems, operations research, photonics and optoelectronics, plasma electronics, signal processing, solid-state electronics.

Materials Science and Engineering Department

Ceramics and ceramic processing, electronic and optical materials, structural materials.

Mechanical and Aerospace Engineering Department

Applied mathematics (established minor field only), applied plasma physics and fusion engineering (minor field only), dynamics, fluid mechanics, heat and mass transfer, manufacturing and design, microelectromechanical systems (MEMS), structural and solid mechanics, systems and control.

Students may propose to their department any other field of study with the support of their adviser. Instructions on the definition of acceptable ad hoc fields and procedures for their approval are available in each department office.

All candidates must fulfill the minimum requirements of the Graduate Division. Major and minor fields may have additional course and examination requirements. For further information, contact the individual departments.

Graduate Certificate of Specialization

A Certificate of Specialization is available in all areas, except computer science, offered by the School of Engineering and Applied Science. Requirements for admission are the same as for the M.S. degree.

Each graduate certificate program consists of five 100- or 200-series courses, at least two of which must be at the graduate level. No work completed for any previously awarded degree or credential may be applied toward the certificate. Successful completion of a certificate program requires an overall minimum B average in all courses applicable to the certificate. In addition, graduate certificate candidates are required to maintain a minimum B average in 200-series courses used in the certificate program. A minimum of three terms of academic residence is required. The time limitation for completing the requirements of a certificate program is two calendar years. Details regarding the certificate programs may be obtained from each department office.

Courses completed for a Certificate of Specialization in the School of Engineering and Applied Science may subsequently be applied toward master's and/or doctoral degrees.

School of Law

Jonathan D. Varat, Dean

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By any standard, the UCLA School of Law is recognized as one of the nation's great law schools. This reputation is based on excellence in scholarship, a rigorous educational program, and the quality of a faculty that includes eminent authorities in all major fields of law.

The educational program at the UCLA School of Law is rigorous and competitive, but it takes place in a humane environment where there is a genuine spirit of community. The student body of the school is intellectually distinguished, interesting, and culturally diverse.

The school's strong clinical program offers courses in lawyering skills such as interviewing, counseling, negotiation, and trial advocacy. UCLA

students, alumni, and faculty have collaborated to pioneer clinical legal education. Students see more focus on the attorney/client relationship; they see more of what ultimately faces them as lawyers and policymakers. Students and faculty often pioneer new programs together, such as the Environmental Clinic, the Program in Public Interest Law and Policy, and a concentration in business law.

An extensive and diversified student extern program, one of the most highly regarded moot court programs in the nation, and a basic philosophy that teaches law students to think clearly and analytically, but with compassion, all contribute to the distinction of the school.

The School of Law, one of two academic units at UCLA which operate on a semester (rather than quarter) system, offers a three-year curriculum leading to the J.D. degree. The school is accredited by the California Committee of Bar Examiners, is a member of the Association of American Law Schools, and is on the approved list of the American Bar Association. Graduates of the school are qualified to apply for admission to practice in any state in the U.S.

The school is designed to produce lawyers who are well-prepared for the various private and public roles that are assigned to members of the legal profession. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields.

Degrees Offered

Juris Doctor (J.D.)

Master of Laws (LL.M.)

Concurrent Degree Programs

The School of Law offers five concurrent degree programs that allow students to fulfill the requirements of the J.D. and another graduate degree simultaneously: the M.B.A./J.D. with the John E. Anderson Graduate School of Management, the M.A./J.D. with the Department of Urban Planning in the School of Public Policy and Social Research, the M.A./J.D. with the American Indian Studies Program in the College of Letters and Science, the M.S.W./J.D. with the Department of Social Welfare in the School of Public Policy and Social Research, and either the M.Ed., M.A., Ed.D., or Ph.D./J.D. with the Department of Education in the Graduate School of Education and Information Studies. For details on all degree programs, see the Law copy in the Curriculum and Courses section of this catalog.

In addition to the formal concurrent programs listed above, students may design a tailored program from other disciplines in UCLA's curriculum or from another high-quality institution; this must be arranged in consultation with the School of Law and the other selected program.



Special Programs

Program in Public Interest Law and Policy

The School of Law has long attracted students interested in public interest and policy issues. The school has one of the strongest public interest law faculties in the country and sits next to the School of Public Policy and Social Research in a city that is a living laboratory for every conceivable social problem.

Building on these strengths, the school instituted a Program in Public Interest Law and Policy in Fall Semester 1997. Students take a special lawyering skills class, participate in a public interest workshop in their first year, and take required year-long seminars in their second and third years. Through the three-year program, which leads to the J.D. degree, students work closely with the small group of faculty who designed the program.

The program marks a distinct break with the way law schools have traditionally trained lawyers for public interest careers. Recognizing the need for coordinated and sequenced training and hoping to engage the interest of the most dedicated public interest-minded students, the program offers a challenging approach to legal education that helps aspiring lawyers refine their own career goals while training them for legal and policy work in the public interest.

Clinical Program

The UCLA School of Law offers one of the finest clinical education programs in the nation. Housed in a state-of-the-art clinical wing, the program provides extensive and rigorous practical training for student-lawyers interested in litigation and transactional work prior to entry into the legal profession. Through simulated and actual client contact, students learn skills such as interviewing and counseling clients, drafting legal documents, examining and cross-examining witnesses, negotiating commercial agreements and litigation settlements, deposing witnesses, mediating disputes, and arguing before a judge or jury.

For example, in the recently established Frank G. Wells Environmental Law Clinic, students work on large and small cases, both federal and state, involving citizen enforcement actions under various environmental statutes, especially actions under the Clean Water Act against polluters of the Santa Monica Bay. In the Community Outreach, Education, and Organizing Clinic, students work on a variety of projects that involve them with members of the community. In one project, students created a workshop to teach lay persons about Proposition 187, the California initiative that sought to eliminate government benefits for illegal immigrants. Other innovative programs include a complex litigation clinic that concentrates on the discovery process, a mediation clinic working in municipal court, and a public policy advocacy course that focuses on public interest policy questions.

In addition to the speciality clinics, students can choose from an extensive array of clinical subjects ranging from trial advocacy and alternative dispute resolution to fact investigation and pretrial procedures. Students in most clinical courses work with real clients under close faculty supervision, either in the school's in-house clinical office or in public interest law settings.

The clinical wing includes a two-story Law Office designed with modern lawyering technology. The student work rooms are equipped with networked computers that have access to legal research databases, the Internet, and leading-edge computer litigation support systems.

The School of Law was a pioneer of clinical legal education, and the program continues on the cutting edge of methods for training lawyers. Clinical faculty members have written numerous influential texts and articles that are used by law schools nationwide.

Extern Program

The school has one of the most extensive, best established, and most diversified student extern programs in the nation. Under supervision of experienced public interest and governmental lawyers and federal judges, students perform legal work in government offices, public interest law firms, nonprofit agencies, and the chambers of federal judges.

In the semester-long program, students develop legal skills in supervised settings and acquire perspectives about the lawyering process or the judicial decision-making process. They also participate in a faculty-led, law school-based seminar in which they reflect systematically in a classroom setting on their experiences in the placement. Students regularly report that the program is an excellent educational experience.

Business Law Program

The Business Law Program gives second- and third-year law students a coherent program of focused coursework in an important practice area. Students who successfully complete the program receive an appropriate notation on their transcripts.

The program has several goals. A large part of practice consists of transactions — a term encompassing agreements as diverse as the negotiation of a lease, the financing of low-cost housing, and the mergers of billion-dollar companies. Lawyers structuring those transactions and those engaged in litigation about them need to understand both legal principles and economic dynamics. Yet students interested in such practices are sometimes uncertain how they may best prepare themselves for such careers. The program provides guidance for these students, offering suggested courses and sequences of courses that enable those interested in a career in business law — or another field where such knowledge would be useful — to plan orderly, logical schedules that build from the basic to the advanced.

Business law students take three foundational courses in their second year of law school: financial analysis, business associations, and taxation. Thereafter, students may select one of five cores, or areas of specialization: corporate and securities, commercial and financing, international business, taxation, and a general business field. In each of the fields students choose among a set of relevant courses that build on and reinforce each other. Students then complete the concentration with an advanced transactional course.

College of Letters and Science

Brian P. Copenhaver, Provost

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“The Idea of a Multiversity” is a city of infinite variety. Some get lost in the city; some rise to the top within it; most fashion their lives within one of its subcultures. . . . It offers . . . a vast range of choices, enough literally to stagger the mind. In this range of choices . . . (one) encounters the opportunities and the dilemma of freedom.”

Clark Kerr, *The Uses of the University*

With over 23,369 students and 800 faculty, UCLA's College of Letters and Science is the largest academic unit in the UC system. Underscoring the “multiversity” concept, its four academic divisions of humanities, physical sciences, social sciences, and life sciences provide the framework for more than 120 majors leading to the Bachelor of Arts or Bachelor of Science as well as to master's and doctoral degrees.

The undergraduate programs in the college stress a “liberal arts education” which brings together perspectives from many fields in a unified approach to learning. Students learn some of the ways issues are analyzed, questions posed, and knowledge organized. After sampling many general subjects, they concentrate on one field or subject and are required to pursue it rigorously and in depth, according to the standards of scholars in the field. When they reach the graduate level, they pose their own questions, analyze academic issues of their own making and, through their research, participate in the creation of knowledge.

The primary units of the College of Letters and Science are the academic departments which are grouped in four divisions: humanities, life sci-

ences, physical sciences, and social sciences. Each division is headed by a dean who reports directly to the provost.

In addition to departmental advising, the Division of Honors and Undergraduate Programs includes a network of student assistance within its components: College of Letters and Science Counseling Service, Honors Programs, and Academic Advancement Program.

Humanities

The mission of the Division of Humanities is to promote, through scholarly inquiry and transmission of ideas, sensitive, imaginative, and rigorous reflection on the human condition and to engage in thoughtful reflection on those deep and abiding questions that relate to what it is to be human. Faculty and students reflect on art, literature, philosophy, and other expressions of the human spirit, each of which deepens their understanding. The instructional goal is to engage students in this inquiry — to further their knowledge and competence to express themselves clearly, rigorously, with style and originality.

Programs in the humanities range from teaching the craft of composition in writing programs to developing an appreciation of profound philosophical thinkers and writers from Asia, the Near East, Europe, England, and America. Pauline R. Yu is the divisional dean.

Life Sciences

Faculty and students in the Division of Life Sciences play an essential role in unlocking the secrets and mechanisms of life at the most fundamental level. The geography of Southern California is very conducive to life sciences research. An area as ecologically rich and diverse as Southern California is a natural laboratory for environmental physiologists and plant and animal ecologists.

Scientists in biology, microbiology and molecular genetics, and molecular biology conduct research in cell and developmental biology. Neurochemists, neurophysiologists, psychobiologists, and behavior biologists research the underlying mechanism of the neural basis of behavior. Physiological scientists examine the regulation of human movement, neural control of breathing, and environmental conditions such as weightlessness, which affect bone and muscle structure and function. Cognitive scientists are concerned with the nature of knowledge — how people learn, remember, associate, and think, and how computers relate to thought processes. Frederick A. Eiserling is the divisional dean.

Physical Sciences

Departments in the Division of Physical Sciences present the results of mankind's efforts to understand the physical aspects of the natural sciences, which include the study and understanding of the properties and characteristics of matter and energy; the science of numbers and order; studies of the origin and structure of the universe, solar system, and Earth; and climatic change. The bases for the physical sciences are the fundamental laws and proof of mathematics, chemistry, and physics. Studies in the physical sciences are experimental, theoretical, and observational.

Faculty and students are interested in such topics as the nature and evolution of the galaxies; ozone depletion; nuclear winter; greenhouse effect; molecular recognition, interactions, design, synthesis, and structure; evolution of life and the continents; computational mathematics and symbolic logic; superconducting materials; plasma fusion, space plasmas; and high-energy accelerator physics. Roberto Peccei is the divisional dean.

Social Sciences

Departments in the Division of Social Sciences are guided by the ideal of creating a deeper understanding of cultures and heritages and helping young people make sense of the rapidly changing world. By studying and comparing diverse cultures with their own, students gain self-knowledge and global awareness.

Anthropology students study human communities and social systems, archaeological records, and artifacts. Communication studies students learn about the mass media of today and their technological advances, social

uses, and abuses. Leading economists investigate the applications of economic principles to business decisions. The geographic purview extends from studying the effects of location on human behavior to the Earth's ecosystem. Courses in history bring about understanding of the forces that have shaped the many societies and cultures of this country and the world. Political scientists study the motivations of political behavior and the relations between today's superpowers. UCLA sociologists examine subjects ranging from the everyday interaction of people to the complexities of social organizations. Scott L. Waugh is the divisional dean.

Majors and Degrees Offered

African Area Studies (M.A.)
 African Languages (B.A.)
 Afro-American Studies (B.A., M.A.)
 American Indian Studies (M.A.)
 American Literature and Culture (B.A.)
 Ancient Near Eastern Civilizations (B.A.)
 Anthropology (B.A., B.S., M.A., Ph.D.)
 Applied Linguistics (C.Phil., Ph.D.)
 Applied Linguistics and Teaching English as a Second Language (M.A.)
 Applied Mathematics (B.S.)
 Arabic (B.A.)
 Archaeology (M.A., C.Phil., Ph.D.)
 Art History (B.A., M.A., Ph.D.)
 Asian American Studies (B.A., M.A.)
 Astronomy (M.S., M.A.T., Ph.D.)
 Astrophysics (B.S.)
 Atmospheric, Oceanic, and Environmental Sciences (B.S.)
 Atmospheric Sciences (M.S., C.Phil., Ph.D.)
 Biochemistry (B.S.)
 Biochemistry and Molecular Biology (M.S., C.Phil., Ph.D.)
 Biology (B.S., M.A., C.Phil., Ph.D.)
 Business Economics (B.A.)
 Chemistry (B.S., M.S., C.Phil., Ph.D.)
 Chemistry/Materials Science (B.S.)
 Chicana and Chicano Studies (B.A.)
 Chinese (B.A.)
 Classical Civilization (B.A.)
 Classics (M.A., C.Phil., Ph.D.)
 Cognitive Science (B.S.)
 Communication Studies (B.A.)
 Comparative Literature (B.A., M.A., C.Phil., Ph.D.)
 Cybernetics (B.S.)
 Earth Sciences (B.A.)
 East Asian Languages and Cultures (M.A., C.Phil., Ph.D.)
 East Asian Studies (B.A.)
 Ecology, Behavior, and Evolution (B.S.)
 Economics (B.A., M.A., C.Phil., Ph.D.)
 Economics/International Area Studies (B.A.)
 English (B.A., M.A., C.Phil., Ph.D.)
 English/Greek (B.A.)
 English/Latin (B.A.)
 European Studies (B.A.)
 Folklore and Mythology (M.A., Ph.D.)
 French (B.A., M.A., C.Phil., Ph.D.)
 French and Linguistics (B.A.)
 General Chemistry (B.S.)
 General Mathematics (B.S.)
 General Physics (B.A.)
 Geochemistry (M.S., C.Phil., Ph.D.)
 Geography (B.A., M.A., C.Phil., Ph.D.)
 Geography/Environmental Studies (B.A.)
 Geology (B.S., M.S., C.Phil., Ph.D.)

Geology — Engineering Geology (B.S.)
 Geology — Paleobiology (B.S.)
 Geophysics — Applied Geophysics (B.S.)
 Geophysics and Space Physics (B.S., M.S., Ph.D.)
 German (B.A.)
 Germanic Languages (M.A., C.Phil., Ph.D.)
 Greek (B.A., M.A.)
 Greek and Latin (B.A.)
 Hebrew (B.A.)
 Hispanic Languages and Literatures (C.Phil., Ph.D.)
 History (B.A., M.A., C.Phil., Ph.D.)
 History/Art History (B.A.)
 Indo-European Studies (C.Phil., Ph.D.)
 International Development Studies (B.A.)
 Iranian Studies (B.A.)
 Islamic Studies (M.A., C.Phil., Ph.D.)
 Italian (B.A., M.A., C.Phil., Ph.D.)
 Italian and Special Fields (B.A.)
 Japanese (B.A.)
 Jewish Studies (B.A.)
 Korean (B.A.)
 Latin (B.A., M.A.)
 Latin American Studies (B.A., M.A.)
 Linguistics (B.A., M.A., C.Phil., Ph.D.)
 Linguistics and Anthropology (B.A.)
 Linguistics and Computer Science (B.A.)
 Linguistics and East Asian Languages and Cultures (B.A.)
 Linguistics and English (B.A.)
 Linguistics and French (B.A.)
 Linguistics and Italian (B.A.)
 Linguistics and Philosophy (B.A.)
 Linguistics and Psychology (B.A.)
 Linguistics and Scandinavian Languages (B.A.)
 Linguistics and Spanish (B.A.)
 Marine Biology (B.S.)
 Mathematics (B.S., M.A., M.A.T., C.Phil., Ph.D.)
 Mathematics/Applied Science (B.S.)
 Mathematics/Economics (B.S.)
 Mathematics of Computation (B.S.)
 Microbiology and Molecular Genetics (B.S., M.A., Ph.D.)
 Molecular Biology (Ph.D.)
 Molecular, Cell, and Developmental Biology (B.S., M.A., Ph.D.)
 Music History (B.A.)
 Musicology (M.A., C.Phil., Ph.D.)
 Near Eastern Languages and Cultures (M.A., C.Phil., Ph.D.)
 Near Eastern Studies (B.A.)
 Neuroscience (B.S.)
 Philosophy (B.A., M.A., C.Phil., Ph.D.)
 Physics (B.S., M.S., M.A.T., Ph.D.)
 Physiological Science (B.S., M.S., Ph.D.)
 Plant Biology (B.S.)
 Political Science (B.A., M.A., C.Phil., Ph.D.)
 Portuguese (B.A., M.A.)
 Psychobiology (B.S.)
 Psychology (B.A., M.A., C.Phil., Ph.D.)
 Public Administration (M.P.A.)
 Religion, Study of (B.A.)
 Romance Linguistics and Literature (M.A., C.Phil., Ph.D.)
 Russian Language and Literature (B.A.)
 Russian Studies (B.A.)
 Scandinavian (M.A.)
 Scandinavian Languages (B.A.)
 Slavic Languages and Literatures (B.A., M.A., C.Phil., Ph.D.)

Sociology (B.A., M.A., C.Phil., Ph.D.)
 Spanish (B.A., M.A.)
 Spanish and Linguistics (B.A.)
 Spanish and Portuguese (B.A.)
 Statistics (M.S., Ph.D.)
 Teaching English as a Second Language (M.A.)
 Women's Studies (B.A.)

Note: The following master's degree programs require application to the doctoral degree program: English, Philosophy, Physics, Psychology. New students are not being admitted to the M.A.T. in Astronomy or the M.P.A. in Public Administration at this time.

Undergraduate Study

The degree programs in the College of Letters and Science are designed to expose students to a variety of intellectual challenges by combining a wide distribution of courses and the opportunity to specialize in one particular field. To this end, students are required to select lower division courses that deal with the general foundations of human knowledge. In upper division courses they are relatively free to concentrate attention on one field of interest: their major.

Students are expected to select a major by the beginning of their junior year. This may be a program of related upper division courses within a single department (departmental major) or a group of related courses involving a number of departments (interdepartmental major) or, under certain circumstances, a group of courses selected to meet a special need (individual major). Preparation for a major often requires prior completion of courses known as "requisites."

Counseling Services

The Division of Honors and Undergraduate Programs has three counseling units to advise undergraduate students: (1) AAP Counseling Service, 1209 Campbell Hall, (310) 825-1481; (2) Honors Counseling Service, A311 Murphy Hall, (310) 825-1553; and (3) College Counseling Service, A316 Murphy Hall, (310) 825-3382. Staff members are specially trained to assist students with questions pertaining to academic regulations and procedures, selection of courses, and the many options and alternatives available to enhance their university education.

Declaring a Major

Most entering freshmen are unsure about specific academic goals and request to be admitted to the college as "undeclared." These students then explore fields of study by taking introductory courses in the physical and life sciences, social sciences, and humanities in search of an area that most excites their interest.

All students with 90 or more units toward a degree are expected to declare a premajor or a major. When they are ready to do so, they obtain approval on a Petition for Declaration of Major from the department or interdepartmental degree committee which governs their intended major.

Assessing Progress toward the Degree

One responsibility of a UCLA student includes a regular monitoring of all requirements necessary for the degree. It is imperative that students read this catalog carefully and consult regularly with the Letters and Science counseling staff for confirmation of the requirements needed. Departmental counselors can advise students regarding progress and completion of the major requirements. It is important that students maintain an accurate assessment of progress toward the degree by utilizing departmental and College Counseling Service resources. To assist in degree planning, the College Counseling Service provides computerized Degree Progress Reports (DPRs) on request.

Minimum Progress

UCLA is a full-time institution, and it is expected that students complete their undergraduate degree requirements promptly. The recommended study load for an undergraduate in the College of Letters and Science is 12 to 16 units per term. Normal progress (toward graduation in four years) may be defined as the completion of 45 units per year.

According to Academic Senate regulations, Letters and Science undergraduates who do not pass at least 36 units during any three consecutive terms are placed on probation, and students who do not pass at least 32 units during three consecutive terms are subject to disqualification from registration at the University. Exceptions may be granted by the college due to poor health, family responsibilities, or regular employment of 20 hours per week or more.

Majors

A major in the College of Letters and Science consists of at least nine and no more than 15 upper division courses (between 36 and 60 units). All courses applied toward the major and preparation for the major must be taken for a letter grade unless otherwise stipulated by the department. Students who have been away from the University for several terms should consult with their major department or curriculum adviser concerning the requirements under which they are to graduate.

There are three categories of majors in the College of Letters and Science: departmental majors, interdepartmental majors, and individual majors.

Departmental Majors

A departmental major consists of a group of related upper division courses, of which at least six courses are in one department. These majors are supervised by established campus departments. There are 98 departmental majors currently offered by the college.

Interdepartmental Majors

An interdepartmental major consists of at least 13 related courses, of which at least 11 are upper division and no more than eight are in one department. These programs are administered by interdepartmental committees made up of faculty whose membership is determined by research interest, not by departmental affiliation. By cutting across the usual lines of departmental division, a subject area is studied from the perspectives of different disciplines and a greater degree of program flexibility is achieved.

The College of Letters and Science currently offers 24 interdepartmental majors. Although most lead to bachelor's degrees, there are some which lead to graduate degrees only. Detailed descriptions of the interdepartmental majors are given in the Curricula and Courses section of this catalog.

Individual Majors

If students have some unusual but definite academic interest for which no suitable major is offered at the University and have completed at least three terms of work (nine courses) at the University with a grade-point average of 3.4 or better, they may plan an individual major. The consent of the Division of Honors and Undergraduate Programs and the assistance of a faculty adviser are required.

The major should consist of at least 12 and no more than 15 upper division courses, a majority of which are in departments offering a major in the college. A senior thesis is required. For further details about individual majors, contact the Honors Programs Office, A311 Murphy Hall, (310) 825-1553.

Returning Students and Their Majors

Students returning to the University to resume their studies after an absence of several years may find their previous major area of study no longer available. They then must select a current major in which to complete their studies. Consult the College of Letters and Science Counseling Service for assistance.

Minors

Students may choose from 46 different college/school minors, each of which must be taken jointly with an organized departmental or interdepartmental major. For a list of minors see the Undergraduate Study section. Detailed descriptions of the minors are given in the Curricula and Courses section of this catalog.

Specializations

Students may choose from eight different programs which are not degree-granting majors, but are sequences of supplemental courses designed to enhance their work in certain areas. Each of these specializations must be taken jointly with an organized departmental or interdepartmental major. For a list of specializations see the Undergraduate Study section. Descriptions of the specializations are given in the Curricula and Courses section of this catalog. For descriptions of the Computing specialization, see the programs in anthropology, cybernetics, economics, geography, linguistics, mathematics, mathematics/economics, organismic biology, ecology, and evolution, psychology, and sociology.

Life Sciences Core Curriculum

For information on the life sciences core curriculum, see the Curricula and Courses section of this catalog.

Student Research Program

For information on the Student Research Program (SRP), see Alternative Academics in the Undergraduate Study section of this catalog.

Double Majors

Students in good academic standing may be permitted to have a double major consisting of departmental majors from two departments within this college. They must both be completed within the maximum limit of 228 units, and students must obtain the approval of both departments.

With few exceptions, double majors in the same department are unacceptable. Students must designate one of the two majors as the principal one for the purpose of satisfying general education requirements. No more than five upper division courses may be common to both majors.

Courses outside the division of the principal major which are required in preparation for that major may be used to satisfy general education requirements. Courses required for the secondary major (including preparation for the major) also may satisfy general education requirements.

Changing Majors

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit (228 for double majors and special programs). Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

Students who fail to attain a grade-point average of 2.0 (C) in preparation for the major or major courses may be denied the privilege of entering or continuing in that major. Some departments may have higher grade-point requirements for their preparation and major courses; consult the appropriate department regarding minimum standards.

Study List

The required study load for undergraduate students in the College of Letters and Science is 12 to 16 units (three to four courses) per term. For exceptions, see Minimum Progress earlier in this section. Students may carry four and one-half courses (18 units) without petition. After the first term, students may petition to enroll in as many as five courses if they attained at least a B average the preceding term in a program of at least three graded courses. First-term transfer students from any other campus of the University may carry excess Study Lists on the same basis as students who have completed one or more terms at UCLA; however, they are not encouraged to do so.

Requirements for Bachelor's Degrees

Each student must meet three types of requirements for the Bachelor of Arts or Bachelor of Science degree: University requirements, college requirements, and department requirements (including preparation for the major and major requirements). For details on department requirements, see the Curricula and Courses section of this catalog.

Structure of a Degree

Three types of degree requirements are included within the 180-unit minimum/216- or 228-unit maximum limits for the bachelor's degree:

University Requirements

- (1) Subject A or English as a Second Language (ESL)
- (2) American History and Institutions

College Requirements

- (1) English Composition or ESL Composition
- (2) Quantitative Reasoning
- (3) Foreign Language
- (4) General Education Requirements

Department Requirements

- (1) Preparation for the Major
- (2) Major Requirements

Electives

The remaining units, defined as electives, are courses which vary according to student interests and goals. When selecting courses, keep the following degree criteria in mind:

Scholarship

Students must attain an overall 2.0 minimum grade-point average in the 180/216 or 228 units required and must satisfy the scholarship requirements of their major department (usually a 2.0 average in the preparation and major courses, but it may be higher in the former, according to departmental requirements).

Academic Residence Requirement

See Academic Residence Requirements below.

Upper Division Unit Requirement

At least 60 units must be upper division (numbered 100-199) for students entering Fall Quarter 1999 and thereafter.

University Requirements

For information on the Subject A or English as a Second Language (ESL) and American History and Institutions requirements, see Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

College Requirements

The College of Letters and Science has eight requirements which must be satisfied for the award of the degree: unit, major, scholarship, academic residence, English composition, quantitative reasoning, foreign language, and general education requirements.

Unit Requirements

Students must satisfactorily complete for credit a minimum of **180 units** for the bachelor's degree. At least **60** of the 180 units must be **upper division (numbered 100-199)** for students entering Fall Quarter 1999 and thereafter. A maximum of 216 (228 for double majors and special programs) units is allowed. Students with advanced placement (transfer) credit may exceed the unit maximum by the amount of that credit.

Scholarship and Major Requirements

Students must attain at least a 2.0 (C) grade-point average in all courses undertaken at this University for receipt of the bachelor's degree. They must also attain a 2.0 GPA in a major and satisfy both the course and scholarship requirements of that major (including preparation for the major) in the College of Letters and Science.

Academic Residence Requirements

Sixty-eight of the last 80 units completed for the degree must be earned in residence in the college. **No more than 16 of the 68 units may be completed in UCLA Summer Sessions.** While enrolled in the college students must complete at least 10 upper division courses (40 units), including six courses in the major. These academic residence requirements apply to all students, both continuing and transfer.

College Writing Requirement

Note: Students must complete the University's Subject A or English as a Second Language (ESL) requirement prior to completing the college's writing requirement.

Effective Fall Quarter 1999, all new students admitted to the College of Letters and Science are required to complete a two-quarter English Composition Writing I and Writing II requirement. Continuing and returning students fulfill the requirements in effect prior to Fall Quarter 1999.

Two courses in English composition are required for graduation. Both courses must be taken for a letter grade, and students must receive grades of C or better (C- grades are not acceptable). The Writing I requirement must be satisfied by completing English Composition 3, or an equivalent course approved by the Letters and Science Faculty Executive Committee, within the first three quarters of enrollment.

The Writing I requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English; a combination of a score of 720 or better on the SAT II Subject Test in Writing and superior performance on the English Composition 3 Proficiency Examination; or, for students whose native language is not English who satisfy the Subject A requirement with English as a Second Language 35, successful completion of English as a Second Language 36 or an equivalent.

The Writing II course is selected from a list of courses approved by the Faculty Executive Committee. Consult the College of Letters and Science Counseling Service for an updated list. The Writing II course may also be applied toward the general education requirements or preparation for the major.

Transfer Students

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum will have satisfied both parts of the English Composition requirement.

No transfer student is admitted to the college without completing, with a grade of C or better (a grade of C- is not acceptable), a college-level writing course that the Office of Undergraduate Admissions and Relations with Schools accepts as equivalent to English Composition 3.

English as a Second Language (ESL) Students

Students whose native language is not English may satisfy the English Composition requirement by completing English as a Second Language 36 with a grade of C or better (C- or a Passed grade is not acceptable). Admission into course 36 is determined by completion of course 35 with a passing grade or proficiency demonstrated on the English as a Second Language Placement Examination (ESLPE).

Quantitative Reasoning and Foreign Language Requirements

In the College of Letters and Science students must demonstrate basic skills in quantitative reasoning and satisfy the foreign language requirement.

Note: All courses taken to satisfy these requirements must be completed with a grade of Passed or C or better.

Quantitative Reasoning

May be satisfied by achieving an SAT I mathematics score of 600 or better, an SAT II mathematics subject test score of 550 or better, or by completing one of the following courses: Anthropology M80, Biostatistics 100A, 100B, Computer Science 10C, 10F, Economics M40, Geography M40, Mathematics 2 (or any higher numbered course except 38A, 38B, and 104), Philosophy 31, Political Science 6, Program in Computing 10A, 10B, 10C, Sociology M18, 109A, Statistics 10, M11, M12, M21A, M21C.

Foreign Language

May be satisfied by one of the following methods: (1) completing a college-level foreign language course equivalent to UCLA's level three or above **OR** (2) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in French, German, or Spanish, thereby earning college credit **OR** (3) presenting a UCLA foreign language departmental examination score indicating competency through

Advanced Placement Credit: College of Letters and Science

Advanced Placement Test	UCLA Course Equivalents	Credit Allowed for GE Requirements
Art History	8 units	No application for art
Art Studio: General Portfolio or Drawing Portfolio	8 units	No application for art
Biology	8 unassigned units	4 units toward life sciences requirement
Chemistry	8 units	Score 3 — No application for chemistry Score 4 or 5 — 4 units toward physical sciences requirement
Computer Science	Four units maximum for both tests.	
Computer Science (A Test)	2 unassigned units	No application for computer science
Computer Science (AB Test)	4 unassigned units	Satisfies quantitative reasoning requirement
Economics		
Macroeconomics	Score 3 — 4 unassigned units Score 4 or 5 — Economics 2 (4 units)	Score 3 — No application for economics Score 4 or 5 — 4 units toward social analysis requirement
Microeconomics	Score 3 — 4 unassigned units Score 4 or 5 — Economics 1 (4 units)	Score 3 — No application for economics Score 4 or 5 — 4 units toward social analysis requirement
English	Eight units maximum for both tests.	
Composition and Literature or Language and Composition	Score 3 — 8 unassigned units Score 4 or 5 — English 3 (8 units)	Score 3 — Satisfies Subject A requirement Score 4 or 5 — Satisfies Subject A and English Composition Writing I requirements
Environmental Science	Score 3 — 4 unassigned units Score 4 or 5 — Geography 5 (4 units)	Score 3 — No application for environmental science Score 4 or 5 — 4 units toward life sciences requirement
Government and Politics		
Comparative	4 units	4 units toward social analysis requirement
United States	4 units	4 units toward social analysis requirement; satisfies American History and Institutions requirement
History		
European	History 1C (4 units) plus 4 units	4 units toward historical analysis requirement
United States	Score 3 — 8 units Score 4 or 5 — History 13A-13B-13C (8 units)	Score 3 — No application for U.S. history Score 4 or 5 — 8 units toward historical analysis requirement Score 3, 4, or 5 — Satisfies American History and Institutions requirement
Languages and Literatures		
French Language	Score 3 — French 4 (8 units) Score 4 — French 5 (8 units) Score 5 — French 6 (8 units)	4 units toward language and linguistics requirement
French Literature	8 units	No application for French literature
German Language	Score 3 — German 3 (8 units) Score 4 — German 4 (8 units) Score 5 — German 5 (8 units)	Score 3 — Satisfies foreign language requirement Score 4 or 5 — 4 units toward language and linguistics requirement Score 4 or 5 — 4 units toward language and linguistics requirement
Latin (Vergil, Latin Literature)	Score 3 — Latin 1 (4 units per test) Score 4 or 5 — Latin 3 (4 units per test)	Score 4 or 5 — Satisfies foreign language requirement
Spanish Language	Score 3 — Spanish 4 (8 units) Score 4 — Spanish 5 (8 units) Score 5 — Spanish 6 (8 units)	4 units toward language and linguistics requirement
Spanish Literature	8 units	No application for Spanish literature
Mathematics	Eight units maximum for both tests.	
Mathematics (AB Test: Calculus)	Score 3 — 4 units Score 4 or 5 — Mathematics 31A (4 units)	4 units toward physical sciences requirement 4 units toward physical sciences requirement
Mathematics (BC Test: Calculus)	Score 3 — 8 units Score 4 or 5 — Mathematics 31A, 31B (8 units)	8 units toward physical sciences requirement 8 units toward physical sciences requirement
Music	Eight units maximum for both tests.	
Music Literature (no longer offered)	8 units	No application for music
Music Theory	8 units	No application for music
Physics	Eight units maximum for both tests.	
Physics (B Test)	8 units	No application for physics
Physics (C Test)	4 or 8 units	No application for physics
Psychology	4 unassigned units	No application for psychology
Statistics	4 unassigned units	Satisfies quantitative reasoning requirement

Note: All UCLA course equivalents consist of lower division advanced placement units. Students may not repeat for units or grade points an AP Test credit that has been given UCLA course number equivalency (e.g., History 13A-13B-13C).

level three (consult the *Schedule of Classes* for times and places of these regularly scheduled examinations).

If students wish to demonstrate proficiency in a language which is taught in a UCLA department but for which there is no scheduled examination, they should contact the appropriate department to arrange for one. Students wishing to take an examination in a language not taught at UCLA should contact a college counselor.

The following language courses may be used to fulfill the foreign language requirement:

African Languages (Linguistics) 1A-1B-1C or 15 (Swahili); 7A-7B-7C or 17 (Zulu); 11A-11B-11C or 25 (Yoruba); 31A-31B-31C or 35 (Bambara); 41A-41B-41C or 45 (Hausa); 51A-51B-51C (Amharic)

Afrikaans (Germanic Languages) 105A, 105B

Ancient Near East (Near Eastern Languages) 120A-120B-120C (Ancient Egyptian); 140A-140B-140C (Sumerian)

Arabic (Near Eastern Languages) 1A-1B-1C

Armenian (Near Eastern Languages) 101A-101B-101C or 104A-104B-104C

Berber (Near Eastern Languages) 101A-101B-101C

Bulgarian (Slavic Languages) 103A-103B-103C

Chinese (East Asian Languages) 1, 2, and 3, or 1A and 2A, or 3R or 8

Czech (Slavic Languages) 102A-102B-102C

Dutch (Germanic Languages) 103A-103B, and 103C, or 104A-104B

French 1, 2, and 3, or 8

German (Germanic Languages) 1, 2, and 3, or 8

Greek (Classics) 1, 2, and 3, or 16; 15 (Modern Greek)

Hebrew (Near Eastern Languages) 1A-1B-1C or 10A-10B-10C

Hungarian (Slavic Languages) 101A-101B-101C

Indigenous Languages of the Americas (Linguistics) 17 or 18A-18B-18C (Quechua)

Iranian (Near Eastern Languages) 1A-1B-1C or 20A-20B-20C (Persian)

Italian 1, 2, and 3, or 1A and 2A

Japanese (East Asian Languages) 1, 2, and 3, or 8

Korean (East Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8

Latin (Classics) 1, 2, and 3, or 16

Polish (Slavic Languages) 102A-102B-102C

Portuguese (Spanish and Portuguese) 1, 2, 3

Romanian (Slavic Languages) 101A-101B-101C or 104

Russian (Slavic Languages) 1, 2, and 3, or 10 or 11A-13B (two units each) or 15A-15B

Scandinavian 1, 2, 3 (Swedish); 11, 12, 13 (Norwegian); 21, 22, 23 (Danish)

Semitics (Near Eastern Languages) 140A-140B, 141 (Akkadian)

Serbian/Croatian (Slavic Languages) 103A-103B-103C

South and Southeast Asian Languages (Applied Linguistics and Teaching English as a Second Language) 40A-40B-40C (Hindi); 50A-50B-50C (Vietnamese); 60A-60B-60C (Thai); 70A-70B-70C (Tagalog)

Spanish (Spanish and Portuguese) 1, 2, and 3, or 2A and 3A

Turkic Languages (Near Eastern Languages) 101A-101B-101C (Turkish); 111A-111B-111C (Uzbek)

Ukrainian (Slavic Languages) 101A-101B-101C

Yiddish (English) 101A, 101B, and 101C, or 102B

General Education (GE) Requirements

The general education requirements of the college are intended to introduce undergraduates to the richness and diversity of the various academic disciplines. Within the four major divisions of the college — humanities, physical sciences, social sciences, and life sciences — students are encouraged to explore the different possibilities for further university study. Whether or not students have a specific educational goal, general education requirements are designed to broaden their intellectual perspective and to set them on the path to becoming educated members of society.

The set of GE course requirements students follow is specified on the list labeled GE Course List. They must earn units in four courses in the humanities (literature, philosophy, language and linguistics, culture and civilization, the arts), three courses in the physical sciences, four in the social sciences (two from historical analysis and two from social analysis), and three courses in the life sciences. In the humanities, at least one course must be from literature and no more than two may be from any single subgroup. In the physical sciences, two courses must be complementary and one must include a laboratory and/or demonstration component. In the life sciences, one course must include a laboratory and/or demonstration component.

All students entering UCLA in Fall Quarter 1999 with 45 or more quarter units are not required to complete the complementary course requirement in physical sciences.

Courses required to satisfy the major or other courses taken in the major department may not be used to satisfy the general education requirements. However, courses outside the major which are required as preparation for a major may be used to satisfy these requirements.

General Education Clusters

General education clusters, available to entering freshmen only, are an option for satisfying general education requirements. The clusters span three quarters and are interdisciplinary team-taught courses designed to introduce students to multiple areas of knowledge. They focus on a common topic and are organized in such a way that students can explore how different disciplines converge and diverge in their approach to a particular problem.

General education clusters are taught by some of the University's most distinguished faculty and are designed to strengthen the writing, quantitative reasoning, critical thinking, and information literacy skills that students need to excel at UCLA. During Fall and Winter Quarters, instruction in the clusters consists of lecture courses taught in concert with discussion sections. In Spring Quarter students enroll in one of a number of small satellite seminars whose topics are related to the cluster theme.

For the current cluster course offerings, refer to the general education website at <http://www.college.ucla.edu/ge/clusters.htm>.

Course Exemptions

Students majoring in the humanities are exempt from two courses, one in their major subgroup and one other humanities course. Students majoring in the physical sciences are exempt from two courses in the physical sciences group. Students in the social sciences are exempt from two courses in the subgroup of their major, and students in life sciences are exempt from two courses in the life sciences grouping. At least 14 courses (12, with exemptions) must be completed.

Course Substitutions

Two lower division seminars which have been approved for GE credit may be substituted for courses on the GE Course List. Students may make no more than one such substitution per group (humanities, physical sciences, social sciences, life sciences). An annual list of GE seminars is published in the *General Education Handbook*, and descriptions are listed in the quarterly *Schedule of Classes* under Special Programs.

Advanced Placement Credit

For application of advanced placement (AP) credit on the general education requirements, see the Advanced Placement chart or consult a college counselor.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all general education requirements prior to enrolling at UCLA are not required to complete the college's GE requirements at UCLA. Written verification from the college dean at the other UC campus is required. Consult a college counselor regarding eligibility for this option.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA's lower division general education requirements by complet-

ing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although general education or transfer core courses are graduation requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all of UCLA's general education requirements are fulfilled when students complete it. If they select the IGETC, they must complete it entirely before enrolling at UCLA. Otherwise, students must fulfill the College of Letters and Science general education requirements.

General Education Groupings by Major

For the purpose of these requirements, departmental and interdepartmental majors are classified in the divisions listed below. Not all courses within a department apply on GE requirements in the division of the major (e.g., psychology is listed as a life science; however, Psychology 10 appears as a social science under social analysis).

A. Humanities

A1. Literature

African Languages
American Literature and Culture
Arabic
Chinese
Comparative Literature
English
English/Greek
English/Latin
French
German
Greek
Greek and Latin
Hebrew
Italian
Italian and Special Fields
Japanese
Korean
Latin
Portuguese
Russian Language and Literature
Scandinavian Languages
Slavic Languages and Literatures
Spanish

Spanish and Portuguese

A2. Philosophy

Philosophy

A3. Language and Linguistics

French and Linguistics
Linguistics
Linguistics and all special fields
Spanish and Linguistics

A4. Culture and Civilization

Ancient Near Eastern Civilizations
Classical Civilization
East Asian Studies
Iranian Studies
Jewish Studies
Near Eastern Studies
Religion, Study of
Russian Studies

A5. The Arts

Art History
Music History

B. Physical Sciences

Applied Mathematics
Astrophysics
Atmos, Oceanic, & Environ Sciences
Biochemistry
Chemistry
Chemistry/Materials Science
Cybernetics
Earth Sciences
General Chemistry
General Mathematics
General Physics
Geology
Geophysics
Mathematics
Mathematics/Applied Science
Mathematics/Economics
Mathematics of Computation
Physics

C. Social Sciences

C1. Historical Analysis

History
History/Art History

C2. Social Analysis

Afro-American Studies
Anthropology
Asian American Studies
Chicana and Chicano Studies
Communication Studies
Economics
European Studies
Geography
Geography/Environmental Studies
International Development Studies
Latin American Studies
Political Science
Sociology
Women's Studies

D. Life Sciences

Biology
Cognitive Science
Ecology, Behavior, and Evolution
Marine Biology
Microbiology and Molecular Genetics
MCD Biology
Neuroscience
Physiological Science
Plant Biology
Psychobiology
Psychology

College of Letters and Science GE Course List

Courses marked with an asterisk (e.g., Honors Collegium *1. Transformations of the West in the 20th Century) are listed in more than one category and can fulfill GE requirements in only one of the cross-listed categories.

See the Quantitative Reasoning and Foreign Language Requirements section for courses to fulfill those requirements.

Completion of a general education cluster earns the equivalent of four general education courses distributed among the four categories of GE requirements. Specific GE credit may vary from year to year based on the cluster course content. Inquire at the General Education Office, A265 Murphy Hall, or refer to the general education website at <http://www.college.ucla.edu/ge/clusters.htm> for specific general education application.

All honors sections of courses listed below also fulfill GE requirements.

A. Humanities

Four courses, with at least one from Group A1 and no more than two courses from any single subgroup:

A1. Literature

Classics

40. Survey of Greek Literature in Translation

41. Survey of Latin Literature in Translation

Comparative Literature (formerly Humanities)

1A. World Literature: Antiquity to Early Middle Ages

1B. World Literature: Late Middle Ages to the 17th Century

1C. World Literature: Age of Enlightenment to the 20th Century

1D. Great Books from the World at Large

2A. Survey of Literature: Antiquity to Early Middle Ages

2B. Survey of Literature: Late Middle Ages to the 17th Century

2C. Survey of Literature: Age of Enlightenment to the 20th Century

2D. Survey of Literature: Great Books from the World at Large

English

10A. English Literature to 1660

10B. English Literature, 1660 to 1832

70. Major British Authors before 1800

75. Major British Authors, 1800 to the Present

80. Major American Authors

85. The American Novel

88J. Lower Division Seminar: Introduction to Asian American Fiction

88L. Lower Division Seminar: Poetics of Myth

88M. Lower Division Seminar: Three Philosophical Novels

88M. Lower Division Seminar: When Myth Systems Collide -- 20th-Century Literature and Culture Confront Traditional Myths

90. Shakespeare

95A. Introduction to Poetry

95B. Introduction to Drama

95C. Introduction to Fiction

96. The Short Story in England and America

Folklore and Mythology

88. Poetics of Myth

French

12. Introduction to Study of French Literature (in French)

114A, 114B, 114C. Survey of French Literature (in French)

German (Germanic Languages)

50A. Masterworks of German Literature in Translation: Medieval Period through Classicism

50B. Masterworks of German Literature in Translation: Romanticism to the Present

- 140A. Introduction to German Poetry (in German)
 140B. Introduction to German Drama (in German)
 140C. Introduction to German Narrative Prose (in German)

Honors Collegium

- *1. Transformations of the West in the 20th Century
 *9. Greeks and Barbarians: Multiculturalism in the Ancient World
 16. Contemporary Fiction and Psychology of the Self
 17. Archetypal Heroines
 21. Rise and Fall of Modernism
 *28. Misleading Mirror: Self-Portraits in Word and Image
 33. Art of Engagement
 47. Literature of Colonization and Colonization of Literature
 *50A. Greek Views of Humanity
 *52. Good, Better, Best Western: Approaches to the 19th-Century American Frontier
 59. Literature and Culture of the American South
 *64. Encounters with the Other: European Colonialism and Representation
 *69. American Writing, American Photography
 74. Life Crises in Literature
 80. Literature of Diversity: Cultural Experience in America
 83. Politics and Rhetoric of Literature
 86. Federico Garcia Lorca and Literature of New York

Italian

- 50A. Masterpieces of Italian Literature in English: Middle Ages and Renaissance
 50B. Masterpieces of Italian Literature in English: Baroque Period to the Present

Japanese (East Asian Languages)

60. Image of Japan: Humanistic Tradition

Portuguese (Spanish and Portuguese)

- 40A, 40B. Portuguese, Brazilian, and African Literature in Translation
 120A, 120B. Introduction to Portuguese Literature (in Portuguese)
 130A, 130B. Brazilian Literature and Identity: Introduction (in Portuguese)

Russian (Slavic Languages)

25. The Russian Novel in Translation

Scandinavian

50. Introduction to Scandinavian Literature

Spanish (Spanish and Portuguese)

- 60A, 60B, 60C. Hispanic Literatures in Translation
 88A. Lower Division Seminar: Reaching 2001 (Fantasy of Reality and Reality of Fantasy)

A2. Philosophy

Honors Collegium

32. Creativity and Culture: Making Things New in the Arts, Humanities, Social Sciences, and Sciences
 *50A. Greek Views of Humanity

Philosophy

1. Beginnings of Western Philosophy
 2. Introduction to Philosophy of Religion
 4. Philosophical Analysis of Contemporary Moral Issues
 5A. Philosophy in Literature
 6. Introduction to Political Philosophy
 7. Introduction to Philosophy of Mind
 8. Introduction to Philosophy of Science
 21. Skepticism and Rationality
 22. Introduction to Ethical Theory

A3. Language and Linguistics

Classics

55. Origins and Nature of English Vocabulary

English

- 88K. Lower Division Seminar: Introduction to English Etymology

Honors Collegium

56. Language as a Window to the Mind

Language

Formal University foreign language instruction at level four or higher; no more than one course at level four or higher may be used

Linguistics

1. Introduction to Study of Language
 2. Language in the U.S.

10. Structure of English Words

20. Introduction to Linguistics

Portuguese (Spanish and Portuguese)

- M35. Spanish, Portuguese, and Nature of Language

Spanish (Spanish and Portuguese)

- M35. Spanish, Portuguese, and Nature of Language

A4. Culture and Civilization

Ancient Near East (Near Eastern Languages)

10. Jerusalem: The Holy City

Art History

- *88A. Lower Division Seminar: Buddha's Life and Teachings in Art, Texts, and Worship

Chicana and Chicano Studies

- 10A. Introduction to Chicano Life and Culture

Chinese (East Asian Languages)

50. Chinese Civilization

Classics

- *10. Survey of Classical Greek Culture

- *20. Survey of Roman Civilization

30. Introduction to Classical Mythology

- 51A. Art and Archaeology of Classical World: Greece

- 51B. Art and Archaeology of Classical World: Rome

East Asian Languages and Cultures

60. Introduction to Buddhism

Folklore and Mythology

15. Introduction to American Folklore Studies

French

14. Introduction to French Civilization

41. French Cinema and Culture

German (Germanic Languages)

- 100A. German Civilization and Culture before 1700

- 100B. Modern German Civilization and Culture from 1700 to 1919

- 100C. German Civilization and Culture in the 20th Century

History

- *9A. Introduction to Asian Civilizations: History of India

- *9C. Introduction to Asian Civilizations: History of Japan

- *9D. Introduction to Asian Civilizations: History of the Near and Middle East

- *10A, *10B. Introduction to Civilizations of Africa

- *11A, *11B. History of China

Honors Collegium

- *1. Transformations of the West in the 20th Century

4. Surrealist Challenge

- *9. Greeks and Barbarians: Multiculturalism in the Ancient World

- *13. Realism in Times of Crisis: French and Italian Cinema of the 1930s and 1940s

15. America, 1963 to 1973: Culture and Counterculture

18. Culture, Conquest, and Communication: Fatal Attractions

- *19. Interdisciplinary Perspectives on Production and Consumption of Popular Music

- *26. The Bible as Political Theory

- *30. Vietnam War and American Culture

43. Male Identity and Sexuality in Ancient Rome

- *50A. Greek Views of Humanity

- 50B. Gender and Race: Constructions of Greek Political Thought

- *64. Encounters with the Other: European Colonialism and Representation

- *65. Carnival and Festivity

- *69. American Writing, American Photography

77. Intellectual Life in Japan: Classics, Moderns, and Postmoderns

78. Writing in Age of Revolution

79. Rhetoric of Rule: Spectacle and Image Making in Reign of the Sun King and Presidents Reagan and Clinton

- *96. Cultural Dimensions of Apartheid and Post-Apartheid South Africa

Italian

- 42A. Italy through the Ages, in English: Holy Roman Empire to Sack of Rome

- 42B. Italy through the Ages, in English: Late Renaissance to Postmodern Period

46. Italian Cinema and Culture

Japanese (East Asian Languages)

50. Japanese Civilization

Jewish Studies (Near Eastern Languages)

10. Social, Cultural, and Religious Institutions of Judaism

Korean (East Asian Languages)

50. Korean Civilization

Near Eastern Languages

50A. Introduction to Near Eastern Languages and Cultures: Ancient Near East
50B. Introduction to Near Eastern Languages and Cultures: Medieval Near East
50C. Introduction to Near Eastern Languages and Cultures: Modern Near East

Portuguese (Spanish and Portuguese)

M42. Civilization of Spain and Portugal
M44. Civilization of Spanish America and Brazil
46. Brazilian Culture and Civilization

Russian (Slavic Languages)

30. Russian Literature and World Cinema
99A. Introduction to Russian Civilization
99B. Russian Civilization in the 20th Century

Slavic (Slavic Languages)

99. Introduction to Slavic Civilization

Spanish (Spanish and Portuguese)

M42. Civilization of Spain and Portugal
M44. Civilization of Spanish America and Brazil

A5. The Arts

Afro-American Studies

M110A, M110B. African American Musical Heritage

Art History

50. Ancient Art
51. Medieval Art
54. Modern Art
55A. Introduction to African Art
55B. Arts of Pre-Columbian America
56A. Art of India and Southeast Asia
56B. Introduction to Chinese Art
57. Renaissance and Baroque Art
*88A. Lower Division Seminar: Buddha's Life and Teachings in Art, Texts, and Worship

Chicana and Chicano Studies

M108A. Music of Latin America

Classics

42. Cinema and the Ancient World

Design

10. Nature of Design

Ethnomusicology

20A, 20B, 20C. Musical Cultures of the World
M108A, 108B. Music of Latin America
M110A, M110B. African American Musical Heritage
113. Music of Brazil
136A, 136B. Music of Africa
147. Survey of Classical Music in India
174. Aesthetics of Music

Film and Television

106A. History of the American Motion Picture
106B. History of the European Motion Picture
106C. History of African, Asian, and Latin American Film
108. History of Documentary Film
112. Film and Social Change

Folklore and Mythology

M154A, M154B. African American Musical Heritage

Honors Collegium

*13. Realism in Times of Crisis: French and Italian Cinema of the 1930s and 1940s
*28. Misleading Mirror: Self-Portraits in Word and Image
*29. Critical Vision: History of Art as a Social and Political Commentary
34. Film and Society: The Hollywood Myth of Ancient Rome

Music

15. Art of Listening

Music History

2A, 2B. Introduction to the Literature of Music

5. History of Rock and Roll

7. Film and Music

13. 20th-Century Music of the Western World

133. Bach

134. Beethoven

135A, 135B, 135C. History of Opera

Theater

102E. Theater of Non-European World
104C. History of American Theater: WWI to the Present

World Arts and Cultures

134. History of Dance in Culture and Performance
135. Dance in the U.S.
181A. Dance Cultures of Asia
182. Dance in Africa and the African Diaspora
C187. Dance in Native American Cultures

B. Physical Sciences

Three courses from the following, two of which must be complementary and one of which must have a laboratory and/or demonstration component:

Astronomy

2A, 2B. Introduction to the Physical Universe
3. Astronomy: Nature of the Universe
4. Universe of Stars and Stellar Systems
5. Life in the Universe
6. Cosmology: Our Changing Concepts of the Universe
81. Astrophysics I: Stars and Nebulae
82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology
88A. Lower Division Seminar: Cosmic Evolution

Atmospheric Sciences

2, 2E. Air Pollution
3, 3E. Introduction to the Atmospheric Environment
4. California Weather and Climate
5. Climates of Other Worlds
6, 6E. Climate and Climatic Change
10. Introduction to the Earth System

Chemical Engineering

2. Technology and the Environment

Chemistry and Biochemistry

2. Introductory Chemistry
14A. Chemical Structures and Equilibria
14B. Thermodynamics, Kinetics, Organic Structures, and Spectroscopy
14BL. General and Organic Chemistry Laboratory
15. Survey of Organic Chemistry and Biochemistry
15L. Laboratory in Elementary Organic Chemistry and Biochemistry
20A. Chemical Structure
20B. Chemical Energetics and Change
20L. General Chemistry Laboratory

Civil and Environmental Engineering

3. Fundamentals of Environmental Engineering Science

Computer Science

2. Great Ideas In Computer Science

Earth and Space Sciences

1. Introduction to Earth Science
2. Earth History
5. Environmental Geology of Los Angeles
8. Earthquakes
9. Origin and Evolution of Solar System
*15. Introduction to Oceanography
*20. Natural History of Southern California

Geography

1. Physical Environment

Honors Collegium

*5. Science and the Human Condition
*11. Galileo and the Scientific Revolution from the 17th to 21st Century
*24. 21st Century: Technology, Society, and Ethics
35. Scientific Method: Critical Inquiry into Question of Extraterrestrial Life

44. Trail of Light

*57. Life and Sciences of Complexity

67. Structure of Physical Reality

73. Elementary Particles in the Universe

75. On Nature of Things: Comparative Reading of Poem by Lucretius and Modern Science

85. Science and Art: Concepts and Connections

99. Case-Based Astrophysics with Computer Visualization

Mathematics

2. Finite Mathematics

3A, 3B. Calculus for Life Sciences Students

31A, 31B. Calculus and Analytic Geometry

31E. Calculus for Economics Students

Physics

1A. Physics for Scientists and Engineers: Mechanics

1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields

1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity

3A. General Physics: Mechanics of Solids and Fluids

3B. General Physics: Heat, Sound, Electricity and Magnetism

3C. General Physics: Light, Relativity, and Modern Physics

6A. Physics for Life Sciences Majors: Statics and Dynamics

6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics

6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport

10. Physics

Complementary courses include Astronomy 2A/2B, 3/4, 3/5, 3/6, 81/82; Atmospheric Sciences 2/3, 2E/3E, 3/4, 3/5, 3/6, 3E/6E, 5/6; Chemistry and Biochemistry 14A/14B, 15/20A, 20A/20B; Earth and Space Sciences 1/2, 1/8, 1/9, 1/15, 1/Geography 1, 20/Geography 1; Mathematics 3A/3B, 3A/31B, 3A/31E, 3B/31A, 31A/31B, 31A/31E; Physics 1A/1B, 1A/1C, 1B/1C, 3A/3B, 6A/6B, 6A/6C, 6B/6C.

Courses with a laboratory and/or demonstration component include Astronomy 2A, 2B, 3, 81, 82, Atmospheric Sciences 2, 3, 3E, 4, 6E, Chemistry and Biochemistry 14BL, 15L, 20L, Earth and Space Sciences 1, 2, 15, 20, Geography 1, Honors Collegium 67, Physics 1A, 1B, 1C, 3A, 3B, 3C, 6A, 6B, 6C, 10.

C. Social Sciences

Four courses (two each from Groups C1 and C2):

C1. Historical Analysis

Two courses from a single sequence are recommended:

Classics

*10. Survey of Classical Greek Culture

*20. Survey of Roman Civilization

History

1A, 1B, 1C. Introduction to Western Civilization

*2A. Power, Ethics, and Technological Change

*2B. Social Knowledge and Social Power

3A, 3B, 3C. Introduction to History of Science

3D. Themes in History of Medicine

4. Introduction to History of Religions

8A. Colonial Latin America

8B. Political Economy of Latin American Underdevelopment, 1750 to 1930

8C. Latin American Social History

*9A. Introduction to Asian Civilizations: History of India

*9C. Introduction to Asian Civilizations: History of Japan

*9D. Introduction to Asian Civilizations: History of the Near and Middle East

*10A, *10B. Introduction to Civilizations of Africa

*11A, *11B. History of China

13A. History of the U.S. and Its Colonial Origins: Colonial Origins and First Nation Building Acts

13B. History of the U.S. and Its Colonial Origins: 19th Century

13C. History of the U.S. and Its Colonial Origins: 20th Century

20. World History to A.D. 600

21. World History, 1200 to 1800

22. Contemporary World History, 1870 to the Present

Honors Collegium

*2. Comparative Genocide

*3. Historical and Sociological Perspectives on Women and Work

*11. Galileo and the Scientific Revolution from the 17th to 21st Century

*14. History, Science, and Society

42. European Expansion in Age of Columbus

62. Community and Self-Interest in History of American Culture

68. History of Social Thought

*71. History through Clothes

84. Los Angeles, 1900 to 2000: History of a 20th-Century City

90. French Revolution: Ideologies and Images

95. Art, Politics, and Social Change in 19th-Century England and France

*96. Cultural Dimensions of Apartheid and Post-Apartheid South Africa

Political Science

10. Introduction to Political Theory

C2. Social Analysis**Afro-American Studies**

M5. Social Organization of Black Communities

American Indian Studies

10. Introduction to American Indian Studies

Anthropology

8. Archaeology: An Introduction

9. Culture and Society

33. Culture and Communication

M70. Politics of Reproduction

Asian American Studies

21. Asians and Pacific Islanders in American Society

Chicana and Chicano Studies

10B. Chicanos in American Society

Communication Studies

10. Introduction to Communication Studies

88C. Lower Division Seminar: Future of Mass Communication

Economics

1, 2. Principles of Economics

5. Introductory Economics

Geography

3. Cultural Geography

4. Globalization: Regional Development and World Economy

History

*2A. Power, Ethics, and Technological Change

*2B. Social Knowledge and Social Power

Honors Collegium

*2. Comparative Genocide

*3. Historical and Sociological Perspectives on Women and Work

7A, 7B. Urban Poverty and Public Policy in the U.S.

10. Social Classification and Categorization

12. Thinking about Rights

*19. Interdisciplinary Perspectives on Production and Consumption of Popular Music

22. Work, Inequality, and Changing American Political Economy

23. Globalization

*24. 21st Century: Technology, Society, and Ethics

*26. The Bible as Political Theory

*29. Critical Vision: History of Art as a Social and Political Commentary

*30. Vietnam War and American Culture

36. Ethnicity and Social Class in America

37A. Ethnicity, Social Class, and Social Mobility in the U.S. and Other Societies

37B. Ethnicity, Social Class, and Social Mobility in Los Angeles

46. Masculinity, Sexuality, and Patriarchy

48. Politics of Reproduction

49. Evidence in Law, Science, History, and Journalism

51. Childhood in Historical and Sociological Perspective

*52. Good, Better, Best Western: Approaches to the 19th-Century American Frontier

53. Sociology of Food and Eating

54. Human Lives: Psychocultural Perspective

58. Apartheid and Social Stratification in South Africa: Theory and Data

60. Immigration and New Second Generation

61. Social Theory in the 20th Century

*65. Carnival and Festivity

*71. History through Clothes

76. Race, Class, and Gender

82. Community and Labor Development from Ground Up

*87. Humans and Other Animals

89. Freud, Fairytales, and Feminism

*92. Genes, Genomics, and Internet

*94. Historic Roots of Healing Arts

97. Issues in American Foreign Policy: Methodology of Assessment

M119. Nuclear Weapons: Critical Decisions

Lesbian, Gay, Bisexual, and Transgender Studies

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

Organismic Biology, Ecology, and Evolution

*11. Biomedical Research Issues in Minority Communities

Policy Studies

M116. Nuclear Weapons: Critical Decisions

Political Science

20. World Politics

30. Introduction to Political Economy

40. Introduction to American Politics

50. Introduction to Comparative Politics

Psychology

10. Introductory Psychology

*88A. Lower Division Seminar: Stress, Adaptation, and Coping

Social Sciences

20. Racial Minorities in the U.S.

Sociology

1. Introductory Sociology

2. Changing Society and Making History

3. Sociology of Everyday Life

4. Jobs and Careers: Sociological Approach

M5. Social Organization of Black Communities

31. Dilemmas of Third World Development

Women's Studies

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

D. Life Sciences

Three courses from the following, one of which must have a laboratory and/or demonstration component:

Anthropology

7 (Human Evolution) or 12 (Principles of Human Evolution: Comparative Analysis)

10. Principles of Human Evolution: Genetic Basis

Earth and Space Sciences

*15. Introduction to Oceanography

16. Major Events in History of Life

17. Dinosaurs and Their Relatives

*20. Natural History of Southern California

Geography

2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World

5. People and the Earth's Ecosystems

Honors Collegium

*5. Science and the Human Condition

8. Communication among Organisms

*14. History, Science, and Society

25. Human Genome: Prospects for a Super Race?

*57. Life and Sciences of Complexity

63. Emerging Infections and Their Effects on Society: Past, Present, and Future

66. Substance Abuse and the Brain

70. Genetic Engineering in Medicine and Agriculture

*87. Humans and Other Animals

*92. Genes, Genomics, and Internet

*94. Historic Roots of Healing Arts

Life Sciences

1. Evolution, Ecology, and Biodiversity

2. Cells, Tissues, and Organs

3. Introduction to Molecular Biology

4. Genetics

15. Life, Concepts, and Issues

Microbiology and Molecular Genetics

6. Introduction to Microbiology

7. Developments in Biotechnology

Molecular, Cell, and Developmental Biology

30. Biology of Cancer

40. AIDS and Other Sexually Transmitted Diseases

70. Genetic Engineering and Society

80. The Green World: Plant Biology for Now and the Future

88C. Lower Division Seminar: Frontiers of Molecular Biology — Historical Perspective

88E. Lower Division Seminar: Genetics and Society — Current Status and Future Applications

88F. Lower Division Seminar: Science and Scientists — Expectations and Realities

Organismic Biology, Ecology, and Evolution

10. Plants and Civilization

*11. Biomedical Research Issues in Minority Communities

12. Biodiversity and Extinction: Crisis and Conservation

13. Evolution of Life

21. Field Biology

25. Oceans

50. Desert Life

Physiological Science

3. Introduction to Human Physiology

5. Issues in Human Physiology: Diet and Exercise

6. The Human Machine: Physiological Processes

13. Introduction to Human Anatomy

Psychology

15. Introductory Psychobiology

*88A. Lower Division Seminar: Stress, Adaptation, and Coping

88B. Lower Division Seminar: Feeding, Food Fads, and Fat

Courses with a laboratory and/or demonstration component include Earth and Space Sciences 15, 16, 17, 20, Geography 2, 5, Life Sciences 15, Microbiology and Molecular Genetics 7, Molecular, Cell, and Developmental Biology 80, Organismic Biology, Ecology, and Evolution 10, 21, 50, Physiological Science 3, 5, 13.

General Education Clusters

M1A-M1B-M1C. Global Environment. (Same as Environment M1A-M1B-M1C.) Students who complete the entire sequence of three courses (15 units total) receive GE credit for four courses under the current GE program, distributed as follows:

Two life sciences courses

Two physical sciences courses

In addition, the cluster also satisfies the laboratory and/or demonstration component for both life sciences and physical sciences, as well as the complementary course requirement for physical sciences.

20A-20B-20C. Interracial Dynamics in American Culture, Society, and Literature. Students who complete the entire sequence of three courses (15 units total) receive GE credit for four courses under the current GE program, distributed as follows:

One humanities/culture and civilization course

Two humanities/literature courses

One social sciences/historical analysis course

21A-21B-21C. History of Modern Thought. Students who complete the entire sequence of three courses (15 units total) receive GE credit for four courses under the current GE program, distributed as follows:

One humanities/culture and civilization course

One humanities/philosophy course

One social sciences/historical analysis course

One social sciences/social analysis course

70A-70B-70C. Evolution of Cosmos and Life. Students who complete the entire sequence of three courses (15 units total) receive GE credit for four courses under the current GE program, distributed as follows:

Two life sciences courses

Two physical sciences courses

In addition, the cluster also satisfies the laboratory and/or demonstration component for both life sciences and physical sciences, as well as the complementary course requirement for physical sciences.

Credit Limitations

Transfer students with credit from other institutions (advanced standing credit) receive a Degree Progress Report (DPR) from the Office of Undergraduate Admissions and Relations with Schools indicating the transferable units from their former institution(s); however, the following credit limitations may reduce the total number of transferred units which apply toward the degree in the College of Letters and Science. Consult with a counselor in the College Counseling Service regarding these limitations.

The following credit limitations apply for all students enrolled in the college. In most cases units are not deducted until the final term before graduation. Students should consult a counselor in the College Counseling Service if they have questions.

Subject A

If students do not satisfy the Subject A requirement prior to enrolling at UC, they must pass an approved course or other program prescribed by their UC campus of residence. Only after satisfying the Subject A requirement can they take for transfer credit an English composition course after enrolling at UCLA. Consult a college counselor regarding Subject A equivalent courses from other UC campuses.

Community College

After completing 105 quarter units (26.25 courses) toward the degree in all institutions attended, students are allowed no further unit credit for courses completed at a community college.

Physical Education

No more than four units in physical education activities courses may be applied toward the bachelor's degree.

300- and 400-Level Courses

No more than two courses (eight units) in the 300 and 400 series of courses may be applied toward the bachelor's degree. Credit is not granted for X300 and X400 courses taken in UCLA Extension.

Performance Courses

No more than 12 units of music and/or dance performance courses (Ethnomusicology 91A-91Z, 191A-191Z, Music C90A through 90N, and World Arts and Cultures 71B through 79, C171B through C179) may be applied toward the bachelor's degree whether taken at UCLA or another institution.

Foreign Language

Credit is not allowed for completing a less advanced course in grammar and/or composition after students have completed a more advanced course. College credit for an international student's native language and literature is allowed for (1) courses taken in native colleges and universities or (2) upper division (advanced language courses only) and graduate courses taken at the University of California or another English-speaking institution of approved standing (no credit is allowed for lower division courses).

College Level Examination Programs

Credit earned through the College Level Examination Program (CLEP) and through the California State University English Equivalency Examination may not be applied toward the bachelor's degree.

Advanced Placement (AP) Tests

Advanced Placement (AP) Test credit may not be applied toward a degree unless students had less than 36 units of credit at the time of the examination(s). See the Advanced Placement chart for UCLA course equivalents and credit allowed for general education requirements.

ROTC Courses

For students contracted in the Aerospace Studies Department, 36 units of aerospace studies credit may be applied toward the requirements for the bachelor's degree; for students contracted in the Military Science Department, 26 units of military science credit may be applied; for students contracted in the Naval Science Department, 26 units of naval science credit may be applied.

Independent Study Courses

No more than two courses (eight units) of credit may be taken per term in special independent study courses. The total number of units allowed in such courses for a letter grade is 16; see specific restrictions under each departmental listing.

Physics 1A, 2AH, 3A, 6A, 8A, 10

Any two or more courses from Physics 1A, 2AH, 3A, 6A, 8A, and 10 are limited to a total of six units of credit.

Statistics

No credit is allowed for more than one lower division course in statistics (Anthropology M80, Economics M40, Geography M40, Political Science 6, Psychology 41, Sociology M18, Statistics 10, M11, M12, M21A, M21C) or for more than one sequence of such courses whether taken at UCLA or another institution.

Education Abroad Program

Students participating in the Education Abroad Program may receive a maximum of 48 units of credit toward the degree in addition to the eight units maximum allowable for the Intensive Language Program.

Credit by Examination

Within the College of Letters and Science, eligibility for credit by examination is usually limited to students who have been approved as Departmental Scholars or who are admitted to a departmental honors program or UCLA Honors Programs.

Students may petition for credit by examination for one course at a time. The examination for that course must be taken successfully before they may petition for credit by examination in another course. Petitions for credit by examination (with fee) are available only through an appointment with a counselor in the Honors Programs Office, A311 Murphy Hall.

Honors

College Honors

College Honors is the highest academic recognition the College of Letters and Science confers on its undergraduates. The College Honors program provides the exceptional Letters and Science undergraduate an opportunity to pursue individual excellence.

College Honors is awarded to graduating seniors with an overall University of California grade-point average of 3.5 or better who have completed either 44 units of honors coursework **or** 36 units of honors coursework that include a senior research project/thesis based on original research **or** 28 units of honors coursework if they entered College Honors as a transfer student. With the assistance of Honors Programs counselors, students integrate this coursework throughout their undergraduate education with other University, college, and major requirements for the bachelor's degree. In this way, these units need not be above and beyond their other academic commitments.

Students in the College Honors program are entitled to specialized counseling within the division, some preferential preenrollment in classes each term, access to specially designed honors classes, eligibility for unique scholarships and research stipends, counseling on graduate and pre-professional programs, graduate library privileges, and letters of verification for graduate and professional school applications. Incoming freshmen who are eligible for College Honors based on SAT scores and GPA and who file their housing application on time are also offered preferred on-campus student housing for the first year.

To qualify for College Honors, entering freshmen must (1) have an overall GPA of 3.85 or better and a combined SAT score of 1,360 or better (on one test date) or an ACT score of 31 or better **or** (2) graduate in the top three percent of their high school class. Entering transfer students are admitted with a transfer GPA of 3.5. Continuing UCLA and transfer students with at least 12 or more graded units at UCLA and a cumulative UC GPA of 3.5 or better who can complete the honors course requirements prior to graduation are encouraged to participate.

Students may apply for admission to College Honors at A311 Murphy Hall. For further information, attend one of the group meetings offered regularly by the Honors Programs Office.

Honors at Graduation

Students who have achieved scholastic distinction may be awarded the bachelor's degree with honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained an overall grade-point average at graduation which places them in the top five percent of College of Letters and Science graduates (GPA of 3.817 or better) for *summa cum laude*, the next five percent (GPA of 3.715 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.566 or better) for *cum laude*. Coursework taken on the Education Abroad Program is applied toward honors at graduation.

The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year (fall, winter, spring, summer) determine eligibility. Students should consult their graduation-year catalog or the quarterly *Schedule of Classes* for the most current calculations of Latin honors.

Provost's Honors

The Provost's Honors list recognizes high scholastic achievement in any one term. The following criteria are used to note Provost's Honors on the student records: (1) a 3.75 GPA in any one term with at least 12 graded units and no grade of NP or I or (2) a 3.66 GPA and at least 56 grade points during the term, with no grade of NP or I. Provost's Honors are automatically recorded on the transcript.

Departmental Scholar Program

Departments may nominate exceptionally promising undergraduate students (juniors and seniors) as UCLA Departmental Scholars to pursue bachelor's and master's degrees simultaneously.

Qualifications include completion of 24 courses (96 quarter units) at UCLA or the equivalent at a similar institution, the requirements in preparation for the major, and eligibility to participate in the college/school honors program. Students must also have at least one term's coursework remaining at UCLA. To obtain both the bachelor's and master's degrees students must be provisionally admitted to the Graduate Division, fulfill requirements for each program, and maintain a minimum B average. No course may be used to fulfill requirements for both degrees. Students interested in becoming Departmental Scholars should consult their department well in advance of application dates for graduate admission (see the Calendar at the beginning of this catalog). For further information, consult the Honors Programs Office in A311 Murphy Hall.

Honors Collegium

The Honors Collegium is a unique and innovative educational alternative of seminars and courses designed primarily for students in their freshman and sophomore years. Some upper division courses are also offered. Refer to Honors Collegium in the Curricula and Courses section of this catalog for a complete description of the program.

Honors Programs Office

The Honors Programs Office, located in A311 Murphy Hall (310-825-1553, 825-3786, <http://www.college.ucla.edu/up/WhoWeAre/Honors/>), provides academic counseling and services for College Honors students, Departmental Scholars, Education Abroad Program students, and students pursuing individual majors. The division also provides counseling for Regents Scholars, National Merit Scholars, and Alumni Scholars during their first year of attendance. Services offered include a specialized honors curriculum, academic counseling, degree checks, assistance with petitions and, for College Honors students only, letters describing the program to graduate and professional schools.

A variety of scholarships and awards for qualified continuing students is also available.

In addition, the Honors Programs Office administers Phi Beta Kappa (national honor society).

Preparing for a Professional School

The programs that follow are not degree programs in the College of Letters and Science. The purpose of each grouping of courses is to assist students if they plan to apply to a professional school at the end of their sophomore (90 units) or junior (135 units) year.

If students are not accepted by a professional school or plan to receive their degree before entering, they must declare a major in the College of Letters and Science and complete the requirements for a degree without exceeding 216 units.

New students entering these curricula are listed as "undeclared" majors and are advised in the college unless an adviser is named below in the presentation of the curriculum.

Information and counseling on preparing for professional schools and assistance in filing applications and preparing for interviews are available through the Preprofessional Advising Office, A334 Murphy Hall. Workshops, drop-in counseling, reference letter services, and MCAT, DAT, AMCAS, LSAT, GRE, GMAT, and other applications are available. For more information, call (310) 825-1817 or visit the website at <http://www.college.ucla.edu/up/PAO/>.

Predental Curriculum: Three Years

The College of Letters and Science offers a predental curriculum designed to fulfill the basic educational requirements for admission to several dental schools and the general educational requirements of the College of Letters and Science. Students should determine and satisfy the specific requirements of the dental schools to which they expect to apply.

To be adequately prepared for the predental curriculum, students should take the following subjects in high school: English, history, mathematics (algebra, geometry, and trigonometry), chemistry, physics, and foreign language.

The 135 quarter units of work required for admission to the UCLA School of Dentistry in this curriculum include the following:

General University Requirements

(1) Subject A; (2) American History and Institutions.

Specific UCLA School of Dentistry Requirements

(1) Chemistry and Biochemistry 14A, 14B/14BL, and 14C/14CL, or 20A, 20B, 20L, 30, 30L, and 130A/130AL, 153A, 153L; (2) English Composition 3, English 4 (or upper division composition in place of 4; English Composition 3 taken at UCLA or the equivalent taken at another college satisfies this requirement, but credit for English Composition 3 and/or English 4 through Advanced Placement does not); (3) Life Sciences 1, 2, 3, 4, and two biology courses with laboratory; (4) Physics 1A, 1B, and 1C, or 3A, 3B, and 3C, or 6A, 6B, and 6C; (5) Psychology 10.

Social sciences and humanities courses such as anthropology, history, economics, psychology, political science, appreciation of art and/or music, and philosophy should also be included.

For further information, consult *Admissions Requirements of U.S. and Canadian Dental Schools*, AADS, 1625 Massachusetts Avenue NW, Suite 101, Washington, DC 20036. Sample copies of the Dental Admission Test (DAT) are available in the Preprofessional Advising Office (310-825-1817).

Predental Hygiene Curriculum: Two Years

The University offers a four-year program in dental hygiene leading to the degree of Bachelor of Science. The first two years may be taken at any two- or four-year college institution; the last two years must be taken at the School of Dentistry at the University of California, San Francisco.

Admission to UCSF is by competitive application. The UCSF School of Dentistry reserves the right to limit enrollment if applications exceed available facilities and to require interviews and aptitude tests if they are necessary in the selection of the class. For further information, see the *Announcement of the School of Dentistry, UC San Francisco*.

The 90 quarter units of work required for admission to the School of Dentistry at UCSF include specific requirements as follows (the courses referred to are UCLA courses which fulfill the requirements):

Predental Hygiene Curriculum Requirements

(1) Subject A; (2) American History and Institutions (the examination in American History and Institutions may be taken at the UCSF School of Dentistry, but it is preferable to satisfy the requirements in the predental curriculum); (3) Chemistry and Biochemistry 14A, 14B/14BL, and 14C/14CL, or 20A, 20B, 20L, 30, 30L, and 130A/130AL, 153A, 153L; (4) one year of English which includes English Composition 3; (5) Life Sciences 1, 2, 3, 4; (6) Psychology 10 and one additional psychology course; (7) 16 units in social sciences and humanities, including foreign language (one course in speech and one in sociology are required). Courses in anatomy and physiology are strongly recommended. For more information, call the Preprofessional Advising Office at (310) 825-1817.

Premedical Studies: Four Years

If students intend to apply for admission to a medical school and wish to complete the requirements for a bachelor's degree before such admission, they should select a major within the College of Letters and Science. *Medical schools have no preference as to major. Students should choose the major in which they are most interested and can do best.* In addition to fulfilling the requirements of the selected major, they should satisfy the specific requirements for medical schools to which they expect to apply.

High school preparation for premedical studies at the University should include English, three units; U.S. history, one unit; mathematics, three and one-half units; chemistry, one unit; physics, one unit; biology, one unit; foreign language (preferably French, German, or Spanish), two units. It is desirable that a course in freehand drawing be taken in high school.

Premedical Curriculum Requirements

The following courses are usually required for admission to the UCLA School of Medicine: (1) two years of college biology/life sciences to include the study of organismic, cellular, molecular, developmental, and genetic biology, including at least one year of laboratory courses and one year of upper division courses (Life Sciences 1, 2, 3, 4, plus additional life sciences courses to meet the general and laboratory coursework requirements); (2) Chemistry and Biochemistry 14A, 14B/14BL, and 14C/14CL, or 20A, 20B, 20L, 30, 30L, and 130A/130AL, 153A, 153L; (3) 12 quarter units of English, including at least one course in English composition (English Composition 3 taken at UCLA or the equivalent taken at another college satisfies this requirement, but credit for English Composition 3 and/or English 4 through Advanced Placement does not; an intermediate or advanced composition course is highly recommended); (4) Physics 1A, 1B, and 1C, or 3A, 3B, and 3C, or 6A, 6B, and 6C. Courses in physical chemistry and calculus are strongly recommended. Course requirements for admission to other University of California medical schools vary slightly.

Because requirements for admission to medical schools outside the University of California also vary somewhat, students should consult the following publications: *Medical School Admission Requirements, U.S. and Canada*, Association of American Medical Colleges, 2450 N Street NW, Washington, DC 20037-1126; *The Education of Osteopathic Physicians*, AACOM, 5510 Friendship Boulevard, Suite 310, Chevy Chase, MD 20815-7231; and *The New MCAT Student Manual* (also an AAMC publication available at the above AAMC address). For more information, call the Preprofessional Advising Office at (310) 825-1817.

Prenursing Curriculum

Contact the Preprofessional Advising Office at (310) 825-1817 for information on prenursing curriculum requirements.

Preoptometry Curriculum: Three Years

A three-year program designed to prepare students for admission to optometric schools may be completed in the College of Letters and Science. Students planning to transfer to the School of Optometry at Berkeley should contact Sandy Jaeger, School of Optometry, University of California, Berkeley, CA 94720, (510) 642-9537, as early in their preprofessional studies as possible.

Students are adequately prepared for preoptometric studies if they have taken the following subjects in high school: English, history, mathematics (algebra, geometry, and trigonometry), chemistry, physics, and two years of one foreign language.

The 135 quarter units of work required for admission to the School of Optometry, UC Berkeley, include the following: (1) Subject A; (2) American History and Institutions.

Specific UC Berkeley School of Optometry Requirements

(1) Chemistry and Biochemistry 14A, 14B/14BL, and 14C/14CL, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; (2) English Composition 3, and English 4 or 100; (3) Life Sciences 1, 3; (4) Mathematics 1, 3A, and 3B, or 3A, 3B, and 3C, or 31A, 31B, and Statistics 10; (5) Microbiology and Molecular Genetics 6 or 101; (6) Physics 1A, 1B, and 1C, or 3A, 3B, and 3C, or 6A, 6B, and 6C; (7) introductory anatomy (Physiological Science 13) and physiology (Organismic Biology, Ecology, and Evolution M166); (8) Psychology 10. Recommended: neuroanatomy, cell physiology, or additional statistics courses.

The balance of the 135 quarter units required for admission may be selected from social sciences, foreign languages, and humanities.

For further information, obtain the booklet *Information for Applicants to Schools and Colleges of Optometry* from the American Optometric Association, 243 Lindbergh Boulevard, St. Louis, MO 63141, or call the Preprofessional Advising Office at (310) 825-1817.

Prepharmacy Curriculum: Two Years

The School of Pharmacy on the San Francisco campus of the University offers a four-year curriculum leading to the degree of Doctor of Pharmacy. To be admitted to this curriculum students must have met all requirements for admission to the University and have completed, with an average grade of C (2.0) or better, at least 90 quarter units of the program below. Students taking prepharmacy work at the University of California are normally enrolled in the College of Letters and Science. If taken elsewhere, the courses elected must be equivalent to those offered at the University. To complete prepharmacy studies in the minimum time, students should take elementary chemistry, trigonometry, and a full year of intermediate algebra in high school.

Students who have completed the prepharmacy curriculum at Los Angeles cannot be assured of admission to the School of Pharmacy on the San Francisco campus. A personal interview may be required. Applicants should contact the school in early fall of the year preceding the September of proposed admission. Contact the Office of Student Affairs, School of Pharmacy. Applications and admission information may be obtained from the University of California, San Francisco, School of Pharmacy Student Affairs, Box 0150, San Francisco, CA 94143-0150 (415-476-2732).

Prepharmacy Curriculum Requirements

(1) Subject A; (2) American History and Institutions; (3) Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L, 130A/130AL, 153A, 153L; (4) English Composition 3, English 4; (5) Life Sciences 1, 2, 3; (6) intermediate algebra and trigonometry (if not completed in high school), Mathematics 3A and 3B, or 31A and 31B; (7) Physics 1A, 1B, and 4AL, or 3A and 3B, or 6A and 6B; (8) 28 quarter units of electives selected from courses in foreign language, social sciences, and humanities.

Requirements for schools change on a yearly basis; it is best to check with each individual school for specific requirements. For further information, call the Preprofessional Advising Office at (310) 825-1817.

Prephysical Therapy Curriculum: Three or Four Years

Students who intend to apply for admission to a physical therapy school should select a major (Physiological Science and Psychology are commonly selected) and complete the following requisite courses: (1) Chemistry and Biochemistry 14A, 14B/14BL, and 14C/14CL, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; (2) Life Sciences 1, 2, 3; (3) Physics 3A, 3B, 3C; (4) introductory anatomy (Physiological Science 13) and physiology (Organismic Biology, Ecology, and Evolution M166); (5) Psychology 10, 115, 127, 130; (6) one course in statistics and one in computing. The req-

quisite courses should be taken for a letter grade; grade-point averages for these courses should not be lower than 3.0, with no grade lower than a C.

Students should write to schools with physical therapy programs early in their sophomore year for specific admission requirements and application deadlines. Information concerning in-state and out-of-state programs may be obtained from the American Physical Therapy Association, 1156 15th Street NW, Washington, DC 20005, and the Preprofessional Advising Office (310-825-1817).

Prepublic Health Studies

The professional and academic fields of public health need individuals from many disciplines. Candidates for graduate study may come from a wide variety of academic backgrounds and training, including mathematics and the physical, biological, and social sciences. Preparation typically includes a minimum of two courses each in mathematics, biological sciences, and social sciences, and one course in physical sciences.

Interested students and those who wish to apply to the UCLA School of Public Health should review the school's announcement booklet for additional requirements or recommendations for entry into the various programs of study. Information is available at the Preprofessional Advising Office (310-825-1817).

Prerespiratory Therapy Curriculum: One Year

Santa Monica College (SMC) offers a two-year program in respiratory therapy accredited by the American Medical Association (AMA) through which students may obtain a Certificate of Completion.

The first year of the curriculum may be taken at UCLA or any other two- or four-year college/university. Many UCLA students opt to incorporate the first-year respiratory therapy curriculum into their UCLA science or pre-medical B.S./B.A. degree requisites and, after completing their UCLA degree, enter the second year at the SMC Respiratory Therapy Program. The only first-year course that must be taken at Santa Monica College is an introductory course on respiratory therapy as a profession (Respiratory Therapy 1).

The second year of the program (the formal respiratory therapy curriculum) is taken through Santa Monica College. It is a lecture, laboratory, and clinical program conducted at the UCLA Medical Center, beginning with summer school each year. Admission to the second year is by competitive application. Because enrollment in the second year is limited, students should become familiar with the admission requirements as early as possible.

First-Year Prerespiratory Therapy Curriculum Requirements

(1) Respiratory Therapy 1 (taken at SMC in Fall/Spring Quarter); (2) general human anatomy with laboratory; (3) general chemistry with laboratory; (4) basic lower division English; (5) U.S. history or general political science; (6) any general humanities course (art, music, foreign languages, etc.); (7) microbiology with laboratory; (8) human physiology with laboratory; (9) general psychology; (10) speech or advanced English composition.

For further information and/or a counseling appointment, contact the SMC Respiratory Therapy Program at (310) 434-3463.

Prelaw Studies

Law schools have no preference with regard to specific majors or particular courses. However, two terms of English composition in preparing to apply to law school would be useful. Admission to law school is based on the quality of academic work, LSAT scores, and other qualities as reflected in the written application, personal statement, and letters of recommendation. The College of Letters and Science offers advising on preparing for and applying to law schools through daily drop-in counseling, appointments, and workshops. For more information, call the Preprofessional Advising Office at (310) 825-1817.

For additional information, see the *Law School Admission Bulletin* available at the Admissions Office, UCLA School of Law, 71 Dodd Hall.

Graduate Study

The College of Letters and Science provides graduate students virtually unlimited opportunities for academic pursuit, faculty-sponsored research, and fieldwork relative to specific programs and career goals.

With Graduate Division approval and subject to University minimum requirements, each department sets its own standards for admission and other requirements for the award of the master's and doctoral degrees. See the Curricula and Courses section of this catalog for introductory information and procedures. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available on the Graduate Division website at <http://www.gdnet.ucla.edu/departments.html>.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

John E. Anderson Graduate School of Management

Bruce Willison, Dean

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In today's rapidly changing global marketplace, it is essential that professional managers be conversant with the latest concepts and principles of management. At UCLA's John E. Anderson Graduate School of Management, which is consistently ranked among the best such schools in the nation, students prepare to become first-rate managers with both specialized skills and a broad understanding of the general economic, business, and managerial environment. This background enables them to become effective and efficient directors of organizations and people whether they are in the private, public, or not-for-profit sector.

Specifically, the Anderson School offers the business community a wide range of higher education programs that provide state-of-the-art information in a variety of fields. Through its faculty, the school advances the art and science of management by engaging in fundamental and cutting-edge research in all fields of management and by educating scholars who can continue to create this new knowledge.

Anderson School students come from diverse professional and educational backgrounds and seek equally diverse personal and professional goals. Whether they choose to pursue the professional M.B.A., the academic M.S., or a Ph.D. in Management, they graduate with a broad understanding of people and organizations and with a sound technical background in the economic and mathematical concepts of management planning and decision making.

The school offers a variety of programs leading to graduate degrees at the master's and doctoral levels. These include both an academic (M.S.) and professional (M.B.A.) master's, as well as a 21-month Executive M.B.A. Program designed for working managers who are moving from specialized areas into general management and a three-year Fully Employed M.B.A. Program for emerging managers. A Ph.D. in Management



is also offered, as are a certificate Executive Program and research conferences and seminars for experienced managers.

The school also offers an undergraduate minor in Accounting and several undergraduate courses in management. Enrollment in these courses, although open to all University students who have completed the requisites, is limited. The school limits the number of courses taken by undergraduate students to 11.

Degrees Offered

Master of Business Administration (M.B.A.)

Master of Science (M.S.)

Doctor of Philosophy (Ph.D.)

Centers and Programs

Business Forecasting Project

Using large-scale econometric models, the Business Forecasting Project (<http://www.anderson.ucla.edu/research/forecast/index.htm>) makes quarterly and long-term forecasts of the national and California economies, focusing on unemployment and employment by three-digit SIC code. Results of the forecasts are announced at conferences attended by members of the media and leaders in business and government.

Center for Digital Media

The Center for Digital Media's mission is to become an internationally recognized institution for studying the effects of new media and digital technologies on organizations and the business environment, providing a wellspring of fresh ideas on innovation in the field. The center (<http://www.anderson.ucla.edu/research/digital/Digital.html>) actively exploits its location in Southern California to develop mutually beneficial relationships with major industries, providing its industrial partners with research studies, networking, consulting, and recruiting opportunities, while providing faculty and students with the latest information, project financing, access to decision makers, and research topics related to digital media.

Center for Health Care Management

The Center for Health Care Management (CHCM) is operated jointly by the Anderson School and the School of Public Health. Organized as a partnership with the health services management community, the center's activities are designed to be supportive of management practitioners in the health care community. The center offers management education programs uniquely suited to managers and executives from health care organizations. In addition, it conducts research carefully identified to further the practice of management of health service organizations. Programs have included a top management course for Cedars-Sinai Medical Center and a management development program for diagnostic radiologists.

Center for International Business Education and Research

The Center for International Business Education and Research (CIBER; <http://www.anderson.ucla.edu/research/ciber/>) is dedicated to enhancing the teaching and understanding of issues related to the global marketplace. The center actively increases international business research across the campus through the direct funding of faculty research travel, graduate student research assistantships, and academic conferences.

Center for Operations and Technology Management

The Center for Operations and Technology Management (COTM; <http://www.anderson.ucla.edu/cotm/cotm.htm>) addresses the needs of manufacturing and service companies in the areas of technology management, service delivery, and manufacturing operations. These issues are becoming central to competitive success in global markets. The center organizes conferences and seminars, as well as faculty and student projects with companies. Its programs introduce M.B.A. students to the key concerns in technology and operations in business today.

Harold Price Center for Entrepreneurial Studies

The Harold Price Center for Entrepreneurial Studies (<http://www.anderson.ucla.edu/research/esc/>) provides academic and extracurricular activities that prepare M.B.A. candidates for the challenge of business management in entrepreneurial environments. These efforts include teaching and curriculum development, student activities, and scholarly research. The interdisciplinary curriculum draws on faculty expertise in many areas.

Human Resources Round Table

The Human Resources Round Table (HARRT) is affiliated with the Anderson School and with UCLA's Institute of Industrial Relations. The program's mission is to enhance the profession of human resource management by linking the academic and practitioner human resource management communities.

Information Systems Research Program

The Information Systems Research Program (ISRP) was established to recognize the importance of maintaining close ties between the activities of practicing professionals and the activities of academics in the information systems area, while at the same time raising money to support education and research activities in the information systems area. The senior managers and technical professionals who belong to the Information Systems Associates participate in a number of activities to facilitate professional interchange and networking, such as the Information Systems Executive Leadership annual award dinner and the annual Information Systems Associates Symposium.

John M. Olin Center for Policy

The John M. Olin Center for Policy facilitates teaching and research dealing with the issues and processes of public policy and business/government interaction. The center serves as a facilitator and catalyst for the Anderson School's distinguished faculty with strong and diverse policy interests. It accomplishes this mission by sponsoring or cosponsoring a number of public policy conferences and by providing summer faculty research support and research apprenticeships for Anderson School doctoral students working on research projects dealing with the issues and processes of public policy and business/government interaction.

Leadership, Education, and Development Program

The Leadership, Education, and Development (LEAD) program sponsors four-week residential summer institutes at outstanding business schools, including the Anderson School, and recruits qualified African American, Hispanic, and Native American students between their junior and senior years of high school. LEAD is designed to introduce participants to the world of business, economics, finance, and management through a carefully tailored curriculum involving University faculty, guest lecturers from industry, and corporate field trips.

Office of Executive Education

Lifelong learning plays a critical role in the success of today's business leaders. The Anderson School's Office of Executive Education Programs offers more than 40 innovative open enrollment and customized programs that address complex and rapidly changing business issues. The Executive Program covers such diverse areas as strategic planning, organizational design, and competitive positioning.

Office of International Affairs

The Office of International Affairs (OIA; http://www.anderson.ucla.edu/research/oia/oia_hmpg.html) reflects the Anderson School's commitment to incorporating global issues into management education. Through a portfolio of innovative initiatives, such as the Global Partners Forum conference series, Executive Roundtable series, and Oxford-UCLA CEO Briefings, OIA expands the school's opportunities for global management education and research and marshals school resources to the task of achieving a comprehensive and effective international focus throughout its programs.

Riordan Programs

The Riordan Programs were established in 1987 by the Riordan Foundation in response to the growing demand for trained managers who can provide vision and leadership in culturally diverse communities. The programs' success results from the collaborative efforts of Anderson School faculty, students, and alumni, and corporate leaders throughout the community. Together these individuals encourage underrepresented students to pursue higher education in management and to become future leaders in business and society.

School of Medicine

Gerald S. Levey, Dean and Provost

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(310) 825-6081
<http://www.medsch.ucla.edu>

UCLA School of Medicine faculty and students may be found in the Molecular Biology Institute and in the Department of Physiology, in the clinics, wards, and operating rooms of the UCLA Medical Center and Los Angeles County Harbor-UCLA Medical Center, in the Health Sciences Computer Center, in the Louise Darling Biomedical Library, and in dozens of other clinical and scientific facilities.

Students at the UCLA Medical Center are exposed to the best of all worlds — strong research-oriented basic and clinical science departments, a hospital consistently ranked among the nation's elite, superb affiliated clinical facilities that provide the full spectrum of teaching settings and patient populations, and a biomedical library that is considered one of the world's best. The UCLA School of Medicine offers an M.D. degree program, allied health programs in affiliation with other hospitals and universities, and a number of postgraduate medical training programs, as well as a wide range of master's and doctoral degrees offered through the Graduate Division.

Each department of the school is staffed by a distinguished faculty of respected researchers and practitioners. They have at their disposal some of the most technologically advanced equipment and facilities, including two of the nation's 56 hospital-based biomedical cyclotrons producing short-lived radioisotopes for biological research and diagnostic nuclear medicine procedures.

M.D. Degree Program

The four-year curriculum leading to the degree of Doctor of Medicine (M.D.) at UCLA is designed to develop a comprehensive scientific and humanistic approach to patient care that includes basic sciences, preventive medicine, diagnosis, and therapeutics. Clinical skills are taught in the context of anatomical, molecular, pathophysiological, and psychosocial factors in health, disease, and treatment.

The School of Medicine curriculum combines traditional teaching with problem-based learning and laboratories to maximize the educational experience. Because medical school is but one phase in a physician's education, the curriculum fosters an environment where students are well-prepared for a future in which scientific knowledge, social values, and human needs are ever changing. Formats for instruction include lectures, tutorials, seminars, laboratory sessions, demonstrations, and visits to physicians' offices; students are exposed to patients from their first week through graduation.

The M.D. degree is conferred at the culmination of a four-year medical curriculum that prepares students broadly for careers in research, practice, or teaching in the medical field of their choice. As medicine moves into the twenty-first century, the curriculum continues to evolve, emphasizing issues of growing importance such as primary care, development of research opportunities for those considering careers in academic med-

icine, human genetics, and the evolving world of gene therapy, psychosocial issues of health and disease, preventive medicine, and medical ethics.

Students interested in details on the M.D. curriculum or who wish to apply to the M.D. program should contact the School of Medicine Admissions Office, 12-105 CHS, UCLA, Box 951720, Los Angeles, CA 90095-1720. See the College of Letters and Science earlier in this section for details on the four-year premedical studies program.

Special Programs

Special programs have been designed to address the needs and issues of specific communities and populations.

UCR/UCLA Biomedical Sciences Program

The UCR/UCLA Biomedical Sciences Program is a cooperative venture involving UC Riverside, the UCLA School of Medicine, and selected Riverside community sites. Students may earn both the B.S. and M.D. degrees in seven years through a combined program maximizing the curricula of both.

Drew/UCLA Medical Education Program

The Drew/UCLA Medical Education Program is designed to attract students who express and demonstrate an interest in addressing the concerns of underserved populations. Students in the program spend their first two years at the UCLA campus and complete their last two years of clinical work at the King/Drew Medical Center on the Drew University campus.

Articulated and Concurrent Degree Programs

The School of Medicine offers an articulated degree program in conjunction with the Graduate Division which allows students to earn both the M.D. and Ph.D. in about seven years, depending on their course of study and research. The Ph.D. may be awarded in one of several medical sciences fields. For more information, contact the Medical Scientist Training Program at (310) 794-1817.

A concurrent program with the John E. Anderson Graduate School of Management allows medical students to earn both the M.D. and M.B.A. degrees over five years by following a designated course of study and some shared coursework. Separate application must be made to the Anderson School during the third year of medical school. For additional information, contact the School of Medicine at (310) 825-2866 or 825-3970.

An arrangement with the School of Public Health enables students to pursue the M.P.H. degree while attending medical school. Interested students should consult the Student Affairs Office in the School of Public Health at (310) 825-5516.

Postgraduate Medical Training Programs

Postgraduate medical training programs, including residencies, are offered through all the clinical departments at UCLA and the affiliated training hospitals such as Harbor-UCLA, Cedars-Sinai, and West Los Angeles VA Medical Centers, Sepulveda-San Fernando Valley Program, and many others. Programs at the affiliated institutions broaden the scope of the teaching programs by providing extensive clinical facilities, special population settings, and diverse practice modes. Information about these programs is available from the individual clinical departments of the School of Medicine or the affiliated hospitals.

Allied Health Programs

For information regarding allied health programs in the UCLA Center for the Health Sciences, call (310) 794-8352.

Graduate Programs

Master's and/or doctoral degrees are offered through the UCLA Graduate Division in the following fields: anatomy and cell biology (Department of Neurobiology), biological chemistry, biomathematics, biomedical physics, experimental pathology, human genetics, microbiology and immunology, neuroscience, pharmacology, and physiology. Detailed information on

these programs, for which admission to the School of Medicine is not required, is provided in the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog

Graduate Degrees Offered

Anatomy and Cell Biology (M.S., C.Phil., Ph.D.)
 Biological Chemistry (M.S., Ph.D.)
 Biomathematics (M.S., Ph.D.)
 Biomedical Physics (M.S., Ph.D.)
 Human Genetics (M.S., Ph.D.)
 Microbiology and Immunology (M.S., Ph.D.)
 Neuroscience (Ph.D.)
 Pathology — Experimental Pathology (M.S., Ph.D.)
 Pharmacology (M.S., Ph.D.)
 Physiology (M.S., Ph.D.)
 Psychiatry and Bibehavioral Sciences Clinical Psychology
 Internship (Certificate)

Note: The following Master of Science degrees require application to the doctoral degree program: Anatomy and Cell Biology, Microbiology and Immunology, Pharmacology, Physiology.

School of Nursing

Marie J. Cowan, Dean

UCLA
 2-200 Factor Building
 Box 951702
 Los Angeles, CA 90095-1702
 (310) 825-7181
<http://www.nursing.ucla.edu>

The School of Nursing was established at UCLA in 1949 and rapidly became a leading school of nursing in the U.S. Now the school enjoys a national and international reputation for excellence in teaching, research, and clinical practice.

One of the strengths of the school is its teaching of the scientific basis for nursing practice, leadership, and research. Related clinical experiences are arranged within the UCLA Medical Center, its affiliates, or in selected community sites. Education at the master's level provides advanced practice options in primary care, acute care, and nursing administration. The majority of graduate students acquire expertise as nurse practitioners, with several options for clinical preparation in primary or acute care. The doctoral program prepares scholars who do original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

The School of Nursing has an exceptionally well-qualified faculty, and many have earned national and international reputations for excellence. The school is consistently ranked high for its teaching and research programs. The innovative curriculum is responsive to national needs in health care and the diversity of the patient population. Graduates of the program are sought by health care institutions and educational programs, and many alumni have become leaders in the field. Education in this research University with its full range of academic disciplines provides a rich environment for preparation in the health sciences.

The UCLA School of Nursing gives direction to interested potential applicants through monthly open counseling sessions. Students interested in the academic programs offered are urged to attend a counseling session or request a copy of the *Announcement of the UCLA School of Nursing* by writing to the Student Affairs Office, School of Nursing, 2-200 Factor

Building, UCLA, Box 951702, Los Angeles, CA 90095-1702 (310-825-7181, Tuesday through Thursday).

History and Accreditation

In 1949 The Regents of the University authorized the School of Nursing as one of the professional schools of the UCLA Center for the Health Sciences. This action paved the way for the development of an undergraduate basic program in nursing leading to the Bachelor of Science (B.S.) degree and made possible the establishment of a graduate program leading to the Master of Science (M.S.) degree. In 1966 the Master of Nursing (M.N.) degree was established as an alternate option to the M.S. degree. The M.S. degree program was discontinued in 1971. The Regents approved the Doctor of Nursing Science (D.N.Sc.) degree program in 1986, and in Fall Quarter 1987 the first doctoral students were admitted. In 1996 the Office of the President and The Regents approved the change in the master's degree designation from M.N. to Master of Science in Nursing (M.S.N.); the change in doctoral degree designation from D.N.Sc. to Ph.D. was approved in 1995.

The B.S. program curriculum was revised in 1997 to meet the educational needs of students who are registered nurses with Associate Degrees or diplomas in nursing. The first group of students began their studies in the summer of 1997.

The School of Nursing became an agency member of the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing in 1952. The National League for Nursing Accrediting Commission (NLNAC, 350 Hudson Street, New York, NY 10014, 212-989-9393, ext. 153) has granted full accreditation to the programs since 1954. The master's nurse practitioner program has Board of Registered Nursing approval.

Degrees Offered

Bachelor of Science (B.S.)
 Master of Science in Nursing (M.S.N.)
 Doctor of Philosophy (Ph.D.)

Philosophy of the School

The UCLA School of Nursing is guided by a philosophy which embodies the mission and goals of the University of California. The philosophy addresses nursing, the clients of nursing, and nursing students.

Nursing encompasses clinical practice, education, research, consultation, leadership, management, and service to the profession and the community. It involves individuals, families, groups, organizations, and communities as clients. The profession must consider the human and physical environments that interact with these clients who may have health conditions that range from wellness to illness. Nursing activities must include health promotion and maintenance, intervention and treatment, rehabilitation and restoration, and palliation. At an advanced practice level, nursing involves comprehensive primary health care which encompasses the responsibility and accountability for continuity of care across the health/illness spectrum.

Nursing research is both applied and basic and has as its core actual or potential human responses to illness and as its goal the development of nursing science. Guided by ethical standards that consider the perspectives of the client, the health care provider, and the larger society, nursing has a social mission which encompasses the right and responsibility to provide health care to all its clients regardless of disease status, gender, race, or culture.

Persons who receive client-centered nursing care are complex individuals who exist in relationship to others in their family and community. This complexity of person involves biological, behavioral, emotional, sociocultural, and spiritual dimensions. Each individual reflects a unique combination of these dimensions that interact dynamically with the environment. The clients of nursing are autonomous decision makers who have certain values and knowledge about themselves that not only are relevant but essential to successful health care outcomes. As a result, persons have a

right and a responsibility to participate collaboratively with the nurse and other health professionals in their care.

Successful nursing students are active learners who bring unique gender, cultural, and ethnic life experiences to the professional practice of nursing. Students at all levels learn relevant theory, acquire practice skills, and are socialized into the profession of nursing. Increasing levels of complexity and sophistication of learning and socialization are expected of students in the different programs. Whether at the beginning practice, advanced practice, or scholar level, nursing students learn to apply knowledge, skills, and professional attitudes in their practice which may include educative, administrative, and research arenas. While students have the right and responsibility to participate in their own learning, faculty members have the right and responsibility to structure the teaching/learning environment to facilitate learning. Individual academic counseling and a variety of one-on-one, small-group, and interactive learning formats assist students to meet program and individual learning goals.

School of Public Health

Abdelmonem A. Affi, Dean

UCLA
16-071 Center for the Health Sciences
Box 951772
Los Angeles, CA 90095-1772
(310) 825-5524
<http://www.ph.ucla.edu/>

The emergence of public health as an independent discipline dates back over a century, when the field was concerned mainly with the epidemic of communicable diseases and some facets of sanitation. Changes in socioeconomic conditions, lifestyle, and other factors have brought such issues as injuries, aging, air pollution, alcoholism, drug addiction, smoking, mental health, homicide, and sexually transmitted diseases to the fore as community health problems. In time the following general statement evolved — “The mission of public health is to fulfill society’s interest in assuring conditions in which people can be healthy.”

Public health professionals can promote the health of the community through (1) research into the development of methodologies in biostatistics, epidemiology, demography, and techniques of prevention, (2) investigations into factors which influence health behavior, quality of and access to health care, health education, nutrition, environmental problems, and problems of special population groups such as mothers, children, and minorities, and (3) development of research into new areas that impact on the health of the community. Public health professionals are also responsible for translating knowledge of disease and health enhancement into resolution of health problems in the community. Whether public health professionals elect to serve through research or the application of public health principles to improve health, they are committed not only to the prevention of disease but to promotion of health and improvement in the quality of life.

The UCLA School of Public Health began as a department of the University-wide school which was established in 1944. By 1961 UCLA’s school became an independent entity whose mission is to create, disseminate, and apply pertinent knowledge to assure the conditions in which people can be healthy. These conditions include a favorable social, economic, and physical environment, access to an effective preventive and therapeutic health system, and an awareness of how to prevent disease or disability and promote health. As part of the UCLA Center for the Health Sciences, the school focuses on the health problems of populations, whereas the other three health sciences schools are concerned primarily with the health problems of individuals.

To fulfill its national and international mission, the school (1) educates new professionals and leaders for the private and public sectors of the health system in the U.S. and abroad, (2) prepares future public health re-

searchers and educators, (3) provides continuing education for current professionals and leaders in the public health field, (4) conducts basic and applied research relevant to describing, protecting, and improving conditions for a healthy public, and (5) contributes knowledge, expertise, and service to the community. It is the goal of the school to ensure that the protection and improvement of the public’s health is accomplished by the most efficient and effective means, consistent with equity for all individuals in the state, the nation, and the world.

Degrees Offered

Biostatistics (M.S., Ph.D.)
Environmental Health Sciences (M.S., Ph.D.)
Environmental Science and Engineering (D.Env.)
Epidemiology (M.S., Ph.D.)
Health Services (M.S., Ph.D.)
Preventive Medicine and Public Health (M.S.)
Public Health (M.P.H., M.S., Dr.P.H., Ph.D.)

Note: The M.S. and Ph.D. degrees in Public Health are offered through the Department of Community Health Sciences. New students are not being admitted to the M.S. in Preventive Medicine and Public Health at this time.

Departments and Programs

The School of Public Health offers graduate programs leading to both academic and professional degrees in five departments. The Department of Biostatistics develops statistical and analytical techniques for public health use. The Department of Community Health Sciences deals with five areas of study and program implementation, including behaviors which prevent disease and enhance health, health problems of high-risk groups (women, children, the aged, the poor, the disadvantaged, and racial and ethnic minorities), health education and promotion, public health policy, community nutrition, and international health. The Department of Environmental Health Sciences elucidates health hazards in the general environment and in the workplace. The Department of Epidemiology is concerned with the nature, extent, and distribution of disease and health in populations. The Department of Health Services deals with the organization, financing, delivery, quality, and distribution of health care services. The school is also responsible for the administration of the interdepartmental degree program in environmental science and engineering.

Certain degrees within the School of Public Health are not offered by the individual departments but are administered on a schoolwide level: the Master of Public Health; the Doctor of Public Health; three concurrent degree programs: M.B.A./M.P.H. with the John E. Anderson Graduate School of Management and M.A./M.P.H. with Asian American Studies and with Islamic Studies; and three articulated degree programs: M.D./M.P.H. with the School of Medicine and M.A./M.P.H. with African Area Studies and with Latin American Studies.

Admission

In addition to requiring that applicants hold a bachelor’s degree from an accredited U.S. institution or an equivalent degree or professional title from an international institution, each department in the school has limitations and additional requirements. Detailed information can be found in the departmental listings in the Curricula and Courses section of this catalog. Help in deciding on a department is available in the school’s Student Affairs Office.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

Degree Requirements

Requirements to fulfill each degree objective vary according to the degree and the department. See the departmental listings in the Curricula and Courses section of this catalog for specific requirements and procedures.

Centers and Programs

Center for Health Policy Research

The Center for Health Policy Research was established in March 1994 to apply the expertise of UCLA faculty and researchers to meet national, state, and local community needs for health policy-related research and information. Building on the extensive health policy research of School of Public Health faculty, the center was established to accomplish three missions: (1) to conduct research on national, state, and local health policy issues, (2) to provide public service to policymakers and community leaders, and (3) to offer educational opportunities for graduate students and postdoctoral fellows.

The center, sponsored by the School of Public Health and the School of Public Policy and Social Research, provides a collaborative health policy research environment for UCLA's leading professional schools and academic departments. The center's staff assists faculty and other researchers to obtain extramural research and training funds, and it helps researchers manage and conduct research studies. Faculty from the Schools of Public Health, Public Policy and Social Research, and Medicine participate in center research projects and its public service and educational activities.

The center, directed by Professor E. Richard Brown, publishes its health policy research findings in a series of Policy Briefs, making policy-relevant information directly accessible to policymakers, public health and health care leaders, the media, and the general public. The center also publishes more extensive findings in a series of Policy Research Reports and sponsors lectures and seminars on health policy-related topics for students, faculty, and staff. For additional information, call (310) 825-5491 or visit <http://www.healthpolicy.ucla.edu/>.

Center for Health Promotion and Disease Prevention

Established in July 1991, the Center for Health Promotion and Disease Prevention is a joint endeavor of the UCLA Schools of Public Health and Medicine. The five full-time faculty members have their primary appointments in one of the clinical departments in the School of Medicine such as obstetrics, surgery, medicine, or pediatrics and, depending on their training, joint appointments in an appropriate department in the School of Public Health such as community health sciences, health services, or epidemiology. Within the School of Medicine, faculty members are involved in clinical activities and teaching, especially in the course on doctoring. Within the School of Public Health, they are engaged in teaching and research. Faculty research activities are wide-ranging and involve studies on the quality of life of men with prostate cancer, manpower requirements for the care of those with HIV infections, community interventions for asthma control in Latino children, systems for smoking cessation used by physicians caring for Latino patients, etc.

The center, through its members, has ties with a variety of local and national organizations concerned with managed care, as well as with the Veterans Administration and several other hospitals and professional organizations. It serves as the UCLA site for the activities of the Pacific AIDS Education and Training Center. The center, directed by Professor Charles E. Lewis, is also responsible for overseeing the Preventive Medicine Residency Program.

Center for Health Services Management

The Center for Health Services Management was jointly established in fall 1996 by the School of Public Health and the John E. Anderson Graduate School of Management as UCLA's response to the increasingly challenging environment for health care management in California. It is designed to bring together the best in university-based research and education with the best and most current in management practices in the California health care community, for the mutual benefit of both.

The center is a laboratory in which new challenges can be identified and new solutions can be tested through the joint efforts of the University and the health care community. It is the vehicle to improve training and education of managers and executives, both in the degree and certificate pro-

grams at the University as well as the management development programs within health care organizations themselves.

A central theme is an active working partnership with the health services management community. The center operates under the direction of a joint University/community guidance committee, and all activities, whether research, teaching, or consultation, involve intense collaboration between health care practitioners and University faculty and students.

UCLA has a large group of nationally known scholars and teachers who are expert in both the organization of health services and in the latest approaches to modern management. The University is located in the middle of the most active and rapidly changing health care environment in the U.S. and has a wide and active group of alumni, friends, and colleagues in the Southern California health care community who can be called on to teach, advise, support, and counsel the development of the center.

The center, codirected by Professors Paul R. Torrens and Victor C. Tabush, conducts activities in three major areas: applied health services management research, education and teaching in a variety of settings and on a variety of levels, and consultation to organizations and individuals about health services management issues. For additional information, call (310) 206-3435 or visit <http://www.ph.ucla.edu/hs/hsmgt.html>.

Center for Healthier Children, Families, and Communities

The Center for Healthier Children, Families, and Communities was established at UCLA in 1995 to address some of the most challenging health and social problems facing children and families. The center's mission is to improve society's ability to provide children with the best opportunities for health and well-being and the chance to assume productive roles within families and communities.

Through a unique interdisciplinary partnership between UCLA departments, schools, and affiliated institutions, including the Schools of Public Health, Medicine, Nursing, Education, Law, and Public Policy and Social Research and the Department of Psychology, as well as providers, community agencies, and affiliated institutions, a critical mass of expertise has been assembled to conduct activities in five major areas: (1) child health and social services, (2) applied research, (3) training of health and social service providers, (4) public policy research and analysis, and (5) technical assistance and support to community providers, agencies, and policymakers. The center is led by three codirectors, Professors Neal Halfon, Jonathan E. Fielding, and Neal Kaufman. For additional information, call (310) 206-1898 or visit <http://www.ph.ucla.edu/chcfc/>.

Center for Human Nutrition

Established in 1996, the Center for Human Nutrition is a joint endeavor of the Schools of Public Health and Medicine. Participating faculty have their academic appointments in Medicine and/or Public Health. The center brings together faculty, postdoctoral research fellows, graduate students, and medical students to focus on the roles of nutrition and food in human health and disease and is closely affiliated with UCLA's Clinical Nutrition Research Unit, which is focused in the area of nutrition and cancer prevention.

Programs include basic biological research; nutrition education for various constituencies including medical, graduate, undergraduate, and postgraduate students; participation in multicenter clinical trials for primary and secondary disease prevention through dietary intervention; and public health and international nutrition. The center maintains core laboratory/research facilities in body composition, dietary assessment and intervention, micronutrient analysis, lipid and hormone analyses, stable isotope techniques, and related areas.

The public health and international aspect of the programs include focus on nutrition surveillance of populations, nutritional status and food supply in developing and transitional countries, and nutrition and food policy. The center provides research and field experience opportunities for students from UCLA and elsewhere and, through linkages with several international institutions, has several international visiting scholars in residence at most times. For additional information, call (310) 206-1987 or 825-3738.

Center for Occupational and Environmental Health

In 1977 a group of chemical workers in California became sterile after exposure to the pesticide DBCP, which now is known to be a carcinogenic and reproductive toxin. That incident prompted the California State Legislature to mandate the formation of occupational health centers in the northern and southern regions of the state. The purposes of the Center for Occupational and Environmental Health (COEH) are training occupational and environmental health professionals, conducting research, and providing services through consultation, education, and outreach. The centers constitute the first state-supported institutions to provide occupational and environmental health leadership in the U.S.

UCLA's COEH is housed in the Center for the Health Sciences and involves the Schools of Public Health, Medicine, Nursing, and Public Policy and Social Research. Collaboration also occurs with the School of Engineering and Applied Science.

Specific COEH programs within the School of Public Health include

Environmental Chemistry

Environmental chemistry is concerned with the sampling, analysis, and fate/transport of chemicals in the environment and data interpretation for the analysis of environmental chemicals and hazardous wastes. Environmental chemists are employed in research, government, and industry associated with environmental management, industrial hygiene chemistry, environmental toxicology, air pollution, water quality treatment, and other related areas.

Occupational and Environmental Epidemiology

Occupational and environmental epidemiologists conduct research to establish causal links between environmental exposure and adverse health outcomes. The study of exposure-response relationship is central to the role of the epidemiologists.

Occupational and Environmental Medicine

A joint occupational medicine residency between UCLA and USC provides specialty training for physicians in occupational medicine. The program leads to a master's degree in public health and board eligibility in occupational medicine. The first year of the program involves taking courses at the UCLA School of Public Health leading to an M.P.H. degree. In the second year students participate in clinical and field rotations under the supervision of the Division of Occupational and Environmental Medicine at USC. A similar joint residency program in occupational medicine is offered with the UC Irvine COEH.

Occupational Ergonomics

Occupational ergonomics is the science of designing a work environment compatible with the capabilities and needs of the workforce. The primary goal of the program is to improve the design of the work environment for the prevention of occupational illnesses and injuries. Current research areas include static and dynamic strength modeling, task analysis, and identification and qualification of risk factors for cumulative trauma disorders.

Occupational Hygiene

Occupational hygienists are environmental specialists concerned with evaluation and control of the workplace environment for exposure to potentially dangerous agents, physical stresses, biologic agents, and ergonomic effects. Occupational hygienists provide insight into these problems based on their knowledge of the health effects of exposure to the substances involved and the physics and chemistry of the environment. These specialists work as part of interdisciplinary teams with epidemiologists, physicians, nurses, and toxicologists.

Service Outreach to the Community

The center has the task of providing expertise in occupational and environmental health to the community. Available services and opportunity for student activities include (1) consultative assistance to physicians, nurses, and occupational hygienists, (2) faculty evaluation of the work environment with potential occupational health hazards and surveillance of

industrial workers exposed to hazardous substances, and (3) continuing education opportunities for professionals and educational programs for workers exposed to potential occupational health hazards. For additional information, visit <http://www.ph.ucla.edu/coeh/>.

Toxicology

Toxicology is the study of the adverse effects of chemicals and physical agents on living organisms. The goal of the discipline is to understand what agents provide a threat to organisms and how they function in order to minimize their impact. Toxicologists work collaboratively with physicians, nurses, industrial hygienists, and epidemiologists to determine the causes of occupational and environmental disease.

Center for Public Health and Disaster Relief

With funding from the Los Angeles County Department of Health Services, the Center for Public Health and Disaster Relief was established to address the critical issues faced when a disaster impacts a community. The center's mission is to develop a curricular focus area and research agenda that examines how natural and human-generated disasters affect the public's health. The center staff and participating faculty are multidisciplinary in nature and have backgrounds that include emergency medicine, environmental health sciences, epidemiology, gerontology, health services, social work, sociology, urban planning, and public health.

The center, through the Department of Community Health Sciences, is the only program in the nation to offer multiple graduate-level courses in public health and natural disasters. Courses taught by center faculty include an introduction to public health and disasters, program planning and evaluation of disaster preparedness programs, cooperative inter-agency disaster management from a public health perspective, post-disaster community health, and disaster epidemiology.

The courses bring together students who have strong research backgrounds with those students who are frontline disaster practitioners, thus enriching the future pool of public health disaster experts. In order to expose future professionals to the rigors of this area, opportunities have been or are being developed to place graduate interns within emergency and disaster units of the Los Angeles County Department of Health Services, the California Emergency Medical Services Authority, the American Red Cross, and the World Health Organization.

Center staff and colleagues have studied earthquakes in California since the early 1970s. Recent research contributes to knowledge about human behavior and disaster preparedness before and after earthquakes, emotional and physical injuries, and utilization of both medical and disaster services following earthquakes. Similar factors are currently under study following the 1997-98 el niño season. The center is directed by Professor Steven Rottman. For additional information, call (310) 794-6646 or visit <http://www.ph.ucla.edu/cphdr/>.

Health Career Resource Center

In September 1996 the School of Public Health established the Health Career Resource Center (HCRC) which offers a variety of career planning resources, counseling, and job search services designed to help both students and alumni explore public health career possibilities, obtain employment and internship leads, and develop skills for conducting a successful job search.

The center also houses the Diversity Enrichment Program (DEP), designed to provide a wide range of preparatory, informational, and developmental services for disadvantaged students considering a career in public health. The goal of this program is to promote the increase of underrepresented/disadvantaged individuals within the public health profession by providing education and resource information that facilitates access and encourages retention in public health graduate degree programs.

Services provided include the following:

(1) **Career Planning and Job Search**, with résumé and curriculum vitae critique, one-on-one counseling, job search skill building workshops, career and job search resource literature, internship information, and fellowships, scholarships, grants, and postdoctoral opportunities.

(2) **Employment Opportunities**, with part-time and temporary job listings, full-time career opportunity listings, access to online job search engines, and alumni networking opportunities.

(3) **Recruitment and Retention Services**, with recruitment and outreach conferences, application processing assistance, Graduate Record Examination preparatory courses, retention counseling, new student orientation, and tutorial support for enrolled students.

The center, located in 16-085 CHS, is open to students and alumni weekdays from 10 a.m. to 4 p.m. For more information or to schedule an appointment, call (310) 825-7449.

Office of Public Health Practice

The School of Public Health plays a unique role in community-based health promotion and disease prevention. To coordinate this important function, the school established the Office of Public Health Practice in 1992. The goals of the office are to (1) establish firm practice links with local and state departments, (2) strengthen the curriculum with innovative community-based public health practice experience, (3) assist policy development affecting public health, (4) develop model interventions to address the leading public health problems of our diverse and multiethnic communities, and (5) develop continuing education programs, including an M.P.H. degree for working professionals. For additional information, call (310) 794-7028 or visit <http://www.ph.ucla.edu/php/>.

Pollution Prevention Education and Research Center

The Pollution Prevention Education and Research Center (PPER) was established in 1991 by faculty members in the Schools of Public Health, Engineering and Applied Science, and Public Policy and Social Research. The center's mission is to conserve resources, reduce or eliminate the use of toxic substances, and improve human and environmental health through an interdisciplinary program of education, research, and outreach. To that end, faculty members and associates have offered classes, developed curricula, conducted research, and sponsored a variety of outreach activities to promote the principles of pollution prevention across a range of disciplines and institutions.

Within a short period of time, the center has established itself among the leading academic pollution prevention programs and has developed an impressive track record of accomplishments. Within the last four years, faculty members and associates have collaboratively taught innovative multidisciplinary courses which examine pollution prevention opportunities in a wide variety of industry sectors; developed curricula, case studies, and problem sets for students and professionals in diverse fields; sponsored public seminars and conferences to share pollution prevention information and stimulate discussion; written two books and numerous articles on technology, health, and policy issues associated with pollution prevention; and have given presentations and participated in various roundtables working to reduce or eliminate the problems associated with toxics use. For more information, contact Professor John R. Froines at (310) 206-6141 or visit <http://www.oxy.edu/departments/pperc/>.

Preventive Medicine Residency Program

The School of Public Health offers an accredited residency in public health and general preventive medicine, a specialty recognized by the American Board of Preventive Medicine. Under Program Director Charles E. Lewis, the residency is designed to prepare qualified physicians for leadership roles in preventive medicine and public health practice, research, and teaching. The program is based on the academic strength of the School of Public Health in conjunction with the School of Medicine and outstanding UCLA-affiliated agencies such as the Los Angeles County Department of Health Services.

The residency provides training in the academic and practicum years as defined by the Accreditation Council for Graduate Medical Education. Residents participating in the academic phase must enroll in one of the departments within the School of Public Health and must fulfill all requirements for the M.P.H. (or equivalent) degree as specified by the department in which they are enrolled. Application should be made both to the department and the residency simultaneously. Residents may also under-

take studies toward qualification for a more advanced degree (Dr.P.H. or Ph.D.) in public health; this involves further coursework, an approved project or dissertation, and academic examinations as specified by the school. Part of this work may be applied toward the practicum.

During the practicum phase, residents obtain practical experience in preventive medicine supervised by onsite preceptors, the residency program director, and appropriate UCLA faculty. Flexibility is an essential component of the UCLA practicum; residents may work in a variety of settings while pursuing their commitment to preventive medicine and public health. The particular strengths of this program lie in the areas of public health practice (particularly in medically underserved areas), clinical preventive medicine, health services, epidemiology, administration/management, and research. In addition, residents may develop individualized training programs in any area of preventive medicine. Applicants who have completed their M.P.H. studies at an accredited school of public health may be admitted directly into the practicum. A license to practice medicine in California is a requisite to entering the residency. For further information, contact the School of Public Health Students Affairs Office or visit <http://www.ph.ucla.edu/pmr/home.htm>.

Program for Health Professionals

Health professionals who are unable to pursue a degree program during their regular working hours may earn the M.P.H. degree by completing coursework in intensive summer sessions and in extended weekend sessions during the academic year. Courses are taught by faculty members in the School of Public Health. Applicants are expected to fulfill the minimum overall requirements for admission to the M.P.H. program. In addition, they must have at least three years of professional experience or its full-time equivalent in a health care setting.

Generally the first year of study is devoted to the specific core requirements in the area of concentration and to the required M.P.H. core courses in biostatistics, community health sciences, environmental health sciences, epidemiology, and health services. The course of study also entails completing required and elective courses in the specialty area, a master's project, and a report on that project. The master's project, which usually includes an internship carried out under faculty supervision, addresses a significant public health problem. The master's report, based on that project, focuses on the integration and application of theoretical and methodological approaches within public health to a specific problem.

Currently two departments accept students into this program, although all five departments in the school have the option to offer a concentration in their area. For those areas not listed below, contact the department of interest directly.

Community Health Sciences

The M.P.H. degree is offered in the health education/promotion concentration and can be completed in 21 months with once-a-month, four-day course sessions spanning Thursday through Sunday and an additional intensive summer session between the two academic years. Coursework is the same as for the concentration in the regular M.P.H. program, except that the fieldwork internship requirement (Community Health Sciences 400) is replaced with an extended master's project completed under the guidance of a faculty member. The program includes required core and specialty courses, with elective courses offered based on the special interests and needs of students enrolled in the program. For program information and consultation, contact Professor Snehendu Kar at (310) 825-5156, e-mail: kar@ucla.edu.

Health Services

The M.P.H. degree is offered in the health care management concentration and provides a rigorous program of graduate education and training. The two-year program is problem-based and relevant to the rapidly changing health care environment. Growing competition demands that professionals develop an evolving knowledge base and understanding of current management practices and their applications to health care in both the public and private sectors. The curriculum is built around the following themes: health services organization, management content and

practice, finance/economics, analytical skills, public health/understanding the community, and personal development/career planning. The program has also created partnerships with leaders in the health care community, drawing on their strengths and insights to ensure that the educational process is consonant with the needs of the industry. Classes and other instructional activities are scheduled on alternate Fridays from 1 to 9 p.m. and Saturdays from 8 a.m. to 5 p.m. during the academic year. Practical field studies are conducted during the interim summer. For program information, call Professor Paul R. Torrens at (310) 206-3435 or visit <http://www.ph.ucla.edu/hs/mph.html>.

Southern California Environmental Health Sciences Center

The Southern California Environmental Health Sciences Center (SCEHSC) was established through funding from the National Institute of Environmental Health Sciences (NIEHS). Researchers and professionals from UCLA, University of Southern California, and California Institute of Technology have collaborated to create an interdisciplinary approach to the study and advancement of research in environmental health. As one of the newest of 19 centers across the nation, the SCEHSC primarily focuses on using epidemiologic methods to study effects of the environment on human health, especially with regard to the multiethnic populations of California and the Pacific Rim.

The SCEHSC is organized into an administrative core, five research cores, and four service cores, with the overall goal to understand how environmental factors affect health and how personal factors modify response. Research cores include exposure assessment, respiratory effects, childhood cancer, adult cancer, and statistical methods, while the service cores include analytical chemistry, molecular biology, biological sample processing, and biostatistics.

The center supports an Environmental Health Research Pilot Projects Program to advance research in environmental health by expanding opportunities to pursue larger-scale projects. It also maintains a Community Outreach and Education Program to develop models for community outreach and school curricula to educate the public on how to control, reduce, or eliminate the threat of living with environmental hazards. Dissemination of research findings to the health care, corporate, and policy-making communities and the public at large enables the SCEHSC to facilitate an informed public debate and, ultimately, improved public policies, making it a regional and national resource on environmental health research. For more information, contact Professor John R. Froines at (310) 206-6141 or Professor William C. Hinds at (310) 825-7152.

Southern California Injury Prevention Research Center

Injuries kill more people under the age of 45 than all other causes of death combined. The Southern California Injury Prevention Research Center (SCIPRC) is one of nine centers in the U.S. that focus on the problem of intentional (homicide, suicide, abuse) and unintentional (motor vehicle crash, drowning, falls) injuries through three phases of injury control — prevention, acute care, and rehabilitation — addressed through its research, training, and community service components.

The theme of SCIPRC is to research intentional and unintentional injuries among ethnic/racial minorities, disadvantaged persons, and other underserved populations. Highly focused, multidisciplinary community-based research projects are undertaken with the collaboration of public health scientists, clinicians, social scientists, and biomechanics specialists affiliated with UCLA, University of Southern California, King/Drew and Rancho Los Amigos Medical Centers, Los Angeles County Department of Health Services, Edward R. Roybal Institute for Applied Gerontology, and California State Office of Traffic Safety and Departments of Health Services and Industrial Relations.

Graduate students can affiliate with SCIPRC through academic coursework in injury and research experience with ongoing investigations and can apply for support for independent graduate student research. For additional information, call (310) 206-4115 or visit <http://www.ph.ucla.edu/sciprc/sciprc1.htm>.

School of Public Policy and Social Research

Barbara J. Nelson, Dean

UCLA
3250 Public Policy Building
Box 951656
Los Angeles, CA 90095-1656
(310) 206-7568
<http://www.spsr.ucla.edu>

Established in 1994, the School of Public Policy and Social Research is a leader in redefining policy education, research, and outreach to solve major problems in an era defined by rapid change, increasing complexity, and remarkable diversity. The school's distinctive approach emphasizes solving problems across boundaries, particularly at the growing intersection of the public, private, and nongovernmental sectors.



This approach is embodied in the school's structure, which combines three academic departments — Policy Studies, Social Welfare, and Urban Planning — and faculty members from such diverse disciplines as economics, geography, history, law, management, and political science. The school trains policy professionals, planners, and social workers for public, private, and nongovernment service, conducts research on significant regional, national, and international issues with a strong interdisciplinary and cross-cultural focus, and acts as a convener and catalyst for public dialogue on important issues.

The school houses 11 active research centers that allow faculty members from across the campus to pursue issues of mutual interest, including the California Census Research Data Center, Center for Child and Family Policy Research, Center for Communication Policy, Center for Health Policy Research, Center for International Science, Technology, and Cultural Policy, Center for Labor Research and Education, Center for Policy Research on Aging, Institute of Industrial Relations, Institute of Transportation Studies, Lewis Center for Regional Policy Studies, and North American Integration and Development Center. In addition to their focus on practical policy problems, the research centers also provide opportunities for student financial aid in the form of research assistant positions, grants, and fellowships.

The school offers graduate programs leading to the Master of Public Policy (M.P.P.), Master of Social Welfare (M.S.W.), Master of Arts (M.A.) in Urban Planning, and Ph.D. in Social Welfare and in Urban Planning. Five concurrent degree programs, which allow students to fulfill the requirements of two graduate degrees simultaneously, are also offered: M.A.-Urban Planning/J.D. and M.S.W./J.D. with the School of Law, M.A.-Urban Planning/M.A.-Latin American Studies, M.A.-Urban Planning/M.B.A. with the John E. Anderson Graduate School of Management, and M.A.-Urban Planning/M.Arch. I with the Department of Architecture and Urban Design. Further information about these programs can be found in the Cur-

ricula and Courses section of this catalog. Informative brochures about the school's programs can be obtained from the Office of Academic and Student Services, 3371 Public Policy Building.

The school also offers an undergraduate minor in Public Policy and a wide array of undergraduate courses in policy studies, social welfare, and urban planning. Enrollment in these courses is open to all undergraduate students.

Degrees Offered

Public Policy (M.P.P.)

Social Welfare (M.S.W., Ph.D.)

Urban Planning (M.A., Ph.D.)

Graduate Study

Admission

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree or professional title from an international institution, each department in the school has limitations and additional requirements. Individuals interested in concurrent degrees must be admitted to both programs. Detailed information can be found in the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

Other Requirements

Requirements to fulfill each degree objective vary according to the degree and the department. See the Curricula and Courses section of this catalog for introductory information and procedures. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available on the Graduate Division website at <http://www.gdnet.ucla.edu/departments.html>.

Research Centers and Programs

California Census Research Data Center

The California Census Research Data Center (<http://www.ccrdc.ucla.edu>) is a partnership between the U.S. Bureau of the Census and the University of California. With laboratories at the School of Public Policy and Social Research and at UC Berkeley, the center fosters applied research, much of it California-specific, on a wide range of important economic and public policy issues. It provides researchers, on a project-by-project basis, with confidential data from the Census Bureau's business and household data programs. It is the first such center to be established west of Pittsburgh.

Center for Child and Family Policy Research

The Center for Child and Family Policy Research (http://www.spps.ucla.edu/res_ctrs/family.htm) was established in 1984 to conduct and promote research, training, and community service programs to inform policy and develop needed programs for children and families. The center has a distinguished history of policy analysis, applied research, and program development in such areas as child abuse and neglect, income maintenance, and services for high-risk teenagers and disabled populations. Major policy research projects include a study of methods of preparing youths in foster care for emancipation and studies of social support and health care use among Korean Americans and Mexican American elderly.

Center for Communication Policy

The Center for Communication Policy (<http://ccp.ucla.edu/>) was established in 1993 as a forum for the discussion and development of policy alternatives addressing the leading issues in media and communication. The center conducts and facilitates research, courses, seminars, working

groups, and conferences designed to have a major impact on policy at the local, national, and international levels. The center has launched a groundbreaking new study of the social, political, and economic effects of computer technology and the Internet. Conferences include the Superhighway Summit with the Academy of Television Arts and Sciences, Religion and Prime Time Television with the American Cinema Foundation, and an annual national media conference with Children Now and Stanford University.

Center for Health Policy Research

Jointly sponsored by the School of Public Policy and Social Research and the School of Public Health, the Center for Health Policy Research (<http://www.healthpolicy.ucla.edu/>) conducts research on the national, state, and local levels, provides testimony, and conducts seminars and forums for government leaders and policymakers both public and private. Research activities emphasize a community- and population-based perspective to improve health outcomes. Current research areas and programs touch on such issues as access to health services, managed care, health care reform, women's health, disease prevention policy, cost issues, and the health policy-making process itself.

Center for International Science, Technology, and Cultural Policy

The Center for International Science, Technology, and Cultural Policy (http://www.sppsr.ucla.edu/rsrch/rch_cnt/CISTCP.HTML) facilitates interdisciplinary research on the influences of government policy on the development of the arts and sciences and their commercial and noncommercial expressions, including technology, the media, fashion/design, and other uses of the nation's knowledge capital. The center's mission is to improve the basis for policy decisions by conducting and supporting solid empirical research designed to examine alternative policy models, including the comparison of systems across countries as well as across substantive areas within the same country. Rigorous policy research on these topics requires discipline-based, but also interdisciplinary, research teams that are informed by social science theory. The center promotes dissemination of policy research to governments seeking to make more empirically informed policy decisions.

Center for Labor Research and Education

Regarded as the flagship of all U.S. labor centers, the Center for Labor Research and Education (<http://labor.sppsr.ucla.edu>) plays a unique role as a bridge between the University and the labor community. As part of the Institute of Industrial Relations, the center is a cosponsor, with the Urban Planning Department, of the Community Scholars Program — a dynamic project that brings labor and community leaders to UCLA to study economic development. The center also serves as the West Coast coordinator for the AFL-CIO's George Meany Center, providing summer residential programs for union leaders, and regularly hosts visiting trade unionists and scholars from around the world. A vital part of the center is the Labor Occupational Health and Safety Program, which provides extensive resources and training in the field of workplace safety and health.

Center for Policy Research on Aging

One of the newest of the school's research centers, the Center for Policy Research on Aging (http://www.sppsr.ucla.edu/rsrch/rch_cnt/cpra.html) was formed to address the significant issues of an aging society through policy analysis, dissemination of information, and technical assistance to the public and private sectors. The demographic challenges of a nation growing older and living longer force us to confront the roles of government and the private sector in serving the increasing number of elderly and their families. The center's mission is to conduct research, inform policymakers, link communities to local, state, and federal governments, and foster collaboration among UCLA faculty members.

Institute of Industrial Relations

Established by the California Legislature in 1945, the Institute of Industrial Relations (http://www.sppsr.ucla.edu/res_ctrs/industri.htm) conducts research and community service programs that focus on all aspects of the

modern employment relationship involving workers, management, and unions. These issues run the gamut from technological change and workforce preparedness to collective bargaining and macroeconomic policy. Community service programs are directed at the Southern California region as well as the state and nation. Because of the ongoing globalization of the economy, the institute — both in research and community service — increasingly is focusing on international issues.

Institute of Transportation Studies

The Institute of Transportation Studies (http://www.spsr.ucla.edu/res_ctrs/its/its_home.htm) was created in 1993 to conduct research and provide professional education on the social, economic, environmental, and cultural aspects of transportation policy. Research projects have included measuring the efficiency and effectiveness of transit performance, particularly regional rail and bus transit systems in the Los Angeles area; the development of statistically reliable methods for estimating average vehicle occupancy from sampling in the field; and the first major study comparing the transportation-related impacts of the 1994 Northridge earthquake to the damage inflicted by the 1989 Loma Prieta and 1995 Kobe earthquakes.

Lewis Center for Regional Policy Studies

The Lewis Center for Regional Policy Studies (http://www.spsr.ucla.edu/res_ctrs/lewis/lewis.htm) was established in 1990 with a \$5-million endowment from Ralph and Goldy Lewis to promote the multidisciplinary study, understanding, and solution of regional policy issues, with special reference to Southern California. Research projects include studies on the impact of the North American Free Trade Agreement on Latinos in the U.S., welfare and work, pollution prevention policies, transportation and parking policies, work-residence relationships in restructuring metropolitan areas, and economic development strategies for local areas. With the support of several foundations, the center also has begun a major research program on ethnic and immigration issues, one product of which is the 1996 volume *Ethnic Los Angeles*.

North American Integration and Development Center

The North American Integration and Development Center (http://www.spsr.ucla.edu/res_ctrs/namerica.htm) was created to provide technical assistance to local communities affected by the North American Free Trade Agreement (NAFTA). The center conducts research and offers continuing education programs in cooperation with nongovernmental organizations in selected communities to support local economic development efforts and facilitate their relationship with the North American Development Bank (NADBank). The center is developing a comprehensive online database with essential information for economic development planning and makes it available to the public on-line through custom-designed Internet sites.

UCLA Policy Forum

As the chief outreach arm of the School of Public Policy and Social Research, the UCLA Policy Forum (http://www.spsr.ucla.edu/outrch/out_pf.html) is a leader in promoting dialogue on major issues through its Center for Public Dialogue and in providing training and other programs through the Advanced Policy Institute and the Center for Executive Policy Education. Policy Forum programs include the Senior Fellows Program, in which distinguished policy practitioners are appointed to spend a year engaged in a dialogue with UCLA scholars and in mentoring graduate students.

School of Theater, Film, and Television

Robert Rosen, Dean

UCLA
202 East Melnitz Building
Box 951622
Los Angeles, CA 90095-1622
(310) 825-5761
<http://www.tft.ucla.edu/>

The School of Theater, Film, and Television consists of the Department of Theater and the Department of Film and Television, recognized national centers for higher education in production and performance as well as history, theory, and criticism. Whether exploring the ancient and sacred roots of theater or the latest secular rituals enacted by popular film, creat-

ing a dramatic character on a bare stage or a dramatic narrative on screen, writing scripts or scholarly articles, or making digital movies or designing websites, all students study both the aesthetics and cultural significance of theater, film, and television. Through an intensive, multidiscipline curriculum, the school defines the inherent differences of theater, film, television, and new media, affirms their similarities, and encourages their interaction. As expressive art forms, modes of communication, and cultural interventions, theater, film and television, and digital media have in common the ability and power to reflect and shape our perception of a complex, diverse, and ever-changing world. We believe — as artists and scholars — that we have an obligation to reflect on this power and to use it responsibly.

Situated in the diverse and culturally rich environment of Los Angeles and drawing on the many resources of the campus at large, including the UCLA Performing Arts, Geffen Playhouse, and UCLA Film and Television Archive, the school provides the ideal setting for students to engage in the study and practice of art forms essential to a healthy and dynamic society.

The Department of Theater and the Department of Film and Television are essential components of the rich intellectual, cultural, and professional life of UCLA. Depending on the degree involved, the school's programs are either strongly professional in nature or oriented toward advanced scholarly study and research in an atmosphere that recognizes and often draws on studio practice. Students in undergraduate courses receive a broadly based, liberal education within the context of either theater or film and television. The Master of Fine Arts degree programs prepare talented and highly motivated students for careers in the worlds of theater, film, television, and digital production. The M.A. and Ph.D. programs engage students in the critical study and research of these media, including their history, aesthetics, and theory, and prepare students for advanced research within the context of college and university teaching, as well as for writing and research in a variety of media-related professions.

In the Department of Theater, approximately 275 undergraduate and 125 graduate students interact with over 40 faculty members, outstanding guests of national and international standing, and a professional staff of 35 in an exciting artistic community of theater production and study. Resources include the four theaters of the Macgowan Hall complex, with the latest technologies needed for the creation, control, and integration of scenery, lighting, and sound. Specializations in the Master of Fine Arts



program include acting, directing, playwriting, design, technology and production management, and the producers program.

The Department of Film and Television includes both production and critical studies programs, with approximately 265 graduate and 60 undergraduate students. The 50 faculty members include leading scholars as well as members of the Los Angeles and international film and television professional communities. In production, graduate specializations are offered in the areas of film and television production, screenwriting, animation, and the producers program. The critical studies program offers M.A. and Ph.D. degrees for the advanced scholarly study of film and television. The department's resources in Melnitz Hall include three sound stages, three television studios, extensive editing, scoring, and viewing facilities, a complete animation laboratory for both traditional and computer-generated animation, and a laboratory and research facility for digital media. The M.A. and Ph.D. programs are supported by the collections of the University's libraries and the UCLA Film and Television Archive, the largest in the U.S. outside the Library of Congress. This archive forms a unique and priceless resource for research and classroom instruction.

M.A. and Ph.D. faculty members and students also participate in various campus organized research units.

Informative brochures on the school are available from the Student Services Office, 103 East Melnitz Building, UCLA, Box 951622, Los Angeles, CA 90095-1622.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, (310) 825-8328.

Majors and Degrees Offered

Film and Television (B.A., M.A., M.F.A., C.Phil., Ph.D.)
Theater (B.A., M.A., M.F.A., C.Phil., Ph.D.)

Undergraduate Study

Admission

In addition to the University of California Undergraduate Application, departments in the School of Theater, Film, and Television require applicants to submit additional supporting materials. Information on departmental requirements is mailed to students on receipt of their application. The annual deadline date for applications is November 30 for admission in the following Fall Quarter.

Study Lists

Each term the student Study List must include from 12 to 17 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 17 units (up to 20 units maximum) if they have an overall grade-point average of 3.0 (B) or better **and** have attained at least a B average in the preceding term with all courses passed. The petitions must be filed and approved by the Student Services Office by the end of the fourth week of instruction.

If students have not filed their Study List by the end of the second week of classes, they must obtain the consent of the dean of the school to continue for that term.

Graduate Courses

Undergraduate students who wish to take courses numbered in the 200 series for credit toward the degree must petition for advance approval of the department chair and the dean of the school and must meet specific requirements. Courses numbered in the 400 and 500 series may not be applied toward the degree.

Concurrent Enrollment

Enrollment at another institution or UCLA Extension while enrolled at UCLA is not permitted.

Requirements for Bachelor of Arts Degrees

Each student must meet six kinds of requirements for the B.A. degree: University, school, and unit requirements, as well as residence, major, and scholarship requirements. The requirements are as follows.

University Requirements

For information on the Subject A or English as a Second Language (ESL) and American History and Institutions requirements, see Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

School of Theater, Film, and Television students enrolled in English as a Second Language 33A, 33B, 33C must take the courses for a letter grade.

School Requirements

The general requirements of the School of Theater, Film, and Television must be completed with a grade-point average of 2.0 or better.

Unit Requirements

Double majors in the school, or between the school and other academic units, are not permitted.

Students must complete for credit, with a passing grade, no less than 180 units and no more than 208 units, of which at least 64 units must be upper division courses (numbered 100 through 199). No more than 16 units of CED courses and eight units of freshman seminars or 300-level courses may be applied toward the degree. Credit for 199 courses is limited to 16 units, eight of which may be applied to the major. All 199 courses must be taken for a letter grade.

UCLA Extension courses with the prefix X on those numbered in the 1 through 199, 200, 300, 400, or 800 series may not be applied toward the degree.

Credit earned through the College Board Advanced Placement Tests may be applied toward the general education requirements. Portions of Advanced Placement Test credit may be evaluated by corresponding UCLA course numbers (e.g., History 1C). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

Major Requirements

A major is composed of not less than 14 courses (56 units), including at least nine upper division courses (36 units). The Theater major includes both lower and upper division courses. Those listed under Preparation for the Major (lower division) must be completed before upper division major work is undertaken. The Film and Television major requires upper division work only.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. All courses in the school must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the departmental adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Any department offering a major in the School of Theater, Film, and Television may require a general final examination.

Scholarship and Minimum Progress

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A C average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements.

Minimum Progress

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

Residence Requirements

Students are “in residence” while enrolled and attending classes at UCLA as a major in the School of Theater, Film, and Television. Of the last 45 units completed for the bachelor’s degree, 35 must be earned in residence in the School of Theater, Film, and Television. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Courses in UCLA Extension (either class or correspondence) may not be applied toward any part of the residence requirements.

English Composition/Critical Reading and Writing Requirements

English Composition and Rhetoric

English Composition 3 with a minimum grade of C should be completed by the end of the freshman year and may not be taken on a Passed/Not Passed basis. An Advanced Placement (AP) Test score of 4 also meets this requirement.

Critical Reading and Writing

One course from Comparative Literature (formerly Humanities) 2A, 2B, 2C, or English 4 with a minimum grade of C should be completed by the end of the sophomore year and may not be taken on a Passed/Not Passed basis. An Advanced Placement (AP) Test score of 5 also meets this requirement. Comparative Literature 2A, 2B, or 2C may not be applied toward the literature requirement if taken to meet this requirement.

Additional Degree Requirements

In addition to the school’s general education requirements, students must complete the following requirements:

Literature

Three courses (12 units) in literature are required, at least one of which must be upper division. Any literature course taken in the original language can fulfill this requirement. Comparative Literature 2A, 2B, or 2C may not be applied toward the critical reading and writing requirement if taken to meet this requirement; English 4 may **not** be applied here.

Foreign Language Proficiency

Students may meet this requirement by (1) scoring 3, 4, or 5 on the Advanced Placement (AP) foreign language test in French, German, or Spanish, (2) presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to UCLA’s level three or above with an average grade of C or better.

International students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

General Education (GE) Requirements

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all general education requirements prior to enrolling at UCLA are not required to complete the School of Theater, Film, and Television general education requirements. Written verification from the college dean at the other UC campus is required. Verification letters should be sent to Director of Student Services, School of Theater, Film, and Television, 103 East Melnitz Building, UCLA, Box 951622, Los Angeles, CA 90095-1622.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA’s lower division general education requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. The IGETC significantly eases the transfer process, as all of UCLA’s general education requirements are fulfilled when students complete it. If they select the IGETC, they must

complete it entirely before enrolling at UCLA. Otherwise, students must fulfill the School of Theater, Film, and Television general education requirements.

Theater, Film, and Television GE Course List

For specific courses that fulfill the general education requirements, refer to the lists below or consult the Student Services Office before enrolling. Note: Courses that include the study of theater, film, or television may not be applied toward any general education requirements.

A. Art and Philosophy

Five courses (20 units), with no more than two courses from any single group:

A1. Group A

Art History

- 50. Ancient Art
- 51. Medieval Art
- 54. Modern Art
- 55A. Introduction to African Art
- 55B. Arts of Pre-Columbian America
- 56A. Art of India and Southeast Asia
- 56B. Introduction to Chinese Art
- 57. Renaissance and Baroque Art

Classics

- 51A. Art and Archaeology of Classical World: Greece
- 51B. Art and Archaeology of Classical World: Rome

A2. Group B

World Arts and Cultures

- 134. History of Dance in Culture and Performance
- 140A. Art as Social Action
- 140B. Art as Moral Action
- 140C. Seminar: Intercultural and Interdisciplinary Performance
- 141. Lighting Design for Dance Theater
- 181A. Dance Cultures of Asia
- 182. Dance in Africa and the African Diaspora
- C187. Dance in Native American Cultures

A3. Group C

Afro-American Studies

- M110A, M110B. African American Musical Heritage

Chicana and Chicano Studies

- M108A. Music of Latin America

Ethnomusicology

- 20A, 20B, 20C. Musical Cultures of the World
- M108A, 108B. Music of Latin America
- M110A, M110B. African American Musical Heritage
- 113. Music of Brazil
- 136A, 136B. Music of Africa
- 147. Survey of Classical Music in India
- 174. Aesthetics of Music

Folklore and Mythology

- M154A, M154B. African American Musical Heritage

Music

- 15. Art of Listening

Music History

- 2A, 2B. Introduction to Literature of Music
- 13. 20th-Century Music of the Western World
- 133. Bach
- 134. Beethoven
- 135A, 135B, 135C. History of Opera

A4. Group D

Philosophy

- 1. Beginnings of Western Philosophy
- 2. Introduction to Philosophy of Religion
- 4. Philosophical Analysis of Contemporary Moral Issues
- 5A. Philosophy in Literature

6. Introduction to Political Philosophy
7. Introduction to Philosophy of Mind
8. Introduction to Philosophy of Science
9. Principles of Critical Reasoning
21. Skepticism and Rationality
22. Introduction to Ethical Theory

B. Social Sciences

Three courses (12 units), with no more than two courses from any single group. Whenever possible, two courses from a single sequence are recommended:

B1. Group A

Chinese (East Asian Languages)

50. Chinese Civilization

Classics

10. Survey of Classical Greek Culture
20. Survey of Roman Civilization

East Asian Languages and Cultures

60. Introduction to Buddhism

Folklore and Mythology

15. Introduction to American Folklore Studies

German (Germanic Languages)

- 100A. German Civilization and Culture before 1700
- 100B. Modern German Civilization and Culture from 1700 to 1919
- 100C. German Civilization and Culture in the 20th Century

Italian

- 42A. Italy through the Ages, in English: Holy Roman Empire to Sack of Rome
- 42B. Italy through the Ages, in English: Late Renaissance to Postmodern Period

Japanese (East Asian Languages)

50. Japanese Civilization

Jewish Studies (Near Eastern Languages)

10. Social, Cultural, and Religious Institutions of Judaism

Korean (East Asian Languages)

50. Korean Civilization

Portuguese (Spanish and Portuguese)

- M42. Civilization of Spain and Portugal
- M44. Civilization of Spanish America and Brazil

Russian (Slavic Languages)

- 99A. Introduction to Russian Civilization
- 99B. Russian Civilization in the 20th Century

Spanish (Spanish and Portuguese)

- M42. Civilization of Spain and Portugal
- M44. Civilization of Spanish America and Brazil

Women's Studies

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society

B2. Group B

Communication Studies

10. Introduction to Communication Studies

History

- 1A, 1B, 1C. Introduction to Western Civilization
- 3A, 3B, 3C. Introduction to History of Science
- 3D. Themes in History of Medicine
4. Introduction to History of Religions
- 8A. Colonial Latin America
- 8B. Political Economy of Latin American Underdevelopment, 1750 to 1930
- 8C. Latin American Social History
- 9A. Introduction to Asian Civilizations: History of India
- 9C. Introduction to Asian Civilizations: History of Japan
- 9D. Introduction to Asian Civilizations: History of the Near and Middle East
- 10A, 10B. Introduction to Civilizations of Africa
- 11A, 11B. History of China
- 148C. U.S. since 1945

Political Science

10. Introduction to Political Theory
20. World Politics
40. Introduction to American Politics

50. Introduction to Comparative Politics

B3. Group C

Anthropology

8. Archaeology: An Introduction
9. Culture and Society
33. Culture and Communication

Psychology

10. Introductory Psychology

Sociology

1. Introductory Sociology
2. Changing Society and Making History
3. Sociology of Everyday Life
4. Jobs and Careers: Sociological Approach
31. Dilemmas of Third World Development

C. Science

One course (four units) in physical sciences and one course (four units) in biological sciences:

C1. Physical Sciences

Astronomy

- 2A, 2B. Introduction to the Physical Universe
3. Astronomy: Nature of the Universe
4. Universe of Stars and Stellar Systems
5. Life in the Universe
6. Cosmology: Our Changing Concepts of the Universe

Atmospheric Sciences

2. Air Pollution
3. Introduction to the Atmospheric Environment
4. California Weather and Climate
5. Climates of Other Worlds
6. Climate and Climatic Change

Chemistry and Biochemistry

2. Introductory Chemistry
15. Survey of Organic Chemistry and Biochemistry

Earth and Space Sciences

1. Introduction to Earth Science
2. Earth History
5. Environmental Geology of Los Angeles
8. Earthquakes
9. Origin and Evolution of Solar System
15. Introduction to Oceanography

Geography

1. Physical Environment

Mathematics

2. Finite Mathematics
- 3A, 3B. Calculus for Life Sciences Students
- 31A, 31B. Calculus and Analytic Geometry

Physics

- 1A. Physics for Scientists and Engineers: Mechanics
- 1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields
- 1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity
- 3A. General Physics: Mechanics of Solids and Fluids
- 3B. General Physics: Heat, Sound, Electricity and Magnetism
- 3C. General Physics: Light, Relativity, and Modern Physics
- 6A. Physics for Life Sciences Majors: Statics and Dynamics
- 6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics
- 6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport
10. Physics

C2. Biological Sciences

Anthropology

7. Human Evolution
10. Principles of Human Evolution: Genetic Basis
12. Principles of Human Evolution: Comparative Analysis

Earth and Space Sciences

16. Major Events in History of Life

Geography

2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World

5. People and the Earth's Ecosystems

Microbiology and Molecular Genetics

6. Introduction to Microbiology

7. Developments in Biotechnology

Molecular, Cell, and Developmental Biology

30. Biology of Cancer

40. AIDS and Other Sexually Transmitted Diseases

70. Genetic Engineering and Society

Organismic Biology, Ecology, and Evolution

10. Plants and Civilization

13. Evolution of Life

21. Field Biology

25. Oceans

Psychology

15. Introductory Psychobiology

Honors

Dean's Honors

To receive Dean's Honors in the School of Theater, Film, and Television, students must have at least 12 graded units per term with a grade-point average of 3.8 for less than 16 units of work (3.7 GPA for 16 or more units). The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

Honors at Graduation

Honors at graduation are awarded to students with superior grade-point averages. To be eligible, students must have completed 90 or more units for a letter grade at the University of California. The levels of honors and the requirements for each level are *cum laude*, an overall average of 3.663; *magna cum laude*, 3.792; *summa cum laude*, 3.848. See the quarterly *Schedule of Classes* for the most current calculations of Latin honors.

Counseling and Program Planning

The School of Theater, Film, and Television offers advising, program planning in the major and general education requirements, and individual meetings with departmental counselors, including a yearly degree check sent to each student. Prior to registration and enrollment in classes, each new student is assigned to a counselor in the major department. For further counseling information, contact the Student Services Office, School of Theater, Film, and Television, 103 East Melnitz Building, (310) 206-8441.

Graduate Study

The advanced degree programs offered in the School of Theater, Film, and Television provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, UCLA Film and Television Archive, special collections of the Arts Library, and the University's exhibition and performance halls.

The School of Theater, Film, and Television cooperates with the UCLA John E. Anderson Graduate School of Management in offering a Master of Business Administration (M.B.A.) in Entertainment Management. Participating students serve term-long internships with such professional arts organizations as the Los Angeles County Museum of Art, the Mark Taper Forum, and the Los Angeles Philharmonic Orchestra.

The producers program is an M.F.A. management program in the Departments of Theater and Film and Television, with options in either theater or film and television.

A program in teaching is offered by the Graduate School of Education and Information Studies in each of these areas.

Fellowships, grants, and assistantships are available through the dean of the Graduate Division.

Admission

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. Detailed information can be found in the departmental listings in the Curricula and Courses section of this catalog.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

Other Requirements

Requirements to fulfill each degree objective vary according to the degree and the department. See the Curricula and Courses section of this catalog for introductory information and procedures. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available on the Graduate Division website at <http://www.gd-net.ucla.edu/departments.html>.

Curricula and Courses

COURSE LISTINGS

In the following section, curricula and courses are listed alphabetically with the college or school administering the program identified in the program heading. Every effort has been made to ensure the accuracy of the information presented. However, all courses, course descriptions, instructor designations, and curricular degree requirements described herein are subject to change or deletion without notice. For up-to-date information, consult the quarterly *Schedule of Classes* or visit <http://www.registrar.ucla.edu/schedule/>.

For a complete outline of graduate degree requirements, see *Program Requirements for UCLA Graduate Degrees* available on the Graduate Division website at <http://www.gd-net.ucla.edu/departments.html>.

Undergraduate Courses

Undergraduate courses are classified as lower division and upper division. **Lower division courses (numbered 1-99)** are often surveys offering preliminary introductions to the subject field. They are designed primarily for freshmen and sophomores, though upper division students may enroll for unit and grade credit. Lower division courses may not be applied toward graduate degrees.

Upper division courses (numbered 100-199) are open to all students who have met the requisites indicated in departmental requirements or the course description. Preparation generally includes at least one lower division course in the subject or two years of college work. With approval of the major department, graduate students may take 100-series courses toward satisfaction of master's degree requirements.

Lower division/first-year seminars (numbered 88) are departmentally sponsored courses designed to provide freshmen and sophomores the opportunity to participate in small classroom settings to enhance writing, verbal, and analytical skills. Many carry general education credit.

Variable topics courses (numbered 97 and 197) are offered at both the lower (97) and upper (197) division levels; topics within a defined subject area vary with the instructor and individual offerings. These topics have a fixed and permanent place in the regular curriculum.

Professional schools seminars (numbered 98) are designed by the faculty of the professional schools specifically for freshmen and sophomores. Outside of the professional schools, 98 courses are often offered as the lower division equivalent of 198 courses, defined below. Because they are temporary in nature, vary in content, and are offered irregularly,

they are not listed in the catalog. Consult the *Schedule of Classes* for respective offerings.

Group special studies courses (numbered 198) are structured special studies for groups. They may be departmentally sponsored experimental and/or temporary in nature (e.g., courses taught by a visiting professor) or those which are being tested for permanent inclusion in the curriculum. Because they are temporary in nature, vary in content, and are offered irregularly, they are not listed in the catalog. Consult the *Schedule of Classes* for respective offerings.

Individual special studies courses (numbered 199, 199F, 199H, and 199I) involve supervised independent study and research requiring adequate background in the subject proposed for study. These courses are structured by the instructor and student at the time they are initiated and are open to juniors (with a minimum 3.0 grade-point average in the major field), seniors, and graduate students. To enroll, students must complete the appropriate petition (available from the department) and have it approved by both the instructor in charge and department chair.

Undergraduates may enroll in a maximum of eight units of 199, 199F, 199H, and/or 199I courses per term. After completing 16 units of 199 and/or 199H credit on a letter grade basis, students must take any additional 199 and/or 199H courses on a Passed/Not Passed basis. Independent field study courses (199F and 199I) must be taken on a Passed/Not Passed basis; a total of eight units is allowed. Students with an outstanding Incomplete grade in a 199, 199F, 199H, or 199I course, may not register for another until the I grade is removed. See departmental listings and individual course descriptions for specific requisites and credit limitations.

Graduate Courses

Graduate courses numbered 200-299 are generally open only to graduate students who have completed basic undergraduate courses in the subject. Courses and seminars in the 200 series can fulfill the minimum graduate course requirement for any advanced degree.

With departmental and instructor consent, and subject to requirements in the appropriate college or school, undergraduate students may enroll in 200-series courses for unit credit toward the bachelor's degree. If students take a graduate course as an undergraduate, they may not apply that same course later toward a higher degree.

Graduate courses numbered 300-399 are highly specialized teacher-training courses which are not applicable toward University minimum requirements for graduate degrees. They are acceptable toward the bachelor's degree

only at the discretion of the individual college or school.

Graduate courses numbered 400-499 are designed for professional programs leading to graduate degrees other than the M.A., M.S., and Ph.D. These courses may not be used to satisfy minimum graduate course requirements for the M.A. or M.S. degree but may apply as electives.

Individual study and research courses (numbered 500-599) are reserved for advanced study and are not open to undergraduates. Courses are numbered as follows: 595/596, directed individual study or research; 597, preparation for master's comprehensive or doctoral qualifying examination; 598, master's thesis research and preparation; and 599, doctoral dissertation research and preparation. (Courses numbered 501 are not individual study and research but are cooperative programs held in conjunction with USC.) See individual departmental listings for specific limitations on 500-series courses.

Note: These definitions do not apply to the School of Law, which maintains its own course numbering system.

UCLA Extension Courses

In general, students may not attend UCLA Extension for degree credit if they are enrolled in UCLA regular session at the same time. However, certain Extension courses (numbered 1-199), prefixed by XL or XLC in the course listings, yield credit toward the bachelor's degree. Graduate students may petition to apply up to two XLC courses toward the master's degree. For more details, see Concurrent Enrollment in the Academics section of this catalog.

Concurrent and Multiple Listings

Concurrently scheduled courses (identified by a capital C before the course number) are pairs of courses, usually within a single department or program, for which credit is given at two levels — undergraduate and graduate. Concurrently scheduled courses are offered at the same time and place with the same instructor, but work levels and performance standards are evaluated differently for students at each level. (Concurrently scheduled courses as described here should not be confused with concurrent courses offered through UCLA Extension.)

Multiple-listed courses (identified by a capital M before the course number) are courses of the same format and level offered jointly by more than one department. For example, Language in Culture is offered by the Department of Anthropology (Anthropology M140) and the Department of Linguistics (Linguistics M146). The course is listed under both departments.

AFRICAN AREA STUDIES

Interdepartmental Program
College of Letters and Science

UCLA
10244 Bunche Hall
Box 951310
Los Angeles, CA 90095-1310
(310) 825-3686, 825-2944
<http://www.isop.ucla.edu/jscasc/>

Russell G. Schuh, Ph.D., *Chair*
Edmond Keller, Ph.D., *Director, James S. Coleman Center*

Professors

Richard L. Abel, LL.B., Ph.D. (*Law*)
Edward A. Alpers, Ph.D. (*History*)
Donald J. Cosentino, Ph.D. (*English*)
Paul M. Davis, Ph.D. (*Earth and Space Sciences*)
Jacqueline C. Djedje, Ph.D. (*Ethnomusicology*)
Robert B. Edgerton, Ph.D. (*Anthropology*)
Christopher Ehret, Ph.D. (*History*)
Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)
Gail G. Harrison, Ph.D. (*Community Health Sciences*)
Thomas J. Hinnebusch, Ph.D. (*Linguistics*)
Edmond Keller, Ph.D. (*Political Science*)
Robert S. Kirsner, Ph.D. (*Germanic Languages*)
Hilda J. Koopman, Ph.D. (*Linguistics*)
Deepak K. Lal, D.Phil. (*Economics*)
François Lionnet, (*French*)
Charlotte G. Neumann, M.D. (*Community Health Sciences*)
Antony R. Orme, Ph.D. (*Geography*)
Beverly J. Robinson, Ph.D. (*Theater*)
Russell G. Schuh, Ph.D. (*Linguistics*)
Edward W. Soja, Ph.D. (*Urban Planning*)
Hartmut Walter, Ph.D. (*Linguistics*)
Christopher Waterman, Ph.D. (*World Arts and Cultures*)
Thomas S. Weisner, Ph.D. (*Anthropology*)

Professors Emeriti

Nicholas Blurton Jones, Ph.D. (*Anthropology, Education, Psychiatry and Biobehavioral Sciences*)
Victoria A. Fromkin, Ph.D. (*Linguistics*)
Walter R. Goldschmidt, Ph.D. (*Anthropology*)
Gerry A. Hale, Ph.D. (*Geography*)
Peter B. Hammond, Ph.D. (*Anthropology*)
Frederick C. Kintzer, Ed.D. (*Education*)
Michael F. Lofchie, Ph.D. (*Political Science*)
Alfred K. Neumann, M.D. (*Community Health Sciences*)
Merrick Posnansky, Ph.D. (*History, Anthropology*)
Georges Sabagh, Ph.D. (*Sociology*)
Nathan Shapira, Dottore in Architettura (*Design*)
Richard L. Sklar, Ph.D. (*Political Science*)

Associate Professors

Ali Behdad, Ph.D. (*English*)
Judith A. Carney, Ph.D. (*Geography*)
Teshome H. Gabriel, Ph.D. (*Film and Television*)
Susanna B. Hecht, Ph.D. (*Urban Planning*)
Robert A. Hill, M.Sc. (*History*)
Gail E. Kennedy, Ph.D. (*Anthropology*)
Mary Niles Maack, D.L.S. (*Library and Information Science*)
Anna Simons, Ph.D. (*Anthropology*)
Duncan Thomas, Ph.D. (*Economics*)
William H. Worger, Ph.D. (*History*)

Assistant Professors

Patrick Asea, Ph.D. (*Economics*)
Thomas W. Plummer, Ph.D. (*Anthropology*)
Aminatou Soumare, Ph.D. (*Education*)

Adjunct Professors

Sondra Hale, Ph.D. (*Anthropology*)
Ian Maddieson, Ph.D. (*Linguistics*)

Adjunct Assistant Professors

Joanne Leslie, Ph.D. (*Community Health Sciences*)

Roy Pateman, Ph.D. (*Political Science*)

Visiting Associate Professor

Kereopatse W. Kgositsile, Ph.D. (*English*)

Visiting Assistant Professor

Kobla Ladzekpo, M.A. (*Ethnomusicology*)

Scope and Objectives

The basic objective of the African Area Studies Program is an intellectual one — to provide interested students with the opportunity to engage in intensive study and research on Africa on an interdisciplinary basis. The program offers high quality African area courses in a wide range of fields, including the social sciences, humanities, and professional fields. The Master of Arts is not a professional degree, but students are encouraged to enroll in courses in several professional schools on campus. Articulated degree programs are also offered.

Academic flexibility draws many students to the program. Because there are more than 30 active faculty members on campus with African interest and experience in many disciplines, students have multiple options to design individualized programs.

According to a recent survey, 45 percent of the program's graduates are continuing study at the postgraduate level, 25 percent are employed in higher education, and 30 percent work with international or foreign organizations in 20 countries.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of Program Requirements are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The African Area Studies Program offers the Master of Arts (M.A.) degree in African Area Studies and participates in articulated degree programs with the Department of Film and Television and with the School of Public Health.

Admission

In addition to the University minimum requirements, applicants to the M.A. program are required to (1) submit three letters of recommendation, which normally should be from academic referees; (2) present a dossier containing a résumé describing academic, African-related, and professional experience and a research paper or other writing sample that well demonstrates their writing and analytical skills; and (3) take the Graduate Record Examination (GRE) General Test.

Also, applicants should have adequate preparation in undergraduate fields related to the program. Required preparation for the M.A. in African Area Studies most typically consists of a Bachelor of Arts in the social sciences, humanities, or fine arts.

M.F.A. Film and Television/M.A. African Area Studies

The African Area Studies Program and the Department of Film and Television have an articulated degree program which allows students to combine study for the M.A. in African Area Studies with the M.F.A. in Film and Television, with a specialization in motion picture/television. Student must be accepted by both the Film and Television Department and the Program in African Area Studies before admission is offered.

M.P.H./M.A. African Area Studies

The African Area Studies Program and the School of Public Health have an articulated degree program whereby a student can work sequentially for the M.A. in African Area Studies and the Master of Public Health. By planning the concentration in public health while taking the M.A. in African Area Studies, it may be possible to shorten the amount of time it would normally take to complete both degrees.

Areas of Study

Students choose a disciplinary (or interdisciplinary) concentration that requires at least five courses. Most concentrations are in the social sciences, fine arts, humanities, public health, or urban and regional planning. Sociology and anthropology may be taken as a combined major, as may interdisciplinary courses in development studies.

Course Requirements

A minimum of nine courses is required for the M.A., at least five of which must be at the graduate level. The courses must be distributed between disciplines as follows:

- (1) Major discipline: a minimum of five courses, of which three must be at the graduate level. Sociology and anthropology may be taken as a combined major. Other combined majors must be approved by the graduate adviser.
- (2) A minimum of four other courses outside the major area, of which three must be at the graduate level.

Except for 500-series courses, University regulations indicate that students in an interdepartmental degree program may not apply courses taken on an S/U grading basis toward the master's degree. By petition, the program will consider an exception for one of the nine required courses. Such petitions must be approved by a graduate adviser and the Graduate Division. One course in the 500 series may be applied toward the total course requirement and toward the minimum graduate course requirement. With consent of the graduate adviser, other 500-level courses may be allowed but may not be applied toward the minimum graduate course requirement.

Comprehensive Examination Plan

The comprehensive examination plan involves a four- to six-hour written examination. It is set by a three-person faculty committee, two members of which must be from the major discipline or field of concentration. The examination is taken in the last quarter of residence. In consultation with the graduate adviser, students select committee members for the examination. The chair of the committee receives questions from other members and is responsible for setting the examination questions and requirements. An additional oral examination may be held at the discretion of the examining committee. If the comprehensive examination is failed, it may be retaken only once.

Thesis Plan

The thesis option is available by permission of the graduate adviser. Upon obtaining permission, students, in consultation with the graduate adviser, select a faculty committee to supervise and assess the thesis. Two of the three faculty committee members, including the chair, must be from the area of concentration; a third member must be from another discipline. The thesis must reflect the major discipline or field of concentration. An oral defense may be required in some circumstances.

African Area Studies

Graduate Courses

201. Africa and the Disciplines. (4) 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.

M229B. Africana Bibliography and Research Methods. (4) (Same as Information Studies M229B.) Problems and techniques of research methodologies related to Africana studies. Emphasis on relevant basic and specialized reference materials, using full range of available information resources, including library collections of books, serials, and computerized databases.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

Course List

African Area Studies

All courses are not offered every academic year. Students should verify courses with the respective departments.

Courses with asterisks are special courses which may be applied toward the M.A. degree requirements with prior approval of the graduate adviser. These courses either do not exclusively focus on Africa or focus on Africa only in certain years.

African Languages (Linguistics)

1A-1B-1C. Elementary Swahili

2A-2B-2C. Intermediate Swahili

7A-7B-7C. Elementary Zulu

8A-8B-8C. Intermediate Zulu

11A-11B-11C. Elementary Yoruba

12A-12B-12C. Intermediate Yoruba

15. Intensive Elementary Swahili

31A-31B-31C. Elementary Bambara

32A-32B-32C. Intermediate Bambara

41A-41B-41C. Elementary Hausa

42A-42B-42C. Intermediate Hausa

61A-61B-61C. Elementary Wolof

62A-62B-62C. Intermediate Wolof

97. Elementary and Intermediate Studies in African Languages

103A-103B-103C. Advanced Swahili

109A-109B-109C. Advanced Zulu

123A-123B-123C. Advanced Yoruba

143A-143B-143C. Advanced Hausa

M190. Survey of African Languages

199. Special Studies in African Languages

202A-202B-202C. Comparative Bantu

Afrikaans (Germanic Languages)

105A. Elementary Afrikaans

105B. Intermediate Afrikaans

114. Afrikaans Literature in Translation

135. Introduction to Afrikaans Literature

199. Special Studies in Afrikaans

Afro-American Studies

*M102. Culture, Media, and Los Angeles

Anthropology

*112. Old Stone Age Archaeology

*M115A-M115B. Historical Archaeology

*118A, 118B. Museum Studies

*121A. Primate Fossil Record

*121B. Australopithecines

*121C. Evolution of Genus *Homo*

*133R. Aesthetic Systems

*150. Study of Social Systems

*M154P. Gender Systems: North American

*M154Q. Gender Systems: Global

*156. Comparative Religion

*158. Hunting and Gathering Societies

*161. Development Anthropology

*M168. Culture, Illness, and Healing

171. Sub-Saharan Africa

*212P. Selected Topics in Hunter/Gatherer Archaeology

*230Q. Theories of Culture

*250. Selected Topics in Social Anthropology

*252P. Comparative Systems of Social Inequality

*254. Kinship

*255. Comparative Political Institutions

271. Contemporary Problems in Africa

Applied Linguistics and Teaching English as a Second Language

C112. Literature in Language Education

Art History

*55A. Introduction to African Art

*101A. Egyptian Art and Archaeology

*101B. Egyptian Art and Archaeology of the Middle and New Kingdoms

118C. Arts of Sub-Saharan Africa

C119A. Advanced Studies in African Art: Western Africa

C119B. Advanced Studies in African Art: Central Africa

*201. Topics in Historiography of Art History

*C203A-*C203B. Museum Studies

C216A. Advanced Studies in African Art: Western Africa

C216B. Advanced Studies in African Art: Central Africa

219C. African Art

*220. Oceanic, Pre-Columbian, African, and Native North American Art

Berber (Near Eastern Languages)

*101A-101B-101C. Elementary Berber

*102A-102B-102C. Advanced Berber

*130. The Berbers

*199. Special Studies in Berber Languages

Community Health Sciences

*200. Global Health Problems

*231. Maternal and Child Nutrition

*233. Hunger and Food Insecurity as Public Health Issues

*M236. Human Resources and Economic Development

*246. Women's Roles and Family Health

*280. International Health Education: Training and Development

*294. Social and Behavioral Factors of AIDS/HIV: A Global Perspective

*430B. Advanced Issues in International Health

*434A. Maternal and Child Health in Developing Areas

*434B. Recent Developments in Maternal and Child Health in Disadvantaged Countries

*441. Advanced Program Planning and Evaluation in International Health

*443. Assessment of Family Nutrition

*445. Food and Nutrition Planning: Policies and Programs in World Context

*446. Nutrition Education and Training: Third World Considerations

*448. Nutrition Policies and Programs: Domestic and International Perspectives

Economics

*110. Economic Problems of Underdeveloped Countries

*111. Theories of Economic Growth and Development

*112. Policies for Economic Development

*190. International Economics

*191. International Trade Theory

*192. International Finance

*281A. International Trade Theory

*281B. International Finance

*281C. International Economics

*282A-282Z. Topics in International Economics

*286A. Economic Development

*286B. Cost-Benefit Analysis of Development Projects

*287A-287Z. Topics in Development Economics

Education

*C203. Educational Anthropology

*204B. Introduction to Comparative Education

*204C. Education and National Development

*204D. Minority Education in Cross-Cultural Perspective

*204E. International Efforts in Education

*238. Cross-National Analysis of Higher Education

*252B. Seminar: Education and Social Change

*253A. Seminar: Current Problems in Comparative Education

253B. Seminar: African Education

*253F. Seminar: Education in Revolutionary Societies

English

M111G. Oral Traditions in Africa

*114. World Literatures in English

M235. African Myth and Ritual

Epidemiology

- *290. Seminar: Epidemiology — Infectious and Tropical Disease
- *415. Epidemiology for Developing Countries
- *418. Rapid Epidemiologic Surveys in Developing Countries

Ethnomusicology

- 20B. Musical Cultures of the World: Near East and Africa
- 91E. Music and Dance of Ghana
- M110A-M110B. African American Musical Heritage
- 136A-136B. Music of Africa
- *201A-201B. Proseminars: Ethnomusicology
- 237. Seminar: African Music
- *290. Seminar: Ethnomusicology

Film and Television

- 106C. History of African, Asian, and Latin American Film
- *108. History of Documentary Film
- *112. Film and Social Change
- *218. Culture, Media, and Society
- *219. Seminar: Film and Society
- *221. Seminar: Film Authors
- 276. Seminar: Non-Western Films

Folklore and Mythology

- M154A-M154B. African American Musical Heritage
- M155. Oral Traditions in Africa
- M235. African Myth and Ritual
- 259. Seminar: Folklore (Africa)

French

- 121A. Contemporary Francophone Literature: French-African Literature
- 221A. French-African Literature: Introduction to Study of French-African Literatures
- 221B. French-African Literature: French-African Literature of Madagascar and Bantu Africa
- 221C. French-African Literature: French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa
- 257A-257B. Studies in French-African Literature

Geography

- *121. Conservation of Resources: Underdeveloped World
- 122. Wildlife Conservation in Eastern Africa
- *M128. Global Environment and Development: Problems and Issues
- *133. Cultural Geography of the Modern World
- 135. African Ecology and Development
- *140. Political Geography
- *M229. Resource-Based Development Issues: First World and Third World — Environmental Issues and Processes
- *232. Advanced Cultural Geography
- *233. Seminar: Cultural Geography
- *234. Environment and Subsistence in Indigenous Cultures
- *240. Advanced Political Geography: Geopolitics
- *241. Seminar: Political Geography
- *242. Advanced Population Geography

Health Services

- *240. Health Care Issues in International Perspective

History

- 10A-10B. Introduction to Civilizations of Africa
- 88N. Lower Division Seminar: Africa
- *M103A-M103B. Historical Archaeology
- 109A-109B. History of North Africa from the Moslem Conquest
- *M158B-M158C. Introduction to Afro-American History
- M175A. Topics in African History: Prehistoric Africa — Technological and Cultural Traditions
- 175B. Topics in African History: Africa and the Slave Trade

- 175C. Topics in African History: Africa in the Age of Imperialism
- 175E. Topics in African History: Africa from 1945 to the Present
- 176A-176B. History of West Africa
- 176C. Social and Economic History of West Africa since 1600
- 177. History of Northeast Africa
- 178A. History of East Africa
- 178B. History of Central Africa
- 179A-179B. History of Southern Africa
- 200N. Advanced Historiography: Africa
- 201N. Topics in History: Africa
- 275A-275B-275C. First-Year Colloquia: African History
- 278A-278B-278C. Research Seminars and Dissertations: African History

Political Science

- 133. International Relations of Sub-Saharan Africa
- *139A-139Z. Special Studies in International Relations
- 151A-151B-151C. African Politics
- *167A. Ideology and Development in World Politics
- *167B. Comparative Development and Administration
- *168. Comparative Political Analysis
- *169. Special Studies in Comparative Politics
- C197D. Seminar for Majors: South African Politics
- C241. African Politics
- *251. Political Economy of Structural Adjustment
- *255. Seminar: Political Change
- *258. Seminar: Political Violence

Sociology

- *31. Dilemmas of Third World Development

Theater

- 102E. Theater of Non-European World
- 202P. Seminar: Traditions of African Theater

Urban Planning

- *232B. Spatial Planning: Regional and International Development
- *235A-235B. Urbanization and Rural Development in Third World Countries
- *239. Special Topics in Urban and Regional Development Policy
- *266. City and Countryside in the Third World
- *M267A. Resource-Based Development Issues: First World and Third World — Environmental Issues and Processes
- *267B. Rural Development Issues

World Arts and Cultures

- 72B. Dance of West Africa
- C172B. Dance of West Africa
- 182. Dance in Africa and the African Diaspora
- C472B. Dance of West Africa

AFRICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
10244 Bunche Hall
Box 951310
Los Angeles, CA 90095-1310
(310) 825-2944
<http://www.isop.ucla.edu/jscasc/>

Hartmut S. Walter, Ph.D., *Chair*

Professors

Christopher Ehret, Ph.D. (*History*)
Teshome H. Gabriel, Ph.D. (*Film and Television*)
Thomas J. Hinnebusch, Ph.D. (*Linguistics, African Languages*)
Hartmut S. Walter, Ph.D. (*Geography*)

Scope and Objectives

The African Studies specialization is designed primarily for (1) students who plan to live and work in Africa or who are interested in government and public service careers involving African affairs and (2) students who plan to pursue graduate work in one of the social sciences or Near Eastern and African languages, with primary concentration on the African field.

The philosophy of the specialization is that people with a solid background in one of the established disciplines can make the best contribution to an understanding of Africa and its problems. Thus, the specialization can be taken only jointly with work toward a bachelor's degree, normally in one of the following fields: anthropology, economics, geography, history, linguistics, political science, or sociology.

Undergraduate Study

African Studies Specialization

Students completing the African Studies specialization receive a degree with a major in a selected discipline and a specialization in African Studies. The chair of the committee in charge certifies completion of the program.

Preparation for the Specialization

Required: History 10A-10B and either African Languages M190 or a three-term sequence in any African language.

Upper Division Requirements

Students are required to take a departmental major in the social sciences or, by special arrangement with the committee chair, in the humanities or arts. In addition, they are required to take an upper division course related to Africa in each of four departments.

For more information, contact the Assistant Graduate Adviser, African Studies Center, 10244 Bunche Hall (310-825-2944) or Professor Hartmut S. Walter, Geography, 1177 Bunche Hall (310-825-3116, 825-1071).

AFRO-AMERICAN STUDIES

Interdepartmental Program
College of Letters and Science

UCLA
2330 Murphy Hall
Box 951545
Los Angeles, CA 90095-1545
(310) 825-7403
<http://www.sscnet.ucla.edu/caas>

Valerie A. Smith, Ph.D., *Chair*

Professors

Walter Allen, Ph.D. (*Sociology*)
Gordon L. Berry, Ed.D. (*Education*)
Lawrence Bobo, Ph.D. (*Sociology*)
Devon Carbado, J.D., *Acting*
Kimberle W. Crenshaw, J.D., LL.M. (*Law*)
Jacqueline C. Djedje, Ph.D. (*Ethnomusicology*)
Teshome H. Gabriel, Ph.D. (*Film and Television*)
Sandra Graham, Ph.D. (*Education*)
Franklin D. Gilliam, Jr., Ph.D. (*Political Science*)
J. Eugene Grigsby III, Ph.D. (*Urban Planning*)
Cheryl I. Harris, J.D., (*Law*)
Edmund Keller, Ph.D. (*Political Science*)
Vickie M. Mays, Ph.D. (*Psychology*)
Claudia Mitchell-Kernan, Ph.D. (*Anthropology*)
Hector F. Myers, Ph.D. (*Psychology*)
Melvin Oliver, Ph.D. (*Sociology*)
Beverly J. Robinson, Ph.D. (*Theater*)
James Sidanius, Ph.D. (*English*)
Valerie A. Smith, Ph.D. (*English*)
Brenda Stevenson, Ph.D. (*History*)
M. Belinda Tucker, Ph.D., *in Residence*
Gail E. Wyatt, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Associate Professors

Robert A. Hill, M.Sc. (*History*)
Arthur A. Little, Ph.D. (*English*)
Marcyliena H. Morgan, Ph.D. (*Anthropology*)
Harryette Mullen, Ph.D. (*English*)
Jenny Sharpe, Ph.D. (*English*)
Richard A. Yarborough, Ph.D. (*English*)

Assistant Professors

Cheryl Keyes, Ph.D. (*Ethnomusicology*)
David M. Porter Jr., *Acting (Management)*
Renee Smith-Maddox, Ph.D. (*Education*)
Michael Stoll, Ph.D. (*Policy Studies*)

Lecturers

Kenny Burrell, B.A.
Paul Von Blum, J.D.

Visiting Associate Professor

K. W. Kgositsile, Ph.D. (*English*)

Scope and Objectives

Originally born during the late 1960s and early 1970s, the Afro-American studies major was designed to fill a void that existed at UCLA in terms of scholarly and curricular material relevant to the African American experience. Students and faculty currently associated with the program see the major as meeting a number of academic, personal, and social needs.

The program offers both a Bachelor of Arts and a Master of Arts degree. While it is important that students become expert within a traditional discipline, it is even more important that they examine both the truth and the fiction regarding the African American experience in the U.S. For African American students, this leads

to a heightening of self-awareness and self-pride. For non-African American students, such a major provides a broadening of perspectives to take into account more than a singular cultural view.

The fundamental goal of the curriculum is to provide students with a comprehensive and multidisciplinary introduction to the crucial life experiences of African Americans. This goal is achieved in two primary ways. First, it provides an interdisciplinary exposure to particular features of the African American experience. Majors gain an in-depth understanding of the historical, anthropological, sociological, psychological, economic, and political aspects of African America. The curriculum also provides opportunities to study the literary, musical, and artistic heritage of peoples of African descent. Second, students gain expertise in the concepts, theories, and methods of a traditional academic discipline. Majors are required to select an area of concentration in one of the following fields: anthropology, economics, English, history, philosophy, political science, psychology, or sociology (concentrations in departments not listed must be approved by the program adviser).

Undergraduate Study

Afro-American Studies B.A.

The B.A. program in Afro-American Studies is periodically revised; check with the program office for changes and/or updates.

Preparation for the Major

Required: History 10A and the courses listed in one of the following concentrations, plus three courses from at least two additional concentrations (requisites for the courses listed must be completed before enrolling in a given course; this is especially important for the quantitative courses in economics and psychology): *anthropology* — Anthropology 8, 9, 10 (or 7), 12; *economics* — Economics 1, 2, M40, Mathematics 3A, 31E (or 3A and 3B, or 31A and 31B); *English* — English Composition 3, English 4, 10A, 10B, 10C (all must be taken in sequence); *history* — History 1A-1B-1C, 10B, 13A-13B-13C, and 99 or 100; *philosophy* — Philosophy 4, 21, 22, 31; *political science* — Economics 1, Political Science 6, 20, 40, Sociology 1; *psychology* — Anthropology 7, Mathematics 2, Organismic Biology, Ecology, and Evolution 2, Physics 10 (or 1A or 3A or 6A), Psychology 100A, 100B, one year of high school chemistry (or Chemistry and Biochemistry 2 or 20A); *sociology* — Afro-American Studies M5 or Anthropology 34, Anthropology 9, Mathematics 2, Sociology 1, M18. Students are strongly urged to complete the required lower division courses within the first two years of the major.

The Major

Required: (1) Anthropology M164, English M104A or M104B or M104C, History M158B-M158C; (2) four upper division and/or graduate

courses in Afro-American studies (or four departmental courses that are multiple-listed with Afro-American Studies); (3) six upper division electives within the department of concentration selected from the approved courses listed below; (4) two upper division electives outside the department of concentration selected from the approved courses list. Note: Students may petition the committee which administers the degree program to have a course not on the approved list accepted for the major. In arranging a course of study, students should select a combination of courses that best meets their current and future educational and career goals.

Approved courses (recommended courses are indicated by an asterisk):

Afro-American Studies *100B, *C101, *M104A, *M104B, *M104C, *M144, *M145, *M158A, *M158B, *M158C, *M158E, *M164, *M172, *M197A, *197B, *199

Anthropology 110, *111, 115P, 120, 124, *130, 135A, 135B, M136Q, 138, *M140, 142A, 142B, *M145, *150, *151, *152, *153, M154P, M154Q, 158, 161, *M164, *167, M168, *171, 180, 182, 186, *199

Economics *11, *101, *102, *103A through *103Z, 107, *110, 111, 112, *120, 130, 133, M135, M136, 144, 147A, 147B, 150, *151, 160, 161, *180, 183, 190, 191, 192, *199

English 80, 85, 95A, 95B, 95C, 100, *M104A, *M104B, *M104C, M105A, 106, M107A, M107B, M107C, 108A, 108B, *109, *M111A, 114, 115A, 118, 140A, 140B, 141A, 141B, 142A, 142B, 143, 171A, 171B, 173B, 174B, *178, 188, 189, *190, *M197A, *199

English Composition 131A through 131D, 136A, 136B, 136C

History 99, 100, M104A, M104B, 107A, 107B, 109A, 109B, 135A, 135B, *145A, *145B, *146, *147A, 147B, 148A, 148B, 148C, 149A, 149B, *154A, *154B, *156A through 156E, *M158A through *M158E, M159A, M159B, 160A, 160B, 161, 166, *M175A, *175B, *175C, 176A, 176B, 177, 178A, 178B, 179A, 179B, 193A, *199

Philosophy 100A, 100B, M101A, M101B, M102, *104, 124, 125, *126, 129, *150, 151A, 151B, 153A, C156, 166, *172, 178, 182, *M192, *199

Political Science *102, *104A, *104B, *M105, *M106, 111A, 111B, 111C, 113, *114A, *114B, 115, *116, 119A through 119Z, 120, 123A, 123B, 124, 125, 126, 131, *137A, *137B, M139A, *M141A, 141B, *141C, 142A, *142B, 142C, 143A, 143B, *M144B, 145A through 145D, 146E, *151A, *151B, *151C, *167A, 167B, *168, *199

Psychology *100B, *110, *111, 112B, *115, 116, 119D, *120, 121, 123, *127, 129A, 129B, *130, *132, *135, *136A, 136B, 137C, 137D, M138, *142H, 150, *151, M163, M165, *170A, *170B, *M172, *175, 177, 179A, *192, *193, *194A, *197, *199 (note: courses 110, 115, 120, 125, 127, 135, 142H, and 151 should be

taken by students planning to pursue graduate study in psychology)

Sociology *101, *102, *103, *104, 105, *113, 116, 132, *133, *134, 135, 136, M138, 144, 145, 147A, *147B, 148, *156, *157, *158, *160, 169, 170, 171, M174, M175, M176, 182, *183, *184, *185, 186, 195A through 195Z, *197A through *197Z, *199

Honors Option

Students participating in the honors option are required to complete an independent research paper or project undertaken with the guidance of a faculty member. Afro-American Studies majors with grade-point averages of 3.5 or better complete the honors option by writing an undergraduate thesis. For more information, contact the curriculum coordinator of the Afro-American Studies Program.

Double Major Option

Some students elect to complete the requirements of two majors (Afro-American Studies and another). Students interested in this option must maintain good academic standing and complete both majors within the 228-unit maximum imposed by the college. Courses used to satisfy the requirements for the principal major may also be used to satisfy the requirements for the secondary one, but no more than five courses may be common to both majors. Because of the complexity of the double major, students are encouraged to plan their curriculum early and to do so in consultation with the college counselors and/or the Afro-American Studies Program adviser or curriculum coordinator.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Afro-American Studies Program offers the Master of Arts (M.A.) degree in Afro-American Studies.

Admission

Applicants for admission to the M.A. program must possess a bachelor's degree in the social sciences or humanities and demonstrate an interest in African American studies either through their previous course of study or in their future plans. Students are selected on the basis of the following criteria: (1) official transcripts; (2) three academic letters of recommendation; (3) a minimum 3.0 or B average in the junior/senior years of college; (4) a statement of purpose describing their background

in African American studies, proposed program of study, and future career goals; (5) scores on the verbal and quantitative sections of the Graduate Record Examination (GRE); (6) an original term paper or research paper which best expresses their interests and abilities; and (7) other evidence of promise that is deemed relevant, such as work experience, accomplishments, or community and public service.

Admission to the program is limited to Fall Quarter. Prospective students may request applications from the program office.

Areas of Study

The M.A. in Afro-American Studies is interdepartmental, with formal support linkages to nine disciplinary departments: Anthropology, English, History, Linguistics, Music, Philosophy, Political Science, Psychology, and Sociology. Related courses are also offered in the following schools and departments: Art, Dance, Economics, Geography, Psychiatry and Biobehavioral Sciences, Theater, Folklore and Mythology, Latin American Studies, African Area Studies, Education, Library and Information Science, Management, Public Health, Social Welfare, and World Arts and Cultures.

Course Requirements

A total of 12 upper division and graduate courses are required for the degree. Of that number, only four may be selected from upper division listings. The program has a structured core of six required courses. Students are required to take Afro-American Studies M200A, three courses from 200B through 200F, 270A, and one graduate-level course in research methods (for social sciences students) or critical theory (for humanities students). The methods course should be selected from the list approved by the interdepartmental degree committee (students may petition to substitute an appropriate upper division course if their outside department's methods course is closed to nonmajors). These courses should normally be taken in the first year of study. The second year is devoted to acquiring disciplinary competence in the cognate field, and six courses must be selected from that discipline.

Eight units of 500-series courses (excluding 597 and 598) may be applied to either the total course requirement or the minimum graduate course requirement.

Comprehensive Examination Plan

Students may elect to complete the M.A. degree through the comprehensive examination option. The examination is administered by a committee consisting of at least three faculty members appointed by the program. The examination is offered on a regular basis.

Thesis Plan

The thesis is the final report on the results of the student's original investigation. Before beginning work on the thesis, students should consult closely with their academic adviser and the thesis committee.

Afro-American Studies

Lower Division Courses

M5. Social Organization of Black Communities. (4) (Same as Sociology M5.) Lecture, three hours; discussion, one hour. 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.

6. Trends in Black Intellectual Thought. (4) Overview of major intellectual trends that have shaped ways in which Afro-American thinkers have interpreted experiences of blacks in the U.S., drawing from such fields as history, philosophy, and literature.

Upper Division Courses

100B. Psychology from an Afro-American Perspective. (4) Survey of psychological literature relevant to Afro-Americans, with emphasis on contributions of Afro-American psychologists. Topics include history of psychology, testing and intelligence, the family, personality and motivation, racism and race relations, education, community psychology, and future of Afro-American psychology.

C101. Special Topics in Afro-American Studies. (4) Variable topics. May be repeated for credit. Concurrently scheduled with course C201.

M102. Culture, Media, and Los Angeles. (6) (Same as Asian American Studies M197H 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.

M103A. 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 the mid-1800s.

M103B. African American Theater History: Minstrel Stage to Rise of the 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 the minstrel stage to the rise of the American musical.

M103E. African American Theater History: The Depression to the Present. (4) (Same as Theater M103E.) 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 the Depression to the present.

M104A. Early Afro-American Literature. (4) (Same as English M104A.) Preparation: satisfaction of Subject A requirement. Introductory survey of black American literature from the 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, David Walker, Frances Harper, Frederick Douglass, Harriet Jacobs, Paul Laurence Dunbar, Charles W. Chesnut, Booker T. Washington, and Pauline Hopkins.

M104B. Afro-American Literature from the Harlem Renaissance to the 1960s. (4) (Same as English M104B.) Preparation: satisfaction of Subject A requirement. Introductory survey of 20th-century black American literature from New Negro Movement of post-World War I period to the 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Sterling Brown, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, and Ralph Ellison.

M104C. Afro-American Literature since the 1960s. (4) (Same as English M104C.) Preparation: satisfaction of Subject A requirement. Introductory survey of diverse forms of Afro-American literary expression produced from rise of Black Arts Movement of the 1960s to the present by writers such as Amiri Baraka, Nikki Giovanni, Alice Walker, Etheridge Knight, Toni Morrison, Martin Luther King, Jr., Paule Marshall, Ernest Gaines, Ishmael Reed, and Audre Lorde. P/ NP or letter grading.

M107. Cultural History of Rap. (4) (Same as Ethnomusicology M119 and Folklore M110.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and allied forms, 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.

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

M110A-M110B. African American Musical Heritage. (4-4) (Same as Ethnomusicology M110A-M110B and Folklore M154A-M154B.) Lecture, four hours; discussion, one hour. Study of African music and its impact on the Americas; survey of development of various African American musical genres from slave era to the present, including traditions in the West Indies and Central and South America.

CM112D. African American Art. (4) (Same as Art History CM112D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. Concurrently scheduled with course CM212D. P/NP or letter grading.

M120. Race, Inequality, and Public Policy. (4) (Same as Policy Studies M120.) Lecture, three hours. 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.

M144. Ethnic Politics: African American Politics. (4) (Same as Political Science M144B.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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 the U.S., touching on conditions facing racial and ethnic groups, with black Americans being the primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of the black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills.

M145. Ellingtonia. (4) (Same as Ethnomusicology M111.) Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as "Ellingtonia," is one of the largest and perhaps most important bodies of music ever produced in the U.S. Covers the many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington.

M158A. Comparative Slavery Systems. (4) (Same as History M158A.) Designed for juniors/seniors. Examination of the slavery experience in various New World slave societies, with emphasis on outlining similarities and differences among the legal status, treatment, and slave cultures of North America, Caribbean, and Latin American slave societies.

M158B-M158C. Introduction to Afro-American History. (4-4) (Same as History M158B-M158C.) Designed for juniors/seniors. Survey of the Afro-American experience, with emphasis on the 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.

M158E. African American Nationalism in First Half of the 20th Century. (4) (Same as History M158E.) Designed for juniors/seniors. Critical examination of the African American search in first half of the 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

M164. Afro-American Experience in the U.S. (4) (Same as Anthropology M164.) Promotes understanding of contemporary sociocultural forms among Afro-Americans in the U.S. by presenting a comparative and diachronic perspective on the Afro-American experience in the New World. Emphasis on utilization of anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among black Americans.

M166. Afro-American Sociolinguistics: Black English. (4) (Same as Anthropology M145.) Lecture, three hours. Basic information on Black American English, an important minority dialect in the U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through a case-study approach.

M172. The Afro-American Woman in the U.S. (4) (Same as Psychology M172 and Women's Studies M172.) Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of a large society and as members of their biological and ethnic group.

M175. Interracial Work, Friendship, and Love Relationships of African American Men and Women. (4) (Same as Women's Studies M173.) Seminar, three hours. Examination of factors that influence development, maintenance, and dissolution of interracial relationships of African Americans in three areas: work life, friendships, and intimate love relationships. P/NP or letter grading.

M195. Investigative Journalism and Communities of Color. (4) (Same as Asian American Studies M163.) Lecture, three hours. Role of investigative journalism in understanding interethnic conflict and cooperation. Exploration of different perspectives on issues by comparing mainstream, ethnic, and alternative media coverages.

M197A. Topics in Afro-American Literature. (4) (Formerly numbered M197.) (Same as English M197A.) Variable specialized studies course in Afro-American literature. Topics include the Harlem Renaissance; Afro-American Literature in the Nadir, 1890 to 1914; Contemporary Afro-American Fiction. May be repeated for credit. P/NP or letter grading.

197B. Special Studies in Comparative Literature: Caribbean Literature. (4) General introduction to literature of the English-speaking Caribbean by reviewing its historical and geographical background. To analyze the historical process toward self-determination in the literature, the following topics are included: (1) alienation and the search for community, (2) "external" relationships (the ancestor, the kinsman, the other), and (3) form and language.

199. Special Studies in Afro-American Studies. (2 to 4) To be arranged with faculty member who directs the study. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Intensive directed research project. Eight units may be applied toward major requirements.

Graduate Courses

M200A. Advanced Historiography: Afro-American. (4) (Same as History M200V.) Seminar, three hours. May be repeated for credit.

200B. Seminar: Political Economy of Race. (4) Seminar on political economy, with special reference to black political economy and with focus on dynamics of allocation of wealth and power resources among social classes and racial and ethnic groups in the U.S. Presented in a context that is at once comparative and international, seminar emphasizes internationalism and transnationalism as well as the uniqueness of the Afro-American condition. Attempts to relate the black condition in the U.S. to the socio-economic system of this country and to compare it to political, social, and economic conditions of African peoples elsewhere.

M200C. Selected Problems in Urban Sociology. (4) (Same as Sociology M262.) Seminar.

M200D. Afro-American Sociolinguistics: Black English. (4) (Same as Anthropology M243Q.) Lecture, three hours. Basic information on Black American English, an important minority dialect in the U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through a case study approach. Students required to conduct research in consultation with instructor and participate in group discussion.

M200E. Studies in Afro-American Literature. (4) (Same as English M262.) 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.

200F. African American Psychology. (4) Seminar. Survey of psychological literature as it pertains to persons of African American descent. Critical review of implications of "mainstream" research on African Americans, including discussion of research on the family, academic achievement, and psychological assessment (testing). Emphasis also on theoretical approaches advanced by African American scholars: African philosophy, perspectives on racism in psychology, and research in the black community.

C201. Special Topics in Afro-American Studies. (4) Variable topics. May be repeated for credit. Concurrently scheduled with course C101.

M211. Seminar: African American Music. (4) (Same as Ethnomusicology M211.) Seminar, three hours. Requisites: Ethnomusicology M110A-M110B. Designed for graduate students. Intensive investigation of problems, theories, and methods of research related to study of African American music. Emphasis on relationship of problems to representative styles of African American music.

CM212D. African American Art. (4) (Same as Art History CM212D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. Concurrently scheduled with course CM112D. S/U or letter grading.

M240. 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 an African American child and family.

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.

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.

596. Directed Readings and Tutorials. (4) Provides students with umbrella under which they can pursue specialized interests from which there is insufficient demand to warrant offering a formal course.

597. Preparation for M.A. Comprehensive Examination. (4 or 8) Limited to graduate students. May not be applied toward M.A. course requirements. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4 or 8) Limited to graduate students. May not be applied toward M.A. course requirements. S/U grading.

AMERICAN INDIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
3220 Campbell Hall
Box 951548
Los Angeles, CA 90095-1548
(310) 825-7315
<http://www.sscnet.ucla.edu/indian/IDPHome.html>

Paul V. Kroskrity, Ph.D., *Chair*

Professors

Richard L. Abel, LL.B., Ph.D. (*Law*)
Duane Champagne, Ph.D. (*Sociology*)
Carole E. Goldberg, J.D. (*Law*)
Cecelia F. Klein, Ph.D. (*Art History*)
Kenneth R. Lincoln, Ph.D. (*English*)
Pamela L. Munro, Ph.D. (*Linguistics*)
Peter Nabokov, Ph.D. (*World Arts and Cultures*)
Gregory M. Sarris, Ph.D. (*English*)

Professors Emeriti

Robert A. Georges, Ph.D. (*English*)
Charlotte A. Heth, Ph.D. (*Ethnomusicology*)
Gary B. Nash, Ph.D. (*History*)
Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)

Associate Professors

Paul V. Kroskrity, Ph.D. (*Anthropology*)
Melissa Meyer, Ph.D. (*History*)

Assistant Professor

Tara Browner, Ph.D. (*Ethnomusicology*)

Visiting Associate Professor

Hanay Geigamah, B.F.A. (*Theater*)

Scope and Objectives

Because UCLA possesses a substantial number of faculty in the humanities and social sciences engaged in teaching and conducting research on American Indians, the nation's first interdisciplinary M.A. program in American Indian Studies was established here.

The program draws primarily on existing courses in the participating departments, where research and research methodologies are of primary concern. Students are exposed to Indian-related research in a number of different disciplines; demonstration of research skills is required. Students graduate with the training they need to teach Native American studies or to serve in an administrative capacity in Indian programs. The M.A. program ranks

among the top Indian studies programs in the country.

Undergraduate Study

American Indian Studies Minor

The American Indian Studies minor is designed for students who wish to augment their major program of study in the College of Letters and Science with a group of related courses from various disciplines germane to American Indian studies. The minor exposes students to Indian-related research and literature in a number of different disciplines, such as anthropology, economics, history, political science, sociology, and theater.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units, and file a petition at the American Indian Studies Center, 3220 Campbell Hall, (310) 206-7511. All degree requirements, including the specific requirements for this minor, must be fulfilled within 228 units.

Required Lower Division Course (four): American Indian Studies 10 with a grade of C or better.

Required Upper Division Courses (28): Seven courses selected from the following: (1) one American Indian languages and communication systems course (Anthropology 144 or Linguistics 114); (2) three history and social sciences courses from Anthropology 113Q, 113R, 114P, 114Q, 114R, 118A, 118B, 158, 172R, History 157A, 157B, 165C, Sociology M161, Women's Studies 130; (3) three humanistic perspectives on language and expressive culture courses from Art History C117A, C117B, C117C, 118D, English 106, 180X, Ethnomusicology 106A, 106B, 106C, Folklore and Mythology 130, Theater 103F, World Arts and Cultures C187.

A minimum of 20 units applied toward the minor requirements must be **in addition** to courses applied toward major requirements, and at least 16 units applied toward the minor must be taken in residence at UCLA. All minor courses must be taken for a letter grade, with a minimum grade of C (2.0) in each and an overall C average. Transfer credit for any of the above is subject to departmental approval; consult the interdepartmental adviser before enrolling in any courses for the minor.

Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at

<http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The American Indian Studies Program offers the Master of Arts (M.A.) degree in American Indian Studies and participates in a concurrent degree program with the School of Law.

Admission

A bachelor's degree from an accredited undergraduate institution is required for admission to the M.A. program. Applicants must demonstrate interest in American Indian studies either by formal coursework, independent study, or practical experience. As part of the application, applicants must submit a detailed account of their background, potential career plan, and interest in American Indian studies. Preference is given to individuals with undergraduate majors relevant to the proposed areas of concentration within the M.A. degree: anthropology, English, history, linguistics, literature, sociology, fine arts, or American Indian studies.

Entering students must meet the University's minimum admission requirement of a 3.0 grade-point average in all work completed during the last two undergraduate years and in all prior graduate work. The Graduate Record Examination (GRE) is not required, but applicants are encouraged to take the examination and submit test results as part of the documents supporting their enrollment application. At least three faculty letters of recommendation must be submitted. Admission to the program is limited to Fall Quarter. Application forms and further information may be obtained from the Committee to Administer the M.A. Degree in American Indian Studies.

J.D./M.A. American Indian Studies

The American Indian Studies program and the School of Law offer a concurrent degree program whereby students may pursue the M.A. and the Juris Doctor degrees at the same time. For admission, applicants are required to satisfy the regular admission requirements of both schools. For the curriculum, 10 courses are required for the degree, of which seven must be at the graduate level. Only 12 units of law are allowed to be double-counted toward the M.A. degree by petition to the Graduate Division. Applicants interested in the program should contact the American Indian Studies Program.

Areas of Study

The American Indian Studies M.A. is an interdepartmental program with 13 participating academic schools and departments: Anthropology, Art, Education, English, Ethnomusicology, Folklore and Mythology, History, Law, Library and Information Science, Linguistics, Music, Sociology, and Theater. The disciplines are grouped into four areas of concentration: history and law; expressive arts; social relations; and language, literature, and folklore. Courses related to the American Indian Stud-

ies M.A. are also offered in the following departments: Political Science, Social Welfare, and Psychology.

Course Requirements

A minimum of 10 courses is required, at least seven of which must be graduate courses. Four courses are required: American Indian Studies M200A, M200B, M200C, which must be taken in the first year, and one of the language/linguistics options described below, which must be taken by the end of the second year. In addition, one of the remaining six courses must be a graduate course concerned with research methodology.

One of the following courses must be completed to fulfill the language/linguistics requirement: (1) Linguistics 114; (2) Anthropology 243P; or (3) for native speakers of an American Indian language, an independent study course (taken with consent of the instructor) in either linguistics or anthropology, designed and supervised by a consenting faculty member, in which the objective of the course is to impart a structural knowledge of the student's language. These courses are designed to show how American Indian languages and communicative norms are primary vehicles for understanding American Indian cultures.

Students select one area of concentration: (1) history and law, (2) expressive arts, (3) social relations, (4) language, literature, and folklore. Students can petition for optional combinations of interdisciplinary work through the committee to administer the program. In addition to the four required courses, students must complete a minimum of four courses in an area of concentration. Three of these must be graduate-level courses. Two additional courses are to be chosen from other areas of concentration. Courses must be chosen from an approved list maintained by the program.

Two courses in the 500 series may be applied toward the 10-course requirement. However, only one 596 course may be applied toward the program requirement of seven graduate courses.

Comprehensive Examination Plan

A proposed comprehensive examination committee, composed of three faculty members (two from the major area of concentration and one from the minor area), must be submitted to the Graduate Advisory Subcommittee by the end of the fourth quarter of study. The comprehensive examination normally consists of a written examination in the major area of concentration and in the minor area of concentration. The written examination is typically followed by an oral discussion of the student's answers involving both the student and the committee members. The examination is designed and evaluated by the student's M.A. committee. Students should work closely with their committee members in preparing for the examination.

Thesis Plan

A proposed thesis committee, composed of three faculty members (two from the major area of concentration and one from the minor area), must be submitted to the Graduate Advisory Subcommittee by the end of the fourth quarter of study. Students must also submit a thesis proposal to their M.A. committee by the end of the fourth quarter of study. The M.A. thesis should demonstrate the student's ability to define and solve a significant problem in the area of concentration. It should give evidence of mastery of theory and methodology relevant to the topic, familiarity with literature in the field, competency in research techniques, and ability to make an original contribution to the field. Copies of the thesis must be submitted to each member of the committee by the fifth week of the quarter in which students expect to graduate.

American Indian Studies

Lower Division Course

10. Introduction to American Indian Studies. (4) Lecture, four hours; discussion, one hour. Survey of selected Native North American cultures from pre-Western contact to the 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.

Upper Division Courses

M161. Comparative American Indian Societies. (4) (Same as Sociology M161.) Lecture, three hours. Prerequisite: course 10 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.

197. Special Topics in American Indian Studies. (4) Variable topics selected from the following: Myth and Folklore of Indian Societies; Contemporary American Indian Literature; Social Science Perspectives of American Indian Life; Law and the 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.

199. Special Studies in American Indian Studies. (2 to 4) Special individual studies on topics in American Indian studies. P/NP or letter grading.

Graduate Courses

M200A. Advanced Historiography: American Indian Peoples. (4) (Same as History M200W.) Seminar, three hours. Designed to familiarize students with major genres of literature related to American Indian history. Subjects include theories of Indian origins, historical demography, Euro-American attitudes toward Indian peoples, studies of U.S. Indian policy, and tribal histories. Standard theoretical approaches, including cultural ecology and dependency theory.

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.

M200C. Contemporary Issues of the American Indian. (4) (Same as Anthropology M269 and Sociology M275.) Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in the contemporary world, building on historical background presented in course M200A and cultural and expressive experience of American Indians presented in course M200B.

201. Topics in American Indian Studies. (4) Discussion, three hours.

M228. Seminar: Indian Law — Tribal Legal Systems. (4) (Same as Law M528.) Study of historic and contemporary legal systems of selected tribes, with emphasis on relationships among law, religion, and social order.

M267. Indian Law. (5) (Same as Law M267.) Lecture, three hours (15 weeks). Special legal status of American Indians and Indian tribes and tension between moral/legal claims and political forces. Sources and scope of federal, state, and tribal power on Indian reservations; property law concepts unique to Indian tribes and Indians; rights of American Indians in relation to federal, state, and tribal governments and federal trust relationship to Indians.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (4 to 8) S/U or letter grading.

598. Research for and Preparation of M.A. Thesis. (4 to 8) Preparation of research data and writing of M.A. thesis. S/U grading.

ANESTHESIOLOGY

School of Medicine

UCLA
56-131 Center for the Health Sciences
Box 951778
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<http://www.anes.ucla.edu>

Chairs

Patricia A. Kapur, M.D., *Chair*
Robert D. Kaufman, M.D., *Vice Chair*
Stanley W. Stead, M.D., *Vice Chair*
Enrico Stefani, Ph.D., M.D., *Vice Chair*
Selma H. Calmes, M.D., *Chair, Olive View-UCLA*
Richard Y. Z. Chen, M.D., *Interim Vice Chair, VA Greater Los Angeles Health Care System*
Elaine C. Yang, M.D., *Acting Vice Chair, Harbor-UCLA*

Scope and Objectives

The medical student program in anesthesiology focuses on the delivery of peri-operative

care to surgical patients. During their training in the department, students develop clinical skills of medical management of surgical patients, techniques of invasive line and monitor placement, and airway management skills. They are assigned to work with a specific attending anesthesiologist and/or anesthesia resident on a daily basis in one of the operating room locations and participate in the preoperative evaluation and preparation of their patients and development of an anesthetic plan. Students then observe how to prepare for and execute their anesthetic plan. They have opportunity to perform procedures as their abilities and the situation permit. In addition, the department has established the Human Patient Simulator which provides students with a simulated operating room setting where a variety of clinical situations are initiated so they can practice their clinical skills. Students are also expected to attend clinically oriented lectures on a wide range of anesthesia topics, including physiology, pharmacology, and critical care.

For further details on the Department of Anesthesiology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

ANTHROPOLOGY

College of Letters and Science

UCLA
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Alessandro Duranti, Ph.D., *Vice Chair*

Professors

Jeanne Arnold, Ph.D., *in Residence*
Robert Boyd, Ph.D.
Karen B. Brodtkin, Ph.D.
Carole H. Browner, Ph.D.
Christopher B. Donnan, Ph.D.
Alessandro Duranti, Ph.D.
Robert B. Edgerton, Ph.D.
Linda C. Garro, Ph.D.
Marjorie Goodwin, Ph.D.
Douglas Hollan, Ph.D.
Allen W. Johnson, Ph.D.
Claudia Mitchell-Kernan, Ph.D.
Michael Raleigh, Ph.D.
Dwight Read, Ph.D.
Joan Silk, Ph.D.
Russell Thornton, Ph.D.
James Diego Vigil, Ph.D.
Thomas S. Weisner, Ph.D.

Professors Emeriti

C. Rainer Berger, Ph.D.
Nicholas Blurton Jones, Ph.D.
William O. Bright, Ph.D.
Walter R. Goldschmidt, Ph.D.
Peter B. Hammond, Ph.D.
John G. Kennedy, Ph.D.
Lewis L. Langness, Ph.D.
Jacques Maquet, Ph.D.
Michael Moerman, Ph.D.
Philip L. Newman, Ph.D.

Henry B. Nicholson, Ph.D.
Wendell H. Oswalt, Ph.D.
Merrick Posnansky, Ph.D.
Douglass R. Price-Williams, Ph.D.
James R. Sackett, Ph.D.
Johannes Wilbert, Ph.D.
Bobby Joe Williams, Ph.D.

Associate Professors

Alan Page Fiske, Ph.D.
Gail E. Kennedy, Ph.D.
Paul V. Kroskrity, Ph.D.
Richard M. Leventhal, Ph.D.
Nancy E. Levine, Ph.D.
Marcyliena H. Morgan, Ph.D.
Anna Simons, Ph.D.
Charles Stanish, Ph.D.
Mariko Tamanoi, Ph.D.
Yunxiang Yan, Ph.D.

Assistant Professors

Daniel Fessler, Ph.D.
Richard Lesure, Ph.D.
Joseph H. Manson, Ph.D.
Kyeoung Park, Ph.D.
Susan Perry, Ph.D.
Thomas W. Plummer, Ph.D.

Adjunct Professor

Sondra Hale, Ph.D.

Scope and Objectives

Anthropology, the broadest of the social sciences, is the study of humankind. One of the strengths of anthropology as a discipline is its "holistic" or integrative approach; it links the life sciences and the humanities and has strong ties with disciplines ranging from biology and psychology to linguistics, political science, and the fine arts. Anthropological study is appropriate for people with a wide variety of interests: human cultures and civilizations both present and past, human and animal behavior, particular regions of the world such as Africa, Asia, Latin America, Oceania, etc.

The department recognizes the following four fields in anthropology:

Archaeology is diverse in both methodology and geographic coverage. The greatest strengths within the department lie in the study of cultural evolution, complex societies, hunters/gatherers, iconography, craft specialization, quantitative analysis, and political economy and include major programs focused on Western North America, California, and the high cultures of Mesoamerica and South America.

Biological anthropology is the study of humans and other primates from a Darwinian point of view. The program focuses on the evolutionary ecology of early hominids, extant primates, and contemporary humans and includes training in evolutionary theory, behavioral ecology, evolutionary psychology, paleoanthropology, paleoecology, primate behavior, and mathematical modeling. Faculty members associated with the program have engaged in fieldwork in Africa, Central America, and Southeast Asia where ongoing projects include work on primate behavior, hominid evolution, and evolutionary psychology.

Linguistic anthropology is an interdisciplinary field which addresses the manifold ways in which communication and culture mutually define one another in different communities worldwide. Linguistic anthropologists at UCLA have a variety of backgrounds and research interests which include the ethnography of face-to-face communication, language contact and change, verbal art and performance, and language and education. Courses are offered in ethnographic approaches to discourse analysis, field methods, conversational analysis, and urban sociolinguistics, as well as in cross-cultural pragmatics, including visual aspects of communication.

Sociocultural anthropology concerns the examination and understanding of social systems and cultural perceptions, and the human capacities which enable them. Its goal is to understand their operation in specific settings and to understand the experience of individuals who live in these diverse systems. Faculty members have engaged in fieldwork in almost every area of the world, but most notably in Africa, South America, East and Southeast Asia, and Oceania. They have also engaged in ethnographic research among Americans with diverse ethnic identities and in various institutional settings.

Cutting across the four fields are three other categories of course offerings: **applied anthropology, regional cultures, and history, theory, and method.**

The department offers Bachelor of Arts and Bachelor of Science degrees in Anthropology for undergraduates; the graduate program leads to the Master of Arts and Ph.D. degrees. Studies in anthropology are particularly valuable for students planning careers in which an understanding of human behavior and cultural diversity is desirable, such as business, education, law, medicine, nursing, public health, social welfare, and urban planning. Because of its breadth of outlook, anthropology also offers an ideal basis for those seeking a general education in our increasingly interdependent world.

Undergraduate Study

Anthropology B.A.

Preparation for the Major

Required: Anthropology 7 (or 10 and 12), 8, 9, 33, and one elective from 10, 12, M80, 88. *All courses must be taken for a letter grade, and students must maintain an overall 2.0 grade-point average.*

The Major

The major is designed for students interested in an anthropological understanding of human behavior. One of the strengths of anthropology is its cross-cultural "holistic" and integrative approach with many fields, such as biology, history, linguistics, the social sciences, and many of the humanities.

To provide a comprehensive understanding of the discipline as a whole, students must take two courses in the sociocultural anthropology field and one course in each of the other three fields (see "Scope and Objectives"). Students may take any upper division course in the given area to fulfill this requirement. *All courses must be taken for a letter grade, and students must maintain an overall 2.0 GPA.*

Students must complete 15 four-unit courses as follows:

- (1) Two upper division courses in the sociocultural anthropology field and one in each of the other three fields (archaeology, biological anthropology, and linguistic anthropology).
- (2) One upper division region and society course.
- (3) One upper division history/theory course.
- (4) One upper division methodology course.
- (5) Four additional upper division anthropology courses.
- (6) A cluster of three related fields courses that demonstrate cohesion, to be selected in consultation with the undergraduate adviser and approved by the department.

Concentrations for the Major

Concentrations, although not required, may help define and structure an Anthropology major when students want emphasis in one of the four major fields. Whether or not they opt for a concentration, the requirements for the major must still be satisfied. It is possible to use courses within their specified concentration to fulfill overlapping requirements for the major. Exceptions to the requirements below are by petition only. More detailed information on the concentrations is available from the undergraduate adviser.

(1) *Archaeology*: Anthropology 115P, 117 (fieldwork); two courses from 110, 111, 183; one methods course from M115A, M115B, C115R, M116Q, 117P, 118A, C126P, 129Q, 138; one quantitative methods course from M80, 180, 186; one area course from 112, 113P, 113Q, 113R, 114P, 114Q, 114R; three theory courses from 120, 124, 132, 133Q, 133R, 150, 152, 153, 156, 158, 186P, CM189A, CM189B, Geography 140, 148, Sociology 101

(2) *Biological Anthropology*: Anthropology 120; one quantitative methods course from M80, 180, 186; one methods course from 115P, M116Q, 117, 117P, C126P, 143; one human biology and behavioral ecology course from 124, 186P, CM189A, CM189B; one paleoanthropology course from 121A, 121B, 121C, or both 12 and 129Q (credit is not granted for both courses 7 and 12); one human genetics course from Molecular, Cell, and Developmental Biology CM156, Organismic Biology, Ecology, and Evolution C135; one primate behavior course from Anthropology 128A, 128B, Organismic Biology, Ecology, and Evolution 129

(3) *Linguistic Anthropology*: Anthropology 33, M140, Linguistics 20, Sociology CM124A; two methods courses from Anthropology 141, 142A, 143, Linguistics 103; one ethnography course from Anthropology 144, M145, 146, Linguistics 114; one course from Anthropology 133Q, 133R, 135A, 135B, 135C, Communication Studies 100, Linguistics 110, 127, Psychology M137J; one term of a non-European language

(4) *Sociocultural Anthropology*: Anthropology 130, 150; one primary course from three of the four subconcentrations listed below; two history, theory, and methods courses from M80, C126P, 139, 180, 182, 186, Sociology 101; one region and society course from 158, 171, 172R, 173Q, 174P, 175R, 175S, 175T, 175U, 175V, 177; two additional courses from one of the subconcentrations listed below:

(a) *Applied and Development Subconcentration*: Primary course: Anthropology 161; additional courses: M155Q, 167, M168, 186, International Development Studies M100B

(b) *Ecological and Evolutionist Subconcentration*: Primary course: Anthropology 153; additional courses: 128A, 128B, 132, 158, 165, 186, 186P, Geography 140

(c) *Social Processes and Practice Subconcentration*: Primary courses: Anthropology 151, 152, M154P; additional courses: 88, 128A, 128B, 153, 155, 156, 158

(d) *Psychocultural and Medical Subconcentration*: Primary courses: Anthropology 135A, 135B, 135C, 135T; additional courses: 135S, M168

Honors Program

The honors program provides research-oriented students with opportunity to engage in original research and analysis under the close supervision of faculty members and culminates in an honors thesis. To be admitted students should have a cumulative grade-point average of 3.0 overall and a 3.5 cumulative GPA in their upper division anthropology courses. The application for admission must be submitted during Fall Quarter. Ideal candidates should have junior or senior standing and have completed at least two upper division anthropology courses. The proposal, research, analysis, and writing of the paper take place over four terms through Anthropology 197HA-197HD. Course 197HA should be taken in Winter Quarter and 197HB in Spring Quarter. Research should be done in summer, and courses 197HC and 197HD should be taken in Fall and Winter Quarters of the graduation year. Students should contact the departmental honors adviser early in their studies for more information.

Anthropology B.S.

Preparation for the Major

Required: Anthropology 7 (or 10 and 12), 8, 9, 33; Chemistry and Biochemistry 14A, 14B/14BL, and 14C/14CL, or 20A, 20B, 20L, 30, and 30L; Life Sciences 1, 2, 3, 4; Mathematics

3A, 3B, and 3C, or 31A and 31B; Physics 6A, 6B, and 6C. *All courses must be taken for a letter grade, and students must maintain an overall 2.0 grade-point average.*

The Major

The major provides an overview of human evolution and is designed to prepare students for careers in anthropology and the health sciences, including medicine, dentistry, public health, and nursing. *All courses must be taken for a letter grade, and students must maintain an overall 2.0 GPA.*

Students must complete 10 four-unit courses as follows:

- (1) Two upper division courses in the sociocultural anthropology field and one in each of the other three fields (archaeology, biological anthropology, and linguistic anthropology).
- (2) One upper division region and society course.
- (3) One statistics course.
- (4) One upper division history/theory course.
- (5) Two additional upper division anthropology courses.

Computing Specialization

Majors in either anthropology bachelor's degree program may select a specialization in Computing by (1) completing Program in Computing 10A, 10B, and 10C or 15, (2) completing one course from Anthropology 180 or 186, (3) completing either a 199 course that focuses on the integration of computer methods with anthropological studies or one course from Program in Computing 60 or Mathematics 61, or an equivalent course (subject to approval of the departmental computer committee), and (4) satisfying all the other requirements for a bachelor's degree in the specified major. Students graduate with a bachelor's degree in their major and a specialization in Computing. Interested students should contact the undergraduate adviser.

Anthropology Minor

Students who wish to take a series of courses in anthropology, but major in another discipline, may be interested in the Anthropology minor. Students select courses from the four fields within anthropology (archaeology, biological anthropology, linguistic anthropology, sociocultural anthropology), although they are encouraged to focus the body of their coursework within one field.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (eight): Two courses from Anthropology 7, 8, 9, 10, 12, 33.

Required Upper Division Courses (20): The core course (Anthropology 111, 120, 130, M140, or 150) from one of the four anthropology fields listed above and four additional courses. Students are encouraged to concentrate their upper division coursework within one

field and are required to consult with the undergraduate adviser in planning their program of study.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Anthropology offers the Master of Arts (M.A.) degree in Anthropology.

Admission

Admission to the M.A. program is restricted to the Fall Quarter. All applicants are required to have a B.A. degree or its equivalent from a recognized college or university. A minimum grade-point average of 3.0 or its equivalent is also required for the last two years of undergraduate work and for any postbaccalaureate work completed. The department does not require an applicant to have a degree in anthropology, but it is highly desirable. If a student with a B.A. or M.A. from another field is admitted, a program of background studies in anthropology is formulated. Knowledge of a foreign language is not required for admission, but completion of the M.A. language requirement is recommended before beginning graduate work. The *Application for Graduate Admission* must be submitted by December 15 for consideration for the Fall Quarter of the following year. The following supporting material must be submitted directly to the Anthropology Department by January 5: (1) official transcripts of record, in duplicate, from each college or university at which work has been completed; (2) statement of purpose; (3) three letters of recommendation (preferably from anthropologists); (4) writing sample; and (5) Graduate Record Examination (GRE) scores sent by the testing agency.

Applicants applying for readmission to the program or petitioning to change their major to anthropology are treated in the same manner as first-time applicants. These students are required to submit (1) the appropriate application form and (2) the same supporting documents as new applicants by the stated deadline date. Graduate students who have been readmitted to the program are subject to any changes in departmental policy and regulations that have been instituted since the last time they were enrolled as an anthropology major.

The department requires that two faculty members sponsor an applicant before admission is recommended. Prospective sponsors are canvassed by the Departmental Admissions Committee, but it is also appropriate for applicants to contact potential sponsors.

For further information on the departmental program, a graduate information syllabus may be obtained without charge by writing to the Anthropology department.

Areas of Study

Archaeology; biological anthropology; linguistic anthropology; and sociocultural anthropology.

Course Requirements

The minimum course load is 12 units per quarter. However, this may be waived for good cause by petition with the approval of the student's committee chair and the department chair. Students must be registered and enrolled at all times unless on an official leave of absence.

An M.A. degree requires 10 courses (40) taken for a letter grade, with a minimum 3.0 grade-point average. The 10 required courses are distributed as follows:

- (1) Two courses must be the graduate proseminar, Anthropology 200A-200B;
- (2) One course must be the graduate core seminar in the student's field of specialization (200 series);
- (3) Three courses must be graduate seminars (200 series),
- (4) Four courses may be upper division (100 series) designated elective courses,
- (5) Three courses may be outside the major with the approval of the three-member guidance committee,
- (6) Two courses may be independent studies. Eight units of course 596 taken for a letter grade may be applied toward the total M.A. course requirement, but only four of these eight units are applicable to the minimum graduate-course requirement.

Courses taken on a S/U basis, Anthropology 598, and 300- and 400-series courses may not be applied toward fulfillment of the M.A. unit requirement.

Core Course Requirements. The purpose of the core course requirement is to ensure that students are versed in the major fields in anthropology. Courses taken while in graduate status at UCLA may be applied toward the unit requirement of the M.A. degree. These fields and courses have been designed to meet the minimal needs of students specializing in other subfields of study.

- (1) Archaeology: Anthropology 111 or M201A
- (2) Biological: Anthropology 120G
- (3) Linguistic: Anthropology M140 or 242
- (4) Sociocultural (select one): Anthropology 130, 150, 203A, 203B, 203C

Students must demonstrate basic knowledge in all fields by exercising one or a combination of the following three options:

- (1) Taking the core course with a passing grade of B or better;
- (2) Petitioning that coursework completed elsewhere, or at UCLA as an undergraduate, constitutes the equivalent of such courses;
- (3) Passing the subfield's core course examination given in Spring Quarter.

A grade of B or better is required in any core course taken at UCLA. If students received a grade of B-, C+, or C, they may not repeat the core course, but must take the core course examination and pass or be subject to dismissal. If a grade of C- or below is received, students may repeat the course, but must receive a grade of B or better the second time the course is taken, or be subject to dismissal.

Comprehensive Examination Plan

None.

Thesis Plan

The purpose of the master's thesis is to demonstrate ability to generate and assemble a body of data, to analyze it, and to indicate its relevance to established anthropological thought as well as to write lucid prose. Students must submit an original paper based on field, laboratory, or library research to all three committee members by the end of the fifth quarter of residence. The thesis committee assists students in formulating the research paper, monitoring its progress, and evaluating the paper when submitted. It is essential that students maintain close contact with all three members while preparing the M.A. thesis. Consult the Graduate Division's publication, *Policies and Procedures for Thesis and Dissertation Preparation and Filing*, for instructions on the preparation and submission of the thesis.

Doctoral Degree

Admission

Students who enter the graduate program with an M.A. degree, whether or not in anthropology, are required to demonstrate basic knowledge of the discipline before being permitted to begin the requirements for the Ph.D degree in Anthropology. It is expected that students accomplish this during the first year of academic residence by completing (in accordance with the procedures and regulations stated in the M.A. degree section) the following:

- (1) Nominating a three-member departmental advisory committee;
- (2) Completing the core course requirement;
- (3) Establishing competency in a foreign language, equivalent to the master's level requirement;
- (4) Taking the graduate core seminar only in the student's field of specialization. This is re-

quired of all students even though they may already have a master's degree in anthropology;

(5) Taking the graduate proseminars, Anthropology 200A-200B. This is required of all entering students;

(6) Submitting to the student's departmental advisory committee, for evaluation, a prior master's paper or a research paper that was written while in graduate standing.

Only when these requisites have been met are students permitted to begin the requirements for the Ph.D. degree.

Major Fields or Subdisciplines

Archaeology; biological anthropology; linguistic anthropology; and sociocultural anthropology.

Course Requirements

The minimum course load is 12 units per quarter. However, this may be waived for good cause by petition with the approval of the student's committee chair and the department chair. Students must be registered and enrolled at all times unless on an official leave of absence.

Students who received their M.A. degree from this department are expected to enroll in three seminars, each with a different faculty member, between receipt of the master's degree and taking the doctoral qualifying examinations. The department does not require any specific courses or number of courses for receipt of the Ph.D.

Written and Oral Qualifying Examinations

The Ph.D. qualifying examination is composed of written and oral examinations. The timing of these examinations are set in consultation with the members of the doctoral committee and are to be taken within a 10-week period of time. Students must be registered and enrolled to take the qualifying examinations.

Written Examination. The written portion of the qualifying examination is administered by the three-member departmental doctoral committee. Students are examined in three subfields; two fields are drawn from a list maintained in the department and the third is specific to the student's dissertation interests and needs. In addition, students are expected to demonstrate competence in general anthropological theory. The format of the written examination is to be determined by the student's departmental doctoral committee. There must be a minimum of two weeks between completing the written examination and taking the oral portion of the qualifying examination.

University Oral Qualifying Examination. The oral portion of the doctoral qualifying examination is primarily a defense of the dissertation proposal and is administered by the four-member Ph.D. doctoral committee.

The committee determines the conditions for reexamination should students not pass either portion of the qualifying examination.

Anthropology

Lower Division Courses

7. Human Evolution. (4) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Evolutionary processes and evolutionary past of the human species. P/NP or letter grading.

8. Archaeology: An Introduction. (4) Lecture, three hours; discussion, one hour. 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.

9. Culture and Society. (4) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to study of culture and society in comparative perspective. Examples from societies around the world to illustrate basic principles of formation, structure, and distribution of human institutions. Of special concern is the contribution and knowledge that cultural diversity makes toward understanding the problems of the modern world. P/NP or letter grading.

10. Principles of Human Evolution: Genetic Basis. (4) Lecture, three hours; discussion, one hour. Human population biology in the conceptual framework of evolutionary processes. Emphasis on genetic basis of evolution, population biology, and diversity among living populations.

12. Principles of Human Evolution: Comparative Analysis. (4) Lecture, three hours; discussion, one hour. Human population biology in conceptual framework of evolutionary processes. Emphasis on comparative primate behavior, structural anatomy, and the fossil record. P/NP or letter grading.

33. Culture and Communication. (4) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to ways in which culture and communication shape each other, with emphasis on importance of language as a symbolic and practical guide to people's behavior and understanding of each other's actions. Topics include language socialization, cross talk, and verbal and nonverbal communication.

34. Introduction to Urban Speech Communities. (4) Lecture, three hours; discussion, one hour. Introduction to study of speech communities in metropolitan areas, with special focus on communities in Los Angeles. Emphasis on ways in which communities share and incorporate speech norms of urban society while maintaining rules for conduct and interpretation of speech within specific speech communities. Topics include language and identity, socialization, social dialects, and communication.

M70. Politics of Reproduction. (4) (Same as Psychiatry M98J.) Seminar, three hours. Preparation: satisfaction of Subject A requirement. Examination of ways that power, as it is structured and enacted in everyday activities, influences human reproductive behavior. Use of case materials from a variety of cultures, including the U.S., to study how competing interests within households, communities, and states impinge on childbearing and childrearing choices made by individual women and men.

M80. Introduction to Quantitative Methods. (4) (Formerly numbered 80.) (Same as Statistics M21A.) Lecture, three hours; discussion, one hour. Data analysis as a way to reason with quantitative information. Topics include description (frequency distribution tables, histograms), population specification (mean and standard deviation, normal distribution), samples and estimation procedures (central limit theorem), and hypothesis testing (t-test, chi-square test). 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 a specific term. P/NP or letter grading.

Upper Division Courses

Archaeology

110. World Archaeology. (4) Requisite: course 8. Designed for juniors/seniors. Broad survey of human culture history from its Stone Age beginnings to establishment of the primary civilizations of the Old and New Worlds. Intended for students with general interest in archaeology and in an anthropological approach to study of the past.

111. Study of Archaeology. (4) Survey of contemporary prehistoric archaeology. Emphasis on what archaeologists do, and how and why they do it. Contributions of archaeology to the modern world. Intended for students with a desire to explore the nature of anthropological archaeology. (Core course for archaeology field.)

112. Old Stone Age Archaeology. (4) Lecture, three hours. Requisite: course 8. Development of Paleolithic cultural traditions in Europe, Africa, Asia, and the New World. Emphasis on the ordering and interpretation of archaeological data, Pleistocene geology and chronology, and relationship between human cultural and biological evolution.

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.

113Q. Prehistory and Ethnography of California. (4) Lecture, three hours. Requisite: course 8 or 9. 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) Examination of prehistory of the American Southwest from Early Man to historic times. Emphasis on describing and explaining cultural variation and change, employing an ecological and evolutionary perspective. Special attention to "Great Events" (agriculture, town living, and the Great Abandonment). Evolutionary processes generalized and related to contemporary world problems.

114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere). (4) Pre-Hispanic and Conquest period native cultures of Western Middle America, as revealed by archaeology and early colonial writings in Spanish and Indian languages. Toltec/Aztec and Mixteca civilizations and their predecessors, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements.

114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere). (4) Pre-Hispanic and Conquest period native cultures of Eastern Middle America, as revealed by archaeology and early colonial writings in Spanish and Indian languages. Lowland and Highland Maya civilizations and their predecessors, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements.

114R. Ancient Civilizations of Andean South America. (4) Lecture, three hours. Requisite: course 8 or 9. Pre-Hispanic and Conquest period native cultures of Andean South America, as revealed by archaeology and early Spanish writing. The Inca and their predecessors in Peru, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements.

C114S. Comparative Study of Ancient States. (4) Lecture, three hours. Comparative anthropological study of first complex societies in the Near East, Mesoamerica, and the Andes, including early Egyptian, Uruk, Teotihuacan, classic Maya, Wari, and Tiwanaku, with focus on political and economic structures of these societies and on causes of state development and collapse. Concurrently scheduled with course CM214S. P/NP or letter grading.

M115A-M115B. Historical Archaeology. (4-4) (Same as History M103A-M103B.) Lecture, three hours. Designed for juniors/seniors. P/NP or letter grading. **M115A.** World Perspective. Historical archaeology requires appreciation of historical sources, archaeology, and material culture. Thematic emphasis, with exploration of breadth of discipline both in the Old World and the Americas. **M115B.** American Perspective. Emphasis on historical archaeology in North America, particularly to some of the practical applications.

115P. Archaeological Field Training. (6 or 12) Lecture, two to three hours; fieldwork, eight (spring) or 50 (summer) hours. Requisite: course 8. Off-campus field archaeology course offered for six units in Spring Quarter and 12 units in Summer Quarter. Procedures of archaeological excavation, recording, mapping, surveying, and initial analysis of archaeological data. P/NP or letter grading.

C115R. Strategy of Archaeology. (4) Seminar, three hours; outside study, nine hours. Designed for juniors/seniors. Introduction to problem formulation, theory, and method in archaeology, with emphasis on development of research designs. Focus on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness. Concurrently scheduled with course C215R.

M116Q. Dating Techniques in Environmental Sciences and Archaeology. (4) (Same as Geography M178.) Lecture, three hours; reading period, one hour. Introduction to scientific dating methods such as radiocarbon dating, radiation damage methods, biological dating techniques, and magnetic dating, and applications in environmental sciences, archaeology, and physical anthropology.

117. Archaeological Laboratory Methods. (6) Lecture, three hours; laboratory, two to three hours. Requisite: course 8. Archaeological analysis of prehistoric cultural materials. Procedures of classification, analysis, data entry. Laboratory work with lithic artifacts, vertebrate fauna, shellfish, plant remains, bone and shell tools, ceramics, and more. Extra laboratory sessions, with focus on additional intensive training in one or more technical laboratories. P/NP or letter grading.

117P. Intensive Laboratory Training in Archaeology. (4) Lecture, three hours; laboratory, four hours. Requisite: course 117. Archaeologists with special expertise in specific analytical techniques and topics oversee intensive laboratory training on a tutorial or small-class basis on one of the following topics: zooarchaeology, ethnobotany, lithic analysis, ceramic analysis, etc. May be repeated for credit with topic change. P/NP or letter grading.

118A. Museum Studies. (4) Method and theory of museum operation. Discussion and demonstration of acquisition accession, storage, photography, conservation, and exhibition. Analysis of museum research, publication, and teaching, as well as museum administration and funding. Lectures and demonstrations structured to illustrate how various aspects of museum operation are interrelated.

118B. Museum Studies. (4) Requisite: course 118A. Two areas of museum operation are selected by students from those discussed and demonstrated in course 118A. Students are then required to develop expertise in these areas through a combination of library research and a series of assignments carried out in the museum.

M119. Topics in African History: Prehistoric Africa — Technological and Cultural Traditions. (4) (Same as History M175A.) Lecture, three hours; outside study, nine hours. Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Survey of nondocumentary sources of early African history, with emphasis on archaeological evidence from origins of humanity until A.D. 1600. P/NP or letter grading.

Biological Anthropology

120. Survey of Biological Anthropology. (4) Lecture, three hours. Requisites: courses 7, or 10 and 12. Limited to majors and graduate anthropology students. Survey of biological anthropology including all major subareas. (Core course for biological field.) P/NP or letter grading.

120G. Biological Anthropology in Review. (6) Lecture, three hours; seminar, three hours. Corequisite: lecture portion of course 7. Limited to graduate anthropology students. Designed for anthropology students who have a deficiency in biological anthropology. Seminar discussion based on basic evolutionary principles, behavior of nonhuman primates, hominid evolutionary history, and contemporary human variation.

121A. Primate Fossil Record. (4) Lecture, three hours. Recommended requisites: courses 7, or 10 and 12. Course 121A should be taken before 121B and 121C. Introduction to method and theory in paleoanthropology. Primate evolution, Cretaceous through the Miocene. P/NP or letter grading.

121B. Australopithecines. (4) Lecture, three hours. Recommended requisites: courses 7 (or 10 and 12), 121A. Morphology, ecology, and behavior of the genus *Australopithecus*. History of their discoveries and their place in human evolution. P/NP or letter grading.

121C. Evolution of Genus *Homo*. (4) Lecture, three hours. Recommended requisites: courses 7 (or 10 and 12), 121A, 121B. Origin and evolution of the genus *Homo*, including archaic sapiens and Neanderthals. Morphology, ecology, and behavior of these groups. Course ends with appearance of modern man. P/NP or letter grading.

121P. Reconstructing Hominid Behavior and Paleoecology. (4) Seminar, three hours. Use of paleontological, archaeological, ecological, and geological evidence to infer late Pliocene and early Pleistocene hominid behavior and environmental context of human evolution. P/NP or letter grading.

121Q. Paleoanthropology in Review. (6) Lecture, three hours; seminar, three hours. Corequisite: course 12. Limited to juniors/seniors. Designed for advanced students with interest in human evolution, fossil evidence, and theoretical constructs. Students attend course 12 lectures, plus three-hour seminar per week. P/NP or letter grading.

124. Evolution and Biology of Human Behavior. (4) Comparative survey of behavior patterns of preliterary and Paleolithic peoples and those of nonhuman primates. Assessment of biological variables fundamental to human and prehuman behavior with regard to theories on evolution of human culture.

124P. Evolution of Human Sexual Behavior. (4) Lecture, three hours. Recommended requisite: course 7 or 10 or 12. Examination of human sexual relations and social behavior from an 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 the opposite sex.

C126P. Introduction to Field Methods in Human Ecology. (4) Lecture, three hours. Designed for juniors/seniors and graduate students. Survey of methods used in anthropological investigations emphasizing human biology and human ecology. Study design, physical assessment of nutritional status, growth and maturation, demographic surveys, systematic observation of behavior, energy expenditure, subsistence ecology, data analysis. Demonstrations and laboratories. Course fee required. Concurrently scheduled with course C226P. P/NP or letter grading.

127P. Primate Evolution. (4) Designed for juniors/seniors. Survey of primate paleontological and evolutionary record, encompassing prosimians, New and Old World monkeys, and hominoids. Attendant aspects of paleoecology and behavior.

128A. Primate Behavior Nonhuman to Human. (4) Lecture, three hours. 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 the product of such evolutionary processes. P/NP or letter grading.

128B. Behavioral Ecology of Primates. (4) Lecture, three hours. Requisite: course 128A. Analysis of evolution of sociality, sexual strategies, parenting behavior, fighting and contests, and altruism and cooperation in primate species.

128P. Primate Behavioral Neurobiology: Evolutionary and Comparative Perspectives. (4) Lecture, three hours. Requisite: course 7 or 12. Strongly recommended: course 128A, Chemistry 14A or 20A, Life Sciences 1. Survey of use of nonhuman primates to model neurobiological bases of complex behavioral and emotional states in nonhuman primates. Attention to empathy, xenophobia, aggression, and social cognition. P/NP or letter grading.

129Q. Paleopathology. (4) Lecture, one hour; laboratory, three hours. Designed for juniors/seniors. Investigation into diseases, trauma, health status, subsistence activities, and ethnic mutilation (i.e., cranial deformation, trepanation) through analysis of human skeletal materials. Course has worldwide scope, with some emphasis on the New World.

Cultural Anthropology

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

132. Technology and Environment. (4) Significance of material culture in archaeology and ethnology; problems of invention and the acceptance of innovations; ecological and sociological concomitants of technological systems; selected problems in material culture.

133Q. Symbolic Systems. (4) Designed for juniors/seniors. Analysis of anthropological research and theory on cultural systems of thought, behavior, and communication expressed in a symbolic mode (as distinguished from discursive, instrumental, and causal modes). Methods for study of symbolic meaning, including the experiential approach.

133R. Aesthetic Systems. (4) Lecture, three hours. Designed for juniors/seniors. Provides framework for a cross-cultural understanding of aesthetic phenomena that meets the requirements of anthropological research. Human capacities for aesthetic experience; sociocultural formation of aesthetic production; ethno-aesthetics; experiential dimension of aesthetic production.

M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Formerly numbered 134.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M134.) Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

135A-135B. Introduction to Psychological Anthropology. (4-4) P/NP or letter grading:

135A. Historical Development. Lecture, three hours. Requisite: course 9. Survey of the field of psychological anthropology, with emphasis on early foundations and historical development of the field. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings.

135B. Current Topics and Research. Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Survey of the 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.

135C. Seminar: Psychocultural Studies. (4) Seminar, three hours. Prerequisite: course 9. Firsthand exposure to current research in psychocultural studies. Various university scholars are brought in to discuss their on-going research. Using these presentations as models, students develop proposals for future research. P/NP or letter grading.

135S. Anthropology of Deviance and Abnormality. (4) Lecture, three hours. Prerequisite: course 9. Relationship between culture and recognition of, responses toward, and forms of deviant and abnormal behavior.

135T. Psychoanalysis and Anthropology. (4) Lecture, three hours. 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 a cross-cultural psychoanalytic approach.

M136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) (Same as Psychiatry M112.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Group and individual projects. Discussion of some of the uses of observations and their implications for research in social sciences.

137. Selected Topics in Cultural Anthropology. (4) Lecture, three hours. Study of selected topics in cultural anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

138. Methods and Techniques of Ethnohistory. (4) Introduction to problems and procedures of extracting cultural data from documentary sources and their interpretation and analysis. Relevant documentary sources of various New World regions are selected as case histories to illustrate more concretely problems and challenges in this major area of anthropological concern.

139. Field Methods in Cultural Anthropology. (4) Lecture, three hours. 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.

Linguistic Anthropology

M140. Language in Culture. (4) (Same as Linguistics M146.) Lecture, three hours; discussion, one hour. Prerequisite: course 33 or Linguistics 20. Study of language as an aspect of culture; relation of habitual thought and behavior to language; and language and the 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.

141. Ethnography of Everyday Speech. (4) Lecture, three hours. Prerequisite: course 33. 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 the sociocultural knowledge which it reflects and (2) to train students to recognize, describe, and analyze relevant linguistic, proxemic, and kinesic aspects of face-to-face interaction.

142A-142B. Microethnography of Communication. (4) Lecture, three hours. Prerequisite: course M140. Course 142A or Sociology CM124A is requisite to 142B. Students make primary records (sound tape, videotape, or film) of naturally occurring social interactions which are analyzed in class for interactive tasks, resources, and accomplishments displayed. Laboratory and fieldwork outside of class and minimal fees to offset costs of equipment maintenance and insurance required.

143. Field Methods in Linguistic Anthropology. (4) Lecture, three hours. Prerequisite: course M140. Practice in eliciting linguistic data from informants. Initial focus on phonetic transcription and phonological structures; introduction to skills and strategies pertinent to morphological, syntactic, and textual analysis. Practice with native speakers of non-Indo-European languages is normally an important aspect of student participation. P/NP or letter grading.

144. American Indian Ethnolinguistics and Sociolinguistics. (4) Prerequisite: course 33 or American Indian Studies 10. Introduction and comparative analysis of sociocultural aspects of language use in Native North American Indian speech communities. Specific foci include both micro- and macro-sociolinguistic topics. Micro-sociolinguistic topics are comprised of such issues as multilingualism, cultural differences regarding appropriate communicative behavior and variation within speech communities (e.g., male and female speech, baby talk, ceremonial speech, etc.). Macro-sociolinguistic considerations include language contact and its relationship to language change and language in American Indian education.

M145. Afro-American Sociolinguistics: Black English. (4) (Same as Afro-American Studies M166.) Lecture, three hours. Basic information on Black American English, an important minority dialect in the U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through a case-study approach.

146. Language and Culture of Polynesia: Past, Present, and Future. (4) Lecture, three hours. Prerequisite: course M140. Introduction to Polynesian cultures and languages, with particular emphasis on past and present sociocultural systems, patterns of language structure and language use, verbal art, language socialization strategies, and forms of cultural assimilation and resistance to European contact. Fieldwork on contemporary Polynesian cultures in U.S. urban areas.

147. Selected Topics in Linguistic Anthropology. (4) Lecture, three hours. Study of selected topics in linguistic anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

Social Anthropology

150. Study of Social Systems. (4) Lecture, three hours. Prerequisite: course 9. Introduction to more specialized social anthropology courses. Evaluation of variation in sociocultural systems and how societies are organized and social relations maintained. Basic frameworks of anthropological analysis; historical context and development of social anthropology discipline.

151. Marriage, Family, and Kinship. (4) Lecture, three hours. Prerequisite: course 9. 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.

152. Politics: Tribe, State, Nation. (4) Lecture, three hours. Cross-cultural examination of politics and political organization. Law and the maintenance of order; corporate groups; ideology. Relations of political institutions to other institutions of society and to issues of identity and representation.

153. Evolution of Human Societies. (4) Lecture, three hours. Review of economic and ecological approaches to studying organization of production and exchange. Economic life viewed from three perspectives: adaptation, decision making, and social structure. Comparative theories discussed in context of ethnographic evidence from a wide variety of cultural systems.

153P. Economic Anthropology. (4) Lecture, three hours. Prerequisite: course 9. 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.

M154P. Gender Systems: North American. (4) (Formerly numbered M154.) (Same as Women's Studies M154P.) Lecture, three hours. Prerequisite: Women's Studies 10. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from an anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, student fieldwork, internship, and presentation. P/NP or letter grading.

M154Q. Gender Systems: Global. (4) (Formerly numbered M154.) (Same as Women's Studies M154Q.) Lecture, three hours. Prerequisite: Women's Studies 10. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from an anthropological perspective. Outline of material conditions of women's lives in the world — gender division of labor, relationship of gender to the state, and colonialism and resistance movements. P/NP or letter grading.

155. Women's Voices: Their Critique of Anthropology of Japan. (4) 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.

M155Q. Women and Social Movements. (4) (Same as Women's Studies M155Q.) Lecture/discussion, three hours. Recommended preparation: prior women's 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.

156. Comparative Religion. (4) 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 which may account for variation in religious systems cross-culturally.

157. Selected Topics in Social Anthropology. (4) Lecture, three hours. Study of selected topics in social anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

158. Hunting and Gathering Societies. (4) Lecture, three hours. Prerequisite: course 9. Survey of hunting and gathering societies. Examination of their distinctive features from both an ecological and cultural viewpoint. Discussion of the possibility of developing a general framework for synthesizing these two viewpoints. Use of this synthesis as a basis for illustrating the relevance of hunting and gathering societies as an understanding of complex societies.

158P. Pastoral Nomads. (4) Lecture, three hours. Prerequisite: course 9 or 150. Survey of pastoral nomad societies. Consideration of environmental and social demands of livestock domestication and production. Focus on ecological features, cultural practices, and social organization, with special attention to historical interactions between pastoral nomads and settled peoples.

159. Warfare and Conflict. (4) Lecture, three hours. Examination of conflict and violent confrontation as these have been treated in anthropological literature. Cross-cultural comparison of institutions such as raids, feuds, ritual warfare. Consideration of application of anthropology to study of militaries, modern warfare, and large-scale ethnic conflict.

Applied Anthropology

161. Development Anthropology. (4) Lecture, three hours. Requisite: course 9. 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.

163. Selected Topics in Applied Anthropology. (4) Lecture, three hours. Study of selected topics in applied anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

M164. Afro-American Experience in the U.S. (4) (Same as Afro-American Studies M164.) Promotes understanding of contemporary sociocultural forms among Afro-Americans in the U.S. by presenting a comparative and diachronic perspective on the Afro-American experience in the New World. Emphasis on utilization of anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among black Americans.

165. Demographic Problems in Nonindustrial Societies. (4) Lecture, three hours. Requisite: course 9. Dynamic interaction between environment, cultural belief, social structure, and population in hunting and gathering, pastoral, horticultural, and agricultural societies. Principal theories of population change and current issues in population policy considered in light of the anthropological evidence.

166. Cross-Cultural Research on Urban Gangs. (4) Lecture, three hours. Preparation: one anthropology, psychology, or sociology course. Examination of background and contemporary traditions of gangs in three ethnic minority groups — African American, Asian American, and Mexican American. Similarities and differences to be noted in dimensions of gang formation and persistence, subcultural styles, territorial and criminal conflicts, drug use and abuse, personal motivations, dress habits, etc. Cross-cultural look at major social control institutions (e.g., family, schools, peers, law enforcement, religion) which affect their lives. P/NP or letter grading.

167. Urban Anthropology. (4) Lecture, three hours; discussion, one hour (optional). Designed for junior/senior social sciences majors. Survey of urbanization throughout the world, with emphasis on urban adaptation of rural migrants. Special focus on problems of rural/urban migration of ethnic minority groups and subsequent adaptation of them within the U.S. explored in terms of methods and perspectives of anthropology. P/NP or letter grading.

M168. Culture, Illness, and Healing. (4) (Same as Nursing M158.) Lecture, four hours. Medical anthropology is organized around holistic exploration of ways in which health, illness, and medical practices are socially and culturally mediated. Topics include comparing illness experiences, understandings about health and illness, patterns of care seeking, therapeutic practices, and medical systems in context of different social and cultural settings, including our own. P/NP or letter grading.

C169R. 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. Concurrently scheduled with course C269R.

Regional Cultures

Africa

171. 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.

North America

172A. Native North Americans. (4) Lecture, three hours; discussion, one hour (optional). 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. Letter grading.

172B. Change and Continuity among Native North Americans. (4) Lecture, three hours. Requisite: course 172A. 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.

172R. Cultures of the Pueblo Southwest. (4) Lecture, three hours. Survey of ethnographic and ethnohistorical research of Pueblo Indians (Hopi, Zuni, Tanoan, and Keresan) and their immediate neighbors. Basic information on history, languages, social organization, and traditional cultural systems of these groups.

M172V. Culture Change and the Mexican People. (4) (Same as Chicana and Chicano Studies M172V.) Lecture, three hours. Requisite: course 9 or Chicana and Chicano Studies 10A or 10B. 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 the 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.

Middle America

173Q. Latin American Communities. (4) 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.

South America

174P. Ethnography of South American Indians. (4) 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.

Asia

175R. Societies of Central Asia. (4) Lecture, three hours. Overview of culture and society among the diverse peoples of Inner Asia, including Mongolia, Tibet, and Soviet Central Asia. Topics include environment and economic adaptation, politics in traditional isolation and within the framework of recent national integration, kinship, forms of marriage and status of women, religion and the social order in Hindu/Buddhist culture contact zone, and current problems of modernization. P/NP or letter grading.

175S. 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.

175T. Civilizations of East Asia. (4) Lecture, three hours. General anthropological introduction to the closely linked civilizations of China, Korea, and Japan, providing a comparative analysis of fundamental institutions such as family, state, and religion and assessing effects of urbanization and industrialization.

175U. Cultures of the Indonesian Archipelago. (4) Lecture, three hours. Introduction to past and contemporary civilizations and cultures of Indonesia, including Javanese, Balinese, Toraja, Dayak, and Minangkabau. Geographical, ecological, and historical overview with examination of such topics as religious and political ideas and institutions, art, symbolism and ritual, illness and healing, and psychological issues and themes.

175V. Ethnology of Korea: Re-Presenting Lives in Contemporary South Korea. (4) Lecture, three hours. Examination of South Korea's contemporary structural positioning, with focus on its dynamic development out of a history of colonialism and war to capitalism; multiple and conflicting linkages of Korean people involving class, gender, family/kinship, and nation.

175W. Ideology and Social Change in Contemporary China. (4) Lecture, three hours. Introduction to sociocultural changes in China from 1949 to the 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.

Middle East

176. Culture Area of the Middle East. (4) Lecture, three hours. Study of the 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 the city. Presentation of anthropological material relevant to understanding the Middle East as a culture area, and Islam as basis of its shared tradition.

Pacific

177. Cultures of the Pacific. (4) Four major culture areas of Australia, Melanesia, Polynesia, and Micronesia. General geographical features, prehistory, and language distribution of the whole region. Distinctive sociocultural features of each culture area presented in context of their adaptive significance.

History, Theory, and Method

180. Quantitative Methods in Anthropology. (5). Lecture, three hours; laboratory, one hour. Requisite: course M80. Methods of quantitative data analysis. Topics to be selected from linear regression analysis (univariate and multivariate), principal component analysis, discriminant analysis, cluster analysis, non-parametric tests, and log-linear models. Emphasis on computer-based applications of data analysis techniques.

182. History of Anthropology. (4) 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 the 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 our view of culture in general.

183. History of Archaeology. (4) Preparation: at least one upper division archaeology course. Development of world archaeology from the Renaissance to the present, stressing how each of the major branches of archaeology has evolved a special character determined by peculiarities of its own data, methods, and intellectual affiliation.

186. Models and Modeling in Anthropology. (4) Lecture, three hours. Modeling from both individual and social structure viewpoints. Introduction to four groups of models, along with ethnographic examples — decision tree models, indifference curve and marginal cost models, adaptation and learning models, and information diffusion models.

186P. Models of Cultural Evolution. (4) Lecture, two hours; discussion, one hour. Requisite: course 7 or 10. Introduction to Darwinian models of cultural evolution. How organic evolution has shaped the capacity for culture. How processes of cultural transmission and modification explain cultural variation in space and time. P/NP or letter grading.

CM189A-CM189B. Theoretical Behavioral Ecology. (4-4) (Formerly numbered M189A-M189B.) (Same as Organismic Biology CM189A-CM189B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM189A is requisite to CM189B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a pace and mathematical level that allows students to grasp this information. Within each area of theory (e.g., kin selection, optimal foraging theory, etc.), presentation of basic corpus of models so that students understand assumptions that underlie the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM289A-CM289B. Letter grading.

Special Studies

M194. Senior Seminar: Language, Interaction, and Culture. (4) (Same as Applied Linguistics and TESL M194 and Sociology M194.) Seminar, four hours. Limited to seniors in Language, Interaction, and Culture minor. Capstone course. Students carry out and present empirical research project that integrates methodologies and perspectives of at least two of the disciplinary areas (anthropology, applied linguistics, sociology) covered in course. Letter grading.

M196A-M196B. Contemporary Issues in Urban Poverty Research. (4-4) (Same as Sociology M196A-M196B.) Lecture, three hours. Requisites: Honors Collegium 7A, 7B. Two-term research seminar designed to engage students in ongoing faculty research projects focusing on models of urban poverty and underclass behaviors. P/NP or letter grading.

197HA. 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.

197HB. 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.

197HC. 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.

197HD. 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.

197K-197Z. Selected Topics in Anthropology. (2 to 4 each) Lecture or seminar, three hours. Study of selected topics of anthropological interest taught by resident and visiting faculty members. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

199. Special Studies in Anthropology. (2 to 8) Eight units may be applied toward upper division anthropology courses required for the major.

Graduate Courses

200. Proseminar: Practice of Anthropology. (4) (Formerly numbered 200A.) Seminar, three hours. Required of new graduate students. Discussion of anthropology as a four-field discipline and interconnections among the four major fields. Practice of anthropology as exemplified through faculty presentations of how research is conceived, formulated, and executed. Students develop individual research proposals. Letter grading.

200P. Cultural Anthropology Field Preparation. (4) Seminar, three hours. Requisites: courses 200A-200B. Follows courses 200A-200B as field preparation for summer research for cultural anthropologists. Students develop specific research methods and present them in seminar. Practical issues (visas, community entry, health concerns) also addressed. S/U grading.

M201A-M201B. Graduate Core Seminars: Archaeology. (6-6). (Same as Archaeology M201A-M201B.) Seminar, three hours. Required of anthropology students in archaeology field. Seminar discussions based on carefully selected list of 30 to 40 major archaeology works. These core seminars provide students with foundation in breadth of knowledge required of a professional archaeologist. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of the multidisciplinary background of modern archaeology and relevant interpretive strategies. May be repeated for credit with consent of adviser.

202. Biological Anthropology Colloquium. (4) Seminar, three hours. Selected topics on status of current research in biological anthropology. May be repeated for credit. S/U or letter grading.

203A-203B-203C. Core Seminars: Sociocultural Anthropology. (4-4-4) Seminar, three hours. Preparation: two courses from 130, 135A, 150:

203A. Historical and Philosophical Foundations of Anthropology. Examination of the theoretical writings that shaped foundations of anthropology as a scholarly discipline. Consideration of writings of Durkheim, Weber, Marx, and others.

203B. Sociocultural Systems and Ethnography: Anthropology at Mid-Century. Recommended preparation: course 203A. Examination of development of major schools of sociocultural thought during middle decades of the 20th century. Emphasis on formation of sociocultural theories, concepts, and methodologies found in contemporary anthropology.

203C. Scientific and Interpretive Frameworks in Contemporary Anthropology. Recommended preparation: course 203B. Examination of selected contemporary works and issues in the field of sociocultural anthropology.

204. Core Seminar: Linguistic Anthropology. (4) Seminar, three hours. Theoretical and methodological foundations of study of language structure and language use from a sociocultural perspective. Discussion of linguistic, philosophical, psychological, and anthropological contributions to understanding of verbal communication as a social activity embedded in culture.

Archaeology

210. Analytical Methods in Archaeological Studies. (4) Preparation: one term of statistics. Data analysis procedures in archaeology. Emphasis on conceptual framework for analysis of archaeological data, beginning at level of the attribute and ending at level of the region.

M211. Regional Analysis in Archaeology. (4) (Same as Archaeology M201C.) Lecture, three hours. Course 210 is not requisite to M211. Survey of analytical methods used in archaeology to study prehistoric settlement systems. Specific issues include settlement distribution with respect to natural resources, settlement hierarchy, and patterns of exchange.

212P. Selected Topics in Hunter/Gatherer Archaeology. (4) Seminar, three hours. Prehistory and ethnohistory of hunter/gatherer peoples. Consideration of range of issues, including (but not limited to) technological innovations, exchange systems, settlement and mobility, and social change. May be repeated for credit. S/U or letter grading.

212Q. Problems in Southwestern Archaeology. (4) Consideration of prehistoric cultural systems in the American Southwest, with emphasis on description and explanation of organizational variability and change. Specific research questions vary with each course offering. May be repeated for credit.

212R. Problems in Oceanic Archaeology. (4) Lecture, three hours. Prehistory of Oceania. Content may vary, but problems considered include history and process of island occupation, island adaptation, and evolution of social stratification. May be repeated for credit.

M212S. Special Topics in Archaeology. (6) (Same as Archaeology M205.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Open to undergraduates with consent of instructor. Special advanced topics in archaeology such as new strategies, methodologies, excavation projects, regional synthesis, or comparisons on a worldwide basis, including current work by core faculty of the program and special visitors.

213. Selected Topics in Old World Archaeology. (4) Seminar, three hours. May be repeated for credit.

214. Selected Topics in Prehistoric Civilizations of the New World. (4) Mesoamerican and Andean civilizations normally constitute major focus of seminar. May be repeated for credit.

CM214S. Comparative Study of Ancient States. (4) (Same as Archaeology M214.) Lecture, three hours. Comparative anthropological study of first complex societies in the Near East, Mesoamerica, and the Andes, including early Egyptian, Uruk, Teotihuacan, classic Maya, Wari, and Tiwanaku, with focus on political and economic structures of these societies and on causes of state development and collapse. Concurrently scheduled with course C114S. S/U or letter grading.

215. Field Training in Archaeology. (6 or 12) Lecture, two to three hours; fieldwork, eight to 10 (spring) or over 50 (summer) hours. Off-campus field archaeology course offered for six units in Spring Quarter and 12 units in Summer Quarter. Intensive training in archaeological excavation, mapping, surveying, recording, preliminary analysis of field data, and project organization/supervision. May be repeated for credit. S/U or letter grading.

C215R. Strategy of Archaeology. (4) Seminar, three hours; outside study, nine hours. Introduction to problem formulation, theory, and method in archaeology, with emphasis on development of research designs. Focus on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness. Concurrently scheduled with course C115R. Complete research proposal required of graduate students.

217. Explanation of Societal Change. (4) Examination of processes of societal evolution, emphasizing usefulness of a 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.

218. Style and Ethnicity. (4) Seminar, three hours. How stylistic variation in material culture informs on and mediates the shape, boundaries, and interrelations of ethnic groups. Aimed primarily toward archaeologists and ethnographers, seminar also welcomes students specifically interested in either material culture or style as such.

219. Complex Hunters/Gatherers in Theoretical Perspective. (4) Seminar, three hours. Examination of economic, political, and social foundations of complex hunter/gatherer societies, with focus on theory of emergence of complex cultural organization and recognition of complex middle-range societies in the archaeological record. Role of craft specialization in cultural evolution. S/U or letter grading.

Biological Anthropology

220. 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.

221A-221B. Fossil Evidence for Human Evolution. (4-4) Examination and analysis of fossil evidence for man's evolution.

C226P. Introduction to Field Methods in Human Ecology. (4) Lecture, three hours. Designed for juniors/seniors and graduate students. Survey of methods used in anthropological investigations emphasizing human biology and human ecology. Study design, physical assessment of nutritional status, growth and maturation, demographic surveys, systematic observation of behavior, energy expenditure, subsistence ecology, data analysis. Demonstrations and laboratories. Course fee required. Concurrently scheduled with course C126P.

Cultural Anthropology

230Q. Theories of Culture. (4) Lecture, three hours. Exploration of aspects within culture theory: emergence of culture with modes of production, discovery of culture, and "cultural capital" and cultural change. Investigation of production of culture and transformations of meaning within cultural domains of politics, economy, and religion. S/U or letter grading.

231. Asian Americans: Personality and Identity. (4) Designed for graduate students. Effect of class, caste, and race on the Asian American personality within the framework of anthropological theories.

232V. Current Issues in Ethnography. (4) Seminar, three hours. Designed for graduate students. S/U or letter grading.

233P. Symbolic Anthropology. (4) Requisite: course 133R. Nature of symbolic relations (as distinguished from other referential ones), significance of symbolic systems (in terms of action, cognition, affectivity, contemplation), symbolic and isomorphic logic (as opposed to the causal one) are among questions to be selected for analysis and discussion. May be repeated for credit. S/U or letter grading.

233Q. Aesthetic Anthropology. (4) Requisite: course 133R. Selected questions concerning visual aesthetic phenomena in their relationships with the sociocultural context examined in depth. May be repeated for credit.

M234. Seminar: Psychocultural Studies and Medical Anthropology. (4) (Same as Psychiatry M210.) 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.

M234P. Transcultural Psychiatry. (4) (Same as Psychiatry M222.) Lecture, three hours. Consideration of psychiatric topics in cross-cultural perspective, such as studies of drug use, deviance, suicide, homicide, behavioral disorders, "culture specific" syndromes, non-Western psychiatries, and questions of "sick" societies. May be repeated for credit.

M234Q. Psychological Anthropology. (4) (Same as Psychiatry M272.) Lecture, 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.

M234T. Anthropology of Human Body. (4) (Same as Psychiatry M282.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about the human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies.

M235. The Individual in Culture. (4) (Same as Psychiatry M213.) Seminar, three hours. Designed for graduate students.

M236P. Cross-Cultural Studies of Socialization and Children. (4) (Same as Psychiatry M214.) Seminar, three hours. Selected topics in cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research.

M236Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) (Same as Education M222A, Psychiatry M235, and Psychology M295.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.

M238. Native American Revitalization Movements. (4) (Formerly numbered 238.) (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.

239P. 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.

Linguistic Anthropology

M241. Topics in Linguistic Anthropology. (4) (Same as Linguistics M246C.) Problems in relations of language, culture, and society. May be repeated for credit.

242. Ethnography of Communication. (4) 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.

243P. American Indian Ethnolinguistics and Sociolinguistics. (4) Preparation: prior coursework in either anthropology, linguistics, or American Indian studies. Social and cultural aspects of language use in Native North American speech communities. Specific foci include both micro-sociolinguistic topics (such as multilingualism, cultural differences regarding appropriate communicative behavior, and variation within speech communities) and macro-sociolinguistic topics (such as language contact, language change, and language in American Indian education). Graduate students conduct library and/or other research and participate in group discussion.

M243Q. Afro-American Sociolinguistics: Black English. (4) (Same as Afro-American Studies M200D.) Lecture, three hours. Basic information on Black American English, an important minority dialect in the U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through a case study approach. Students required to conduct research in consultation with instructor and participate in group discussion.

244. Field Methods in Linguistic Anthropology. (4) Seminar, three hours; work with informant, one hour. Requisite: Linguistics 20 or prior experience in linguistic analysis. Practice in eliciting and transcribing linguistic data from native informants. Initial focus on phonetic transcription and phonological structures; introduction to skills and strategies pertinent to morphological, syntactic, and pragmatic analysis. Practice with native speakers of non-Indo-European languages is important aspect of student participation. S/U or letter grading.

245. Linguistic and Intracultural Variation. (4) Problem of variation as it impinges on disciplines of anthropology and linguistics. Among objectives of course are the following: to acknowledge importance of speech variation in anthropological linguistics research, to critically assess a broad and representative sample of modern scholarship devoted to study of intra-individual and interindividual variation, and to evaluate utility and potential applicability of recent linguistic models to anthropological linguistics and anthropological theory.

M246A. Grammar and Discourse. (4) (Same as Applied Linguistics and TESL M272.) Requisite: Applied Linguistics and TESL 201. Survey of grammar- and discourse-based approaches to study of language as meaningful form. Topics include grammatical and indexical categories, referential and social indexicality, relation of syntax to semantics and pragmatics, markedness, universals, cultural and cognitive implications of language structure and use. S/U or letter grading.

M246B. Grammar and Discourse Practicum. (4) (Same as Applied Linguistics and TESL M273.) Requisite: course M246A. Survey of advanced topics in grammar and discourse, including predicates, arguments and grammatical relations, noun phrase categories, case marking, verbal categories, topic marking devices, registers and speech varieties, reported speech, genre and text structure in discourse. Presentation and analysis of data from range of languages. S/U or letter grading.

M247. Topics in Semantics and Pragmatics. (4) (Same as Applied Linguistics and TESL M266.) Requisite: Applied Linguistics and TESL 201. 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.

M249A-M249B. Ethnographic Methods in Discourse Analysis I, II. (4-4) (Same as Applied Linguistics and TESL M270A-M270B.) Two-term sequence on ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in a community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as a social and cultural practice. S/U or letter grading. **M249A.** Devoted to skills related to collecting socially and culturally meaningful data. **M249B.** Requisite: course M249A. Devoted to production of ethnographic analysis, including how to present an analysis in form of a conference talk and how to develop an analysis into a grant or dissertation proposal.

M249P. Ethnographic Technologies Laboratory I. (4) (Same as Applied Linguistics and TESL M270P.) Corequisite: course M249A or Applied Linguistics and TESL M270A. Hands-on mentorship in entering a community, obtaining informed consent, interviewing, note taking, and videorecording verbal interaction. S/U grading.

M249B. Ethnographic Technologies Laboratory II. (4) (Same as Applied Linguistics and TESL M270Q.) Corequisite: course M249B or Applied Linguistics and TESL M270B. Hands-on mentorship in editing ethnographic video footage, incorporating video frame grabs into transcript and analysis of verbal interaction, writing a grant proposal, and assembling a conference presentation. S/U grading.

Social Anthropology

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

251P. Cultural Ecology. (4) May be repeated for credit.

252P. Comparative Systems of Social Inequality. (4) Seminar, three hours. Examination in historical and contemporary perspective of particular systems of structured social inequality based on rank, class, caste, ethnicity, gender, age, sexual preference, disability, etc., to develop a unified theory of social inequality. Examples from Asian, Pacific, European, African, and American cultures. S/U or letter grading.

252Q. Anthropology of Resistance. (4) Lecture, one hour; discussion, two hours. Preparation: at least one upper division sociocultural anthropology course. Exploration of recent works in anthropology and other disciplines which address practice and resistance, as part of an effort to understand processes that have shaped modern and postcolonial society and culture.

253. Economic Anthropology. (4) May be repeated for credit.

254. Kinship. (4) May be repeated for credit.

255. Comparative Political Institutions. (4) May be repeated for credit.

256. Anthropology of Conflict. (4) Seminar, three hours. Open to undergraduates with consent of instructor. Examination of events and institutions associated with large-scale or ongoing conflict in a variety of settings. Particular consideration to roots of violence, violent manifestations and cross-cultural misunderstandings, and nature and content of armed confrontation. S/U or letter grading.

Applied Anthropology

260. Urban Anthropology. (4) Requisite: course 167. Intensive anthropological examination of the urban setting as a human environment. S/U or letter grading.

261Q. Issues in Applied Anthropology. (4) Seminar, three hours. Use of seminar format to explore selected domestic and international problems from applied anthropological perspective. Consideration of history of applied anthropology, ethics, and careers strategies.

263P. Gender Systems. (4) Discussion, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideological systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

M263Q. Advanced Seminar: Medical Anthropology. (4) (Same as Community Health Sciences M244, Nursing M273, and Psychiatry M273.) 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.

M269. Contemporary Issues of the American Indian. (4) (Same as American Indian Studies M200C and Anthropology M275.) Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in the 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.

M269P. Politics of Reproduction. (4) (Same as Psychiatry M280.) Seminar, three hours. Examination of various ways that power, as it is structured and enacted in everyday activities, shapes human reproductive behavior. Case materials from diverse cultures illuminate how competing interests within households, communities, states, and institutions influence reproductive arrangements in society.

C269R. 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. Concurrently scheduled with course C169R.

Regional Cultures

271. Contemporary Problems in Africa. (4) (Formerly numbered 281P.) 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.

M272. Indians of South America. (4) (Same as Latin American Studies M250A.) Lecture, three hours. Survey of literature and research topics related to Indian cultures of South America. May be repeated for credit.

273. Cultures of the Middle East. (4) Seminar, three hours. Survey of literature and problems of various cultures of the Middle East.

277. Anthropology of China. (4) Seminar, three hours. Designed for graduate students. Survey of selected literature and current developments in field of Chinese social-cultural anthropology. Main topics include family and kinship, interpersonal relations, social differences, local elite and the state, rituals and beliefs, popular culture, consumerism, and cultural globalization. S/U or letter grading.

History, Theory, and Method

281. Selected Topics in History of Anthropology. (4) Particular problems in history of anthropology as dictated by interests of students and faculty. May be repeated for credit.

282. Research Design in Cultural Anthropology. (4) Primarily designed for graduate students preparing for fieldwork. Unique position of anthropology among the 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.

283. Formal Methods of Data Analysis in Anthropology. (4) Seminar, three hours. Current topics and issues related to formal analysis of data and representation of cultural constructs: formal models of kinship terminologies, structural models of cognitive systems, graph theoretic models of networks, models of decision making, hierarchical information systems, stability in complex adaptive systems. S/U or letter grading.

M284. Qualitative Research Methodology. (4) (Same as Community Health Sciences M216.) Discussion, 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. S/U or letter grading.

285. Schools, Domains, and Strategies in World Archaeology. (4) Seminar, three hours. Comparative examination of schools of world archaeology, contrasting their respective databases, research strategies, and relations to allied intellectual disciplines. Archaeologists from all departments are welcome, as are students interested in history or philosophy of science.

285P. Selected Topics in Anthropological/Archaeological Theory. (4) Seminar, three hours. Designed for graduate students. Variable topics course on important theoretical subjects in anthropology and archaeology. May be repeated for credit. S/U or letter grading.

286P. Selected Topics in Computer Simulation and Modeling. (4) Seminar, three hours. Requisite: course 180. Applications of computer simulations and/or models to specific problem areas of interest to anthropologists. Problem areas rotate with each offering and include cognitive ecological, demographic evolutionary, and other theoretical foci. S/U or letter grading.

287. Poststructural Theories. (4) Seminar, three hours. Designed for graduate students. Examination of development and application of poststructural theories in anthropology by exploring interdisciplinary connections, especially as they concern the concept of culture, narrative, ethnographic writing, reflexivity, politics of representation, historicity, and study of the self, identity, and the body. S/U or letter grading.

287P. Anthropology and Colonialism. (4) Designed for graduate students. Exploration of multifaceted nature of colonialism and its cultural manifestations in a variety of geographical areas. Reconsideration of history of anthropology for, as Talal Asad argues, "anthropology emerged as a distinctive discipline at the beginning of the colonial era." S/U or letter grading.

M287Q. Native American Historical Demography. (4) (Formerly numbered 287Q.) (Same as History M260D.) Lecture, two hours; discussion, one hour. Examination of population history of Native Americans north of Mexico prior to and following contacts with Europeans, Africans, and others, circa 1492. Emphasis on number of American Indians and other Native Americans, their decline following European contact, and their recent resurgence.

CM289A-CM289B. Theoretical Behavioral Ecology. (4) (Same as Organismic Biology CM295A-CM295B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM289A is requisite to CM289B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a pace and mathematical level that allows students to grasp this information. Within each area of theory (e.g., kin selection, optimal foraging theory, etc.), presentation of basic corpus of models so that students understand assumptions that underlie the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM189A-CM189B. Letter grading.

292. Making Oral Presentations. (4) Lecture/student presentations, two hours; discussion, one hour. Designed for graduate students. How to organize and present seminar reports, papers at scholarly conferences, and lectures to professional audiences. Opportunity for students to develop their speaking skills through actual practice in workshop atmosphere of mutual support and constructive criticism. S/U grading.

297. Selected Topics in Anthropology. (2 to 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.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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 a 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 M.A. S/U grading.

501. Cooperative Program. (2 to 8) 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) Directed individual studies. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 8) Preparation of research data and writing of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Ph.D. dissertation research or writing. Students must have completed qualifying examinations and ordinarily take no other coursework.

APPLIED LINGUISTICS

*Interdepartmental Program
College of Letters and Science*

UCLA
3300 Rolfe Hall
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Los Angeles, CA 90095-1531
(310) 825-4631
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John H. Schumann, Ed.D., *Chair*

Professors

Roger W. Andersen, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Raimo A. Anttila, Ph.D. (*Linguistics*)
Lyle Bachman, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Marianne Celce-Murcia, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Susan R. Curtiss, Ph.D. (*Linguistics*)
Alessandro Duranti, Ph.D. (*Anthropology*)
Charles Goodwin, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Marjorie Goodwin, Ph.D. (*Anthropology*)
Bruce P. Hayes, Ph.D. (*Linguistics*)
John Heritage, Ph.D. (*Sociology*)
Thomas J. Hinnebusch, Ph.D. (*Linguistics*)
Nina M. Hyams, Ph.D. (*Linguistics*)
Patricia A. Keating, Ph.D. (*Linguistics*)
Edward L. Keenan, Ph.D. (*Linguistics*)
Hilda J. Koopman, Ph.D. (*Linguistics*)
Pamela L. Munro, Ph.D. (*Linguistics*)
Elinor Ochs, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Emanuel A. Schegloff, Ph.D. (*Sociology*)
Russell G. Schuh, Ph.D. (*Linguistics*)
John H. Schumann, Ed.D. (*Applied Linguistics and Teaching English as a Second Language*)
Dominique L. Sportiche, Ph.D. (*Linguistics*)
Edward P. Stabler, Ph.D. (*Linguistics*)
Donca Steriade, Ph.D. (*Linguistics*)
Robert P. Stockwell, Ph.D. (*Linguistics*)
Anna Szaboltski, Ph.D. (*Linguistics*)

Professors Emeriti

George D. Bedell, Ph.D. (*Linguistics*)
William Bright, Ph.D. (*Linguistics*)
Russell N. Campbell, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Victoria A. Fromkin, Ph.D. (*Linguistics*)
Evelyn R. Hatch, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Mazisi R. Kunene, Ph.D. (*Linguistics*)
Peter N. Ladefoged, Ph.D. (*Linguistics*)
Earl J. Rand, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Paul M. Schachter, Ph.D. (*Linguistics*)

Associate Professors

Asif Agha, Ph.D. (*Applied Linguistics and Teaching English as a Second Language*)
Steven E. Clayman, Ph.D. (*Sociology*)
Paul B. Kroskrity, Ph.D. (*Anthropology*)
Anoop Mahajan, Ph.D. (*Linguistics*)
Marcyliena H. Morgan, Ph.D. (*Anthropology*)
Timothy A. Stowell, Ph.D. (*Linguistics*)

Assistant Professors

Sun-Ah Jun, Ph.D. (*Linguistics*)
Carson Schuetz, Ph.D. (*Linguistics*)

Lecturers

Donna Brinton, M.A. (*Applied Linguistics and Teaching English as a Second Language*)
Janet Goodwin, M.A. (*Applied Linguistics and Teaching English as a Second Language*)
Christine Holten, M.A. (*Applied Linguistics and Teaching English as a Second Language*)
Linda Jensen, M.A. (*Applied Linguistics and Teaching English as a Second Language*)

Adjunct Professor

Ian Maddieson, Ph.D. (*Linguistics*)

Scope and Objectives

Since language permeates every aspect of our social, economic, political, and academic pursuits, it is small wonder that we have deep abiding curiosity about its origin, its use, and its acquisition. The UCLA doctoral program in applied linguistics provides a rich and supportive environment for graduate students and faculty to define and resolve questions that satisfy that curiosity.

Faculty members of the Department of Applied Linguistics and Teaching English as a Second Language, as well as professors in Anthropology, Education, Linguistics, Psychology, and Sociology, represent a wide range of expertise and experience in language-related research. Their guidance and collaboration with students as they apply relevant elements of linguistics, psycholinguistics, and sociolinguistics result in substantial research findings in the areas of discourse/grammar analysis, language acquisition, and language assessment. Graduates of the program are well prepared to pursue academic and professional careers at the highest level of service and inquiry.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Masters's Degree

None.

Doctoral Degree

Admission

The basic requirement for admission to the program leading to the Ph.D. degree in Applied Linguistics is the completion of the UCLA M.A. degree in Teaching English as a Second Language (TESL) or in Linguistics or the equivalent of one of these. Applicants with a graduate degree in TESL, linguistics, applied linguistics, psycholinguistics, or sociolinguistics from an-

other recognized institution may be admitted provided they then make up the courses in one or the other of the two UCLA M.A. programs whose equivalents they have not yet taken. Applicants whose graduate degree is in other related disciplines (such as a foreign language, English, education, psychology, sociology, or anthropology) are advised to complete the UCLA M.A. in Linguistics or TESL before seeking admission to the Ph.D. program.

Prospective candidates are required to submit the following items by the preceding December 15: (1) a statement of purpose describing their research background and the type of dissertation they hope to prepare; (2) three letters of recommendation from professors who are well acquainted with their academic background; (3) the M.A. thesis or related research papers; (4) Graduate Record Examination (GRE) scores. International applicants should also submit their Test of English as a Foreign Language (TOEFL) scores.

The admissions committee considers all of the above criteria, as well as undergraduate and graduate grade-point averages, in deciding on the top candidates for the program.

Major Fields or Subdisciplines

Three areas of specialization are available: language acquisition, language assessment, and discourse analysis /functional grammar.

Course Requirements

Basic Preparation. Any of the following courses not already taken must be completed as early as possible and before advancement to candidacy for the degree. For basic preparation in applied linguistics, students can choose either a phonetics and phonology track, a syntax and semantics track, or a discourse analysis track. For all tracks, students must take Linguistics 120A, 120B, and Applied Linguistics and Teaching English as a Second Language 220. Under the phonetics and phonology track, students would then take Linguistics 165A or 200A, followed by Linguistics 201 or 203 or 204. Under the syntax and semantics track Linguistics 165B, and Linguistics 200B or 215 are taken. Under the discourse analysis track, students would take Applied Linguistics and Teaching English as a Second Language 260, followed by Applied Linguistics and Teaching English as a Second Language 271 or 274 or Sociology C244A, or Anthropology 204 or 242.

Units and Courses. As a breadth requirement, students must take at least 32 units of graduate-level coursework (in the 200 or 500 series). These 32 units may not include courses taken while completing basic preparation courses, Linguistics 275, Applied Linguistics and Teaching English as a Second Language 400, or Applied Linguistics 597 or 599. No more than eight of the 32 units may be in 596 courses, and these should be in Applied Linguistics 596, if possible. The 32 units must include eight units in one area outside the area of specialization.

Appropriate graduate courses taken at UCLA after completion of the M.A. but before admission to the doctoral program may be applied toward the eight-course requirement for the Ph.D. Credit may be transferred for up to two courses taken at another institution, but only for graduate-level courses taken after completion of the M.A. and preferably taken within the framework of UCLA's Applied Linguistics 501.

Within Graduate Division limits, courses that may be taken on an S/U basis include undergraduate courses taken as prerequisites to needed graduate courses, undergraduate courses not required, reading courses in a foreign language, graduate courses taken in addition to the required 32 units, Applied Linguistics 501, 597, 599, Applied Linguistics and Teaching English as a Second Language 400, and Linguistics 275. All other courses must be taken for letter grades.

Written and Oral Qualifying Examinations

In lieu of a written qualifying examination, two original research papers of publishable quality in different areas of specialization are required. These may be revised or extended seminar papers but must be prepared after admission to the Ph.D. program. Students are to choose the topics of these papers in consultation with appropriate faculty members and with the consent of the Ph.D. program adviser. Each of the finished papers is evaluated by two faculty members.

The doctoral committee administers the University Oral Qualifying Examination, the focus of which is a prospectus of the dissertation which must be submitted to the committee prior to the examination. The committee also has the responsibility for determining the adequacy of the student's preparation for writing the dissertation. If the prospectus and preparation are judged adequate, the choice of the dissertation topic is thereby approved, and the student becomes eligible for advancement to doctoral candidacy. In case of failure, the doctoral committee determines whether or not the student may be reexamined and if further courses must be taken before the reexamination.

Applied Linguistics

Graduate Courses

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA program 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. (4 to 8) Limited to Ph.D. students. Independent study in an area of applied linguistics. Up to eight units may be applied toward Ph.D. course requirements. May be repeated for credit.

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

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

Course List

Discourse Analysis/Functional Grammar

Applied Linguistics and Teaching English as a Second Language

- 260. Discourse Analysis
- 263. Crosslinguistic Topics in Functional Grammar I: Typology
- 264. Crosslinguistic Topics in Functional Grammar II: Discourse
- 265. Topics in Functional Grammar
- M266. Topics in Semantics and Pragmatics
- 268. Crosslinguistic Research Laboratory
- 269. Current Issues in Discourse Analysis
- 271. Advanced Seminar: Cohesion Analysis of English Structure
- M272. Grammar and Discourse
- M273. Grammar and Discourse Practicum
- 274. Advanced Seminar: Contextual Analysis of English Structure
- 278. Discourse Laboratory

English

- 241. Studies in Structure of the English Language

Linguistics

- 201. Phonological Theory II
- 202. Language Change
- 203. Phonetic Theory
- 204. Experimental Phonetics
- 205. Morphological Theory
- 206. Syntactic Theory II
- 207. Formal Semantics
- C209A, C209B. Computational Linguistics I, II
- 210A, 210B. Field Methods I, II
- 214. Survey of Current Syntactic Theories
- 215. Syntactic Typology
- 220. Linguistic Areas
- 225. Linguistic Structures
- 251A. Topics in Phonetics and Phonology
- 252A. Topics in Syntax and Semantics
- 253A. Topics in Language Variation
- 254A. Topics in Linguistics
- 256A, 256B. Topics in Phonetics and Phonology II: Proseminar
- 257A, 257B. Topics in Syntax and Semantics II: Proseminar
- 258A, 258B. Topics in Language Variation II: Proseminar
- 259A, 259B. Topics in Linguistics II: Proseminar
- 263A-263B-263C. Seminars: Language Variation (only one of these may be applied toward the 32-unit requirement)

Additional Courses in Other Departments

Anthropology

- 204. Core Seminar: Linguistic Anthropology
- M234Q. Psychological Anthropology
- 242. Ethnography of Communication
- 245. Linguistic and Intracultural Variation
- M249A-M249B. Ethnographic Methods in Discourse Analysis I, II

Education

- 204D. Minority Education in Cross-Cultural Perspective

German (Germanic Languages)

- C238. Linguistic Theory and Grammatical Description

Sociology

- C244A-C244B. Conversational Structures I, II
- C258. Talk and Social Institutions
- 266. Selected Problems in Analysis of Conversation
- 267. Selected Problems in Communication

Spanish (Spanish and Portuguese)

- 209. Dialectology
- 256A-256B. Studies in Spanish Linguistics
- 257. Studies in Dialectology

Language Acquisition

Applied Linguistics and Teaching English as a Second Language

- 221. Experiential Seminar: Second Language Learning
- 222. Discourse-Centered Language Learning
- 223. Topics in Psycholinguistics
- 224. Language Socialization
- 229. Current Issues in Language Acquisition
- 230. Advanced Seminar: Interlanguage Analysis
- 231. Crosslinguistic Topics in Language Acquisition

Linguistics

- 213A. Grammatical Development
- 213B. Brain Bases for Language
- C235. Neurolinguistics
- 254A. Topics in Linguistics
- 259A, 259B. Topics in Linguistics II: Proseminar
- 264A-264B-264C. Seminars: Special Topics in Linguistic Theory

Additional Courses in Other Departments

Education

- 217D. Language Development and Education
- 227B. Research on Cognitive and Language Characteristics of Exceptional Individuals

Psychiatry

- 257A-257B-257C. Communication Disorders Associated with Developmental Disabilities and Psychiatric Disorders

Psychology

- 240A-240B. Developmental Psychology
- 242F. Seminar: Developmental Psychology — Development of Language and Communication
- 260A-260B-260C. Proseminars: Cognitive Psychology
- 262. Human Learning and Memory
- 263. Psycholinguistics
- 268D. Seminar: Human Information Processing — Language and Cognition

Language Assessment

Applied Linguistics and Teaching English as a Second Language

- 240. Design and Development of Language Assessment Procedures
- 241. Analysis and Use of Language Assessment Data
- 242. Experimental Design and Statistics for Applied Linguistics
- 249. Current Issues in Language Assessment
- 250. Advanced Seminar: Language Assessment
- 258. Assessment Laboratory

Additional Courses in Other Departments

Education

- 200B. Survey Research Methods in Education
- 200C. Analysis of Survey Data in Education
- 202. Evaluation Theory
- 211A. Measurement of Educational Achievement and Aptitude
- 211B. Measurement in Education: Underlying Theory

211C. Item Response Theory
 219. Laboratory: Advanced Topics in Research Methodology
 221. Computer Analyses of Empirical Data in Education
 222C. Qualitative Data Reduction and Analysis
 230A. Introduction to Research Design and Statistics
 230B-230C. Linear Statistical Models in Social Science Research
 230X. Applied Research Design and Statistics for Social Sciences
 231A. Multivariate Analysis
 231B. Factor Analysis
 231C. Analysis of Categorical and Other Nonnormal Data
 231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis
 231E. Structural Equation Modeling
 412A. Criterion-Referenced and Norm-Referenced Test Construction

Psychology
 250A, 250B. Advanced Psychological Statistics
 252A. Multivariate Analysis
 253. Factor Analysis
 254A. Psychological Scaling
 254B. Cluster Analysis
 255. Quantitative Aspects of Assessment
 M257. Multivariate Analysis with Latent Variables
 259. Quantitative Methods in Cognitive Psychology

APPLIED LINGUISTICS AND TEACHING ENGLISH AS A SECOND LANGUAGE

College of Letters and Science

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 Janet Goodwin, M.A.
 Christine Holten, M.A.
 Linda Jensen, M.A.

Scope and Objectives

The M.A. program in Applied Linguistics and Teaching English as a Second Language (TESL) is intended primarily for individuals who wish to pursue a career in applied linguistics research. It is designed to provide both breadth of knowledge in several areas of applied linguistics and the specialized knowledge and skills needed to plan and conduct research in one area.

The program is a two-year course of graduate study leading to a Master of Arts degree. The orientation of the program is toward research, and a thesis is required. The first year is designed to provide students with a fundamental understanding of the principles, issues, problems, and approaches to research in each of three areas within the discipline: language acquisition, assessment, and discourse analysis/functional grammar. It is expected that during the first year students identify one of these areas for specialization and begin consulting with a faculty member about areas of possible thesis research. During the second year students are expected to complete advanced courses in their selected area of specialization and to complete their thesis research.

In addition, the Department of Applied Linguistics and Teaching English as a Second Language and the Department of Linguistics offer an interdepartmental degree program leading to a Ph.D. in Applied Linguistics. For information, write to the Applied Linguistics Program, 3300 Rolfe Hall, UCLA, Box 951531, Los Angeles, CA 90095-1531.

A limited number of teaching assistantships are available to qualified M.A. and Ph.D. students. For information and applications, write to the Academic Coordinator, ESL Service Courses, 3300 Rolfe Hall, UCLA, Box 951531, Los Angeles, CA 90095-1531.

Undergraduate Study

Language, Interaction, and Culture Minor

The Language, Interaction, and Culture minor is designed to train students in the naturalistic study of discourse in everyday interaction.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 80 quarter units, and file a petition with the minor adviser, 3300A Rolfe Hall, (310) 825-4631.

Required Lower Division Courses (eight): Two courses from the following, with each course from a different group: group 1 — Anthropology 33 or 34; group 2 — Sociology 3 or 24; group 3 — Linguistics 1 or 2 or 20.

Required Upper Division Courses (28): Applied Linguistics and Teaching English as a Second Language M194 and six courses from the following, with at least one course from each group: group 1 — Anthropology M140, 141, 142A, 143, 144, M145, 146; group 2 — Sociol-

ogy CM124A, CM124B, CM125, 126, M176; group 3 — Applied Linguistics and Teaching English as a Second Language 100, C116, 121, 125, 161, 170, M189, Chicana and Chicano Studies 160, 161, 162, Japanese 120, CM122, Linguistics 114, 170.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. No more than two upper division elective courses may be applied toward both the students' majors and this minor. Successful completion of the minor is indicated on the transcript and diploma.

Teaching English as a Second or Foreign Language Minor

The Teaching English as a Second or Foreign Language minor provides students with an overview of current second language pedagogical theories and practices; the experience of observing the second language acquisition process both in and out of the classroom; a supervised practicum experience in a variety of second language classroom settings; and an opportunity to reflect on the interaction of theory and practice in the teaching of English as a second or foreign language.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 80 quarter units, and file a petition with the minor adviser, 3300A Rolfe Hall, (310) 825-4631.

Required Lower Division Course (four): Linguistics 20 with a grade of C or better.

Required Upper Division Courses (28): (1) Three pedagogical foundation courses from Applied Linguistics and Teaching English as a Second Language 101 or C110, C116, C118; (2) a minimum of two pedagogical skill courses from C111, C112, C113, C115, C117; (3) a maximum of two courses in language and/or educational issues from English 121, English Composition 120A, 120B, 120C, 132C, Linguistics 10, C130, 140, 175. Students may complete all requirements for the minor by taking courses in items 1 and 2 above.

A minimum of 20 units applied toward the minor requirements must be **in addition** to courses applied toward major requirements, and at least 16 units applied toward the minor must be taken in residence at UCLA. All minor courses must be taken for a letter grade, with a minimum grade of C (2.0) in each and an overall C average. Transfer credit for any of the above is subject to departmental approval; consult the interdepartmental adviser before enrolling in any courses for the minor.

Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program*

Requirements for UCLA Graduate Degrees. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Applied Linguistics and Teaching English as a Second Language offers (1) the Master of Arts (M.A.) degree in Applied Linguistics and Teaching English as a Second Language and (2) the Master of Arts (M.A.) degree in Teaching English as a Second Language.

Applied Linguistics and Teaching English as a Second Language

Admission

Students normally apply to the M.A. program if they desire advanced training in the field. Because of the sequential nature of courses given during the first year, students are admitted only for Fall Quarter. To be admitted to the M.A. program, U.S. citizens and students from other countries must have the equivalent of an American bachelor's degree. Applicants must also have taken the equivalent of Linguistics 120A and 120B (or make them up as deficiency courses).

After admission, students must maintain a grade-point average of at least B (3.0). A GPA of 3.25 (B+) is a requisite for entering the second year of the M.A. program and must be maintained throughout the second year.

Applications for admission may be obtained from the graduate adviser. The program requires three letters of recommendation in support of the application. Students are requested to submit letters of recommendation directly to the graduate adviser, Department of Applied Linguistics and Teaching English as a Second Language, UCLA, 3300 Rolfe Hall, Box 951531, Los Angeles, CA 90095-1531. Since admission is limited to approximately 20 students per year, it is important that completed applications and supporting papers be submitted by December 15.

The admissions committee screens all applications using the following criteria: grade-point average (must be 3.0 or better), Graduate Record Examination (GRE) scores, Test of English as a Foreign Language (TOEFL) scores for international applicants whose native language is not English, a relevant research paper, letters of recommendation, and a statement of purpose. A personal interview is not required for admission. The statement of purpose should contain the following information: (1) reasons for wishing to study applied linguistics at UCLA; (2) area of applied linguistics in which the applicant may want to specialize and do research, reasons for this interest and qual-

ifications and professional experience relevant to doing research in this area; and (3) knowledge of other languages, dialects, or cultures.

International students who hold a bachelor's degree or higher from a university in a country where the official language is English and in which English is the medium of instruction, or who have completed at least two years of full-time study at such an institution, are exempt from the Test of English as Foreign Language (TOEFL) and the UCLA English as a Second Language Placement Examination (ESLPE). All other applicants must take the TOEFL prior to arrival at UCLA, submitting the score as part of the application process. These students must also take the ESLPE upon arrival at UCLA. Depending on the results of this examination, students may be required to take English as a Second Language courses to improve their command of academic English.

Areas of Study

Three areas of specialization in Applied Linguistics and Teaching English as a Second Language are available: second language acquisition, assessment, and discourse analysis.

Second Language Acquisition

Research in this area focuses predominantly on second language processes, which include research on (1) interlanguage systems; (2) underlying cognitive mechanisms that account for these systems; (3) the social, affective, and neurobiological factors that influence second language development; and (4) the effect of instruction on the process. Additional areas of inquiry include the relationship between first and second language acquisition, the effect of first language transfer, the interface between various linguistic theories and second language acquisition, and the comparisons between native and nonnative linguistic systems and how speakers use them in natural discourse.

Language Assessment

Language assessment is an area of applied linguistics that is concerned with the empirical investigation of theoretical questions on the one hand, and with providing useful tools for assessment on the other. Language testing research has as its goals the formulation and empirical investigation of theories of language use in its widest sense. Specialization in the area of language assessment enables students to acquire an understanding of the conceptual foundations for language testing, the goals of language testing research and language test development, and current issues and problems in language testing. Students receive training in the development of language tests, the analysis of test results, and the interpretation and use of test results, enabling them to design and conduct research into theoretical questions in language testing.

Discourse Analysis

Discourse analysis is a broad area of research concerned with how language users produce and interpret language in context. Discourse analysts study the linguistic structure of

speech acts, conversational sequences, speech activities, oral and literate registers, and stance marking, among other constructions, and seek to relate these constructions to social and cultural norms, preferences, and expectations. The field articulates how lexicogrammar and discourse systematically vary across social situations and at the same time help to define those situations. Analysis is conducted primarily through databases or corpus-based research, supplemented by other methods as appropriate (e.g., observation, elicitation, introspection). Analysts attend to the form, meaning, and function of language whether they begin with discourse-level segments and work down to forms or begin with forms and work up to the discourse level.

Discourse analysis may be carried out as an end in itself or as a tool contributing to research in language acquisition or language assessment

Course Requirements

A total of 10 courses is required for the M.A. degree, including a minimum of seven 200-series courses. Nine of these courses are applied toward the University's nine-course minimum for the master's degree. A total of eight units of 500-series courses may be applied toward the 10 courses required by the department for the M.A.; however, only four of those units may be used to fulfill the University's nine-course minimum requirement for the degree. In addition, those students lacking a significant foreign language background are required to complete two additional foreign language electives.

Requisites: Introductory course in phonetics, phonology, and syntax equivalent to UCLA's Linguistics 103, 120A, 120B; a minimum of two quarters of a foreign language.

First-Year Curriculum

The typical course of study for the first year of the M.A. program is as follows:

Fall Quarter: Applied Linguistics and Teaching English as a Second Language 204, 206, one additional course.

Winter Quarter: Applied Linguistics and Teaching English as a Second Language 201, two additional courses.

Spring Quarter: Applied Linguistics and Teaching English as a Second Language 202, two additional courses.

Five foundation courses (Applied Linguistics and Teaching English as a Second Language 200, 202, 204, 206, C210) are required. Choice of additional coursework in the first year is flexible and is to be determined in conjunction with the faculty mentor and graduate adviser. Those students lacking the requisite linguistics courses and foreign language background are expected to take these courses within their first two quarters.

Students wishing to obtain a Certificate in Teaching English as a Second Language or who desire advanced language education training in order to serve as teaching assis-

tants might choose to take certain professional development electives. Students coming to the program from fields other than linguistics may need to take additional courses in the nature of language and language analysis, in order to better prepare themselves for advanced study in one of the three areas of specialization offered in this program. Exceptions to the above requirements are made only after consultation with the faculty mentor and graduate adviser.

Second-Year Curriculum

The typical course of study for the second year of the M.A. program is as follows:

Fall Quarter: Applied Linguistics and Teaching English as a Second Language 200, two guided electives.

Winter Quarter: Applied Linguistics and Teaching English as a Second Language 598, two guided electives.

Spring Quarter: Applied Linguistics and Teaching English as a Second Language 400, 598.

During the second year, students complete their specialization and elective course requirements and work on their thesis. The four elective courses are to be chosen in consultation with the faculty adviser/mentor from courses in the department. Two of these electives must be 200-series courses in the student's area of specialization, beyond the foundation courses. In order to enhance an interdisciplinary perspective, students are also encouraged to take relevant electives in other departments, such as anthropology, education, linguistics, neuroscience, psychology, and sociology.

At the beginning of the fourth quarter, students must enroll in Applied Linguistics and Teaching English as a Second Language 200. By the end of the fourth quarter the thesis proposal must be approved by the thesis committee and submitted to the department chair. Once students complete the thesis proposal, they enroll in Applied Linguistics and Teaching English as a Second Language 598, which is conducted as an independent tutorial with the master's thesis committee chair as mentor until the thesis is completed, typically the end of the second year. Students may only apply course 598 once toward the 10-course requirement.

Applied Linguistics and Teaching English as a Second Language 400 is a seminar in which M.A. candidates present and defend the results of their thesis research. Enrollment is required in the Spring Quarter but does not count as one of the 10 courses required for the M.A. degree.

Teaching English as a Second Language Certificate

Successful completion of the following courses, by graduate students enrolled in degree programs, qualifies students for a Teaching English as a Second Language Certificate, which is not a California State Teaching Credential: Linguistics 20; Applied Linguistics and Teaching English as a Second Language 202 or 220 or 230 or 231; C210/C110; C211/C111

or C212/C112 or C217/C117; C213/C113 or Linguistics 103; C216/C116; C218/C118; and two quarters of a foreign language.

Comprehensive Examination

None.

Thesis Plan

The culmination of the mentoring relationship during the M.A. degree is the master's thesis, which is based on research that each student plans and conducts under the supervision of a faculty mentor. The master's thesis is a substantial research report, which could provide the basis for a journal article. During the fourth quarter, each student must enroll in Applied Linguistics and Teaching English as a Second Language 598. In this course, the student prepares a thesis proposal and forms, in collaboration with a faculty mentor, a thesis committee, which consists of three members of the Academic Senate, at least two of whom must be from the department. By the end of the fourth quarter the thesis proposal must be approved by the thesis committee and submitted to the department chair.

Teaching English as a Second Language

Admission

Students normally apply for the M.A. in Teaching English as a Second Language if they desire advanced training in the field. Because of the sequential nature of courses given during the first year, students are admitted only at the beginning of Fall Quarter. To be admitted to the M.A. program, U.S. citizens and students from other countries must have the equivalent of an American bachelor's degree.

After admission, students must maintain a grade-point average of at least B (3.0). A GPA of 3.25 (B+) is required of students entering the second year of the M.A. program and must be maintained throughout the second year.

Applications for admission may be obtained from the graduate adviser. The program requires three letters of recommendation in support of the application. Applicants are requested to submit letters of recommendation directly to the graduate adviser in the department. Since admission is limited to approximately 25 students per year, it is important that completed applications and supporting papers be submitted by January 8.

The admissions committee screens all applications using the following criteria: grade-point average (must be 3.0 or better); Graduate Record Examination (GRE) scores; Test of English as a Foreign Language (TOEFL) scores for international applicants whose native language is not English; a relevant research paper; letters of recommendation; and a statement of purpose. A personal interview is not required for admission. The statement of purpose should contain the following information: (1) reasons for wishing to study Teaching English as a Second Language at UCLA; (2) spe-

cial qualifications as a researcher or a teacher; (3) knowledge of languages other than English; and (4) knowledge of other cultures.

Areas of Study

Consult the department.

Course Requirements

Requisite: Linguistics 20 or equivalent.

First-Year Curriculum

The typical course of study for the first year of the M.A. program is as follows:

Fall Quarter: Applied Linguistics and Teaching English as a Second Language C210, 265, foreign language requirement or elective (course depends on language requirement plan).

Winter Quarter: Applied Linguistics and Teaching English as a Second Language C216 or C116, 220 or 229 or 231, foreign language requirement or elective (course depends on language requirement plan).

Spring Quarter: Applied Linguistics and Teaching English as a Second Language C211 or C111, or C212 or C112, or C217 or C117, or C218 or C118, Linguistics 103 or Applied Linguistics and Teaching English as a Second Language C213 or C113.

Exceptions to the above requirements are made only after consultation with the graduate adviser.

Of the nine courses required the first year, at least seven must be in applied linguistics and teaching English as a second language, English, linguistics, or structure of language courses in language departments.

Successful completion of the above courses qualifies students for a Teaching English as a Second Language Certificate, which is not a California State Instructional Credential.

Second-Year Curriculum

A total of 14 courses is required for the M.A. degree, including a minimum of four 200-series courses. Four of the nine courses taken during the first year (usually Applied Linguistics and Teaching English as a Second Language C216 or C116, 220 or 229 or 231, 265, and Linguistics 103 or Applied Linguistics and Teaching English as a Second Language C113 or C213) and, in special cases, two of the electives (100 or 200 series only) may be applied toward the University's nine-course minimum requirement for master's degrees. This leaves five courses to be completed in consultation with the graduate adviser during the second year.

Once the thesis proposal in course 598 is completed, the student continues to enroll in this course until the thesis is completed, typically the end of the second year. Only one 598 course may be applied toward the 14-course requirement.

A total of eight units of 500-series courses may be applied toward the 14 courses required for the degree; however, only four units may be used to fulfill the Graduate Division minimum requirement of five graduate-level courses.

Applied Linguistics and Teaching English as a Second Language 400 is a seminar in which M.A. candidates present and defend the results of their thesis research. Enrollment is required in Spring Quarter, but the course does not count as one of the 14 courses required for the M.A. degree.

The electives taken during the second year should be selected, in consultation with the faculty M.A. adviser and the chair of the thesis committee, as a sequence of related courses relevant to the student's thesis topic. Any changes in the program must be approved by both the committee chair and the M.A. adviser.

Comprehensive Examination Plan

None.

Thesis Plan

By the end of the fourth quarter, a thesis proposal, signed by two faculty members, is submitted to the faculty. At this time, plans for the thesis are approved and the thesis committee is established. An outside member is required.

Applied Linguistics and Teaching English as a Second Language

Upper Division Courses

100. Discourse and Society. (4) Lecture, four hours; discussion, two hours. Important contemporary perspectives for study of language in its social and cultural matrix. Topics include conversational organization, narrative, repair and grammatical organization, language in cultural settings, language socialization, and language impairment and institutional discourse. Focus on analysis of audio and video recordings of talk in a variety of natural settings. P/NP or letter grading.

101. Introduction to Language Learning and Language Teaching. (4) Lecture, two hours; discussion, two hours. Requisite: Linguistics 1. Exploration of skills and conditions involved in successful second and foreign language learning; application of this knowledge in development of framework for teaching second and foreign languages. P/NP or letter grading.

C110. Theories of Language Education and Learning. (4) Lecture, four hours; outside study, four to eight hours. Requisite: Linguistics 20. Survey of theory and practice in teaching of second languages, including (1) current and historical views of second language instruction, (2) overview of first language acquisition and comparison of second language acquisition, (3) survey of factors which affect second language acquisition process, (4) presentation of language learning and teaching models. Concurrently scheduled with course C210. P/NP or letter grading.

C111. Writing for Language Education. (4) (Formerly numbered C106.) Lecture, four hours. Survey of important theoretical and methodological issues related to second language written discourse and composition for second language writers, including critical examination of classroom research and overview of issues in evaluating and responding to written text. Concurrently scheduled with course C211. P/NP or letter grading.

C112. Reading for Language Education. (4) (Formerly numbered C107.) Lecture, four hours. Survey of important theoretical and methodological issues related to second language reading, including critical examination of reading research and evaluation of research paradigms and classroom materials. Concurrently scheduled with course C212. P/NP or letter grading.

C113. Phonetics for Language Education. (4) (Formerly numbered C103.) Lecture, four hours. Requisite: Linguistics 20. Examination of phonological structure of contemporary American English, with emphasis on appropriate teaching techniques in ESL/EFL settings, including critical examination of classroom materials and overview of methods of evaluating student pronunciation. Concurrently scheduled with course C213. P/NP or letter grading.

C115. Media for Language Education. (4) Seminar, four hours. Requisite: course 101 or C110. Rationale and pedagogical application for using media equipment and materials in the second/foreign language classroom. Training in standard classroom media equipment operation, basic materials preparation, and production techniques, and review of published media materials, with focus on their application to second/foreign language instruction. Concurrently scheduled with course C215. Letter grading.

C116. Structure of Present-Day English. (4) (Formerly numbered C122.) Lecture, six hours. Requisite: Linguistics 20. Survey of grammatical structures of English. Aims to provide insights from discourse analysis and a variety of approaches to grammatical analysis, including error analysis and remediation techniques. May be concurrently scheduled with course C216. Letter grading.

C117. Literature in Language Education. (4) (Formerly numbered C109.) Lecture, four hours. Survey of important theoretical and methodological issues related to teaching literature to students in ESL/EFL settings and examination of appropriate classroom materials. Strong emphasis on cultural basis for literature. Concurrently scheduled with course C217. P/NP or letter grading.

C118. Language Teaching Practicum. (4) Seminar, four hours. Requisites: courses C110, C116. Theoretical and practical concerns regarding second language teaching, with emphasis on fieldwork experiences and grounding of solutions to problems faced in current research in language education and language pedagogy. Project required if taken for letter grade. Concurrently scheduled with course C218. P/NP or letter grading.

121. Language Learning and Immigrant Experience. (4) Seminar, four hours. Exploration of value and relevance of linguistic anthropological, ethnomethodological, sociocultural, pragmatic, and sociolinguistic approaches to study of immigration and second language acquisition. Readings from language learning memoir provide literary account of immigrant experience which illustrates intimate relationship between language and culture in second language learning. Letter grading.

125. Language Socialization. (4) Seminar, four hours. Exploration of process of socialization through language, and socialization to use language across life span, across communities of practice within a single society, and across different ethnic and socioeconomic groups. Examination of ways in which verbal interaction between novices and experts is structured linguistically and culturally. Letter grading.

161. Talk and the Body. (4) Seminar, four hours. Relationship between language and human body raises a host of interesting topics. New approaches to phenomena such as embodiment become possible when the body is analyzed, not as an isolated entity, but as a visible agent whose talk and action are lodged within both processes of human interaction and rich settings where people pursue courses of action that count in their lives. Letter grading.

170. Field Methods in Discourse and Society. (4) Seminar, four hours. Ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community settings. Emphasis on hands-on activities within theoretical frameworks that consider language as a social and cultural practice. Letter grading.

M189. Metaphor and Literal Speech. (4) (Same as Philosophy M173.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: Linguistics 1. Use of interdisciplinary perspective to examine systematicity of form and function peculiar to human language that underlies dichotomy between (1) neutral or literal capacity of language and (2) metaphorical capacity. P/NP or letter grading.

M194. Senior Seminar: Language, Interaction, and Culture. (4) (Same as Anthropology M194 and Sociology M194.) Seminar, four hours. Limited to seniors in language, interaction, and culture minor. Capstone course. Students carry out and present empirical research project that integrates methodologies and perspectives of at least two of the disciplinary areas (anthropology, applied linguistics, sociology) covered in course. Letter grading.

Graduate Courses

200. Research in Applied Linguistics. (4) Requisites: courses 201, 202, 204, 206. Within context of a current research area in applied linguistics (language assessment, language acquisition, discourse/functional grammar), all M.A. students prepare and submit viable research proposal for M.A. thesis.

201. Functional Foundations of Language. (4) Requisite: Linguistics 20. Introduction to analysis and description of form, meaning, and function of structures (morphological and syntactic), lexical items, and linguistic features of discourse. Exploration of variety of approaches integrating form, meaning, and function.

202. Foundations of Language Acquisition. (4) Requisite: Linguistics 20. Introduction to theoretical and empirical research in language acquisition and second language acquisition. Linguistic nature of learners' interlanguage systems and underlying cognitive mechanisms posited to explain them, as well as various social, affective, and neurobiological factors which affect ultimate success of learner.

204. Foundations of Language Assessment. (4) Requisite: Linguistics 20. Conceptual foundations of language assessment, including nature of measurement, nature of language ability, uses of language assessment in research, types and characteristics of assessment methods, reliability, and validity. Current issues and problems in language assessment.

206. Social Foundations of Language. (4) Requisite: Linguistics 20. Basic grounding in sociolinguistic theory and methodology. Introduction to current issues in study of situated behavior, including varied ways scholars visualize relation between language and social context.

C210. Theories of Language Education and Learning. (4) (Formerly numbered 210.) Lecture, four hours; outside study, four to eight hours. Requisite: Linguistics 20. Survey of theory and practice in teaching of second languages, including (1) current and historical views of second language instruction, (2) overview of first language acquisition and comparison of second language acquisition, (3) survey of factors which affect second language acquisition process, (4) presentation of language learning and teaching models. Concurrently scheduled with course C110. S/U or letter grading.

C211. Writing for Language Education. (4) Lecture, four hours. Survey of important theoretical and methodological issues related to second language written discourse and composition for second language writers, including critical examination of classroom research and overview of issues in evaluating and responding to written text. Concurrently scheduled with course C111. Additional assignments required of graduate students. S/U or letter grading.

C212. Reading for Language Education. (4) Lecture, four hours. Survey of important theoretical and methodological issues related to second language reading, including critical examination of reading research and evaluation of research paradigms and classroom materials. Concurrently scheduled with course C112. Additional assignments required of graduate students. S/U or letter grading.

C213. Phonetics for Language Education. (4) Lecture, four hours. Requisite: Linguistics 20. Examination of phonological structure of contemporary American English, with emphasis on appropriate teaching techniques in ESL/EFL settings, including critical examination of classroom materials and overview of methods of evaluating student pronunciation. Concurrently scheduled with course C113. Additional assignments required of graduate students. S/U or letter grading.

214. Materials Development for Language Education. (4) (Formerly numbered 220.) Preparation: at least two years of second language instruction experience. Requisite: course C210. Planning and preparation of an original set of language teaching materials geared to needs of a specified group of learners. Revisions of first drafts and evaluation of one's own work and that of one's peers. Introduction to process of publishing language teaching materials.

C215. Media for Language Education. (4) (Formerly numbered 215.) Seminar, four hours. Requisite: course C210. Rationale and pedagogical application for using media equipment and materials in the second/foreign language classroom. Training in standard classroom media equipment operation, basic materials preparation, and production techniques, and review of published media materials, with focus on their application to second/foreign language instruction. Concurrently scheduled with course C115. Letter grading.

C216. Structure of Present-Day English. (4) Lecture, six hours. Requisite: Linguistics 20. Survey of grammatical structures of English. Aims to provide insights from discourse analysis and a variety of approaches to grammatical analysis, including error analysis and remediation techniques. May be concurrently scheduled with course C116. Additional assignments required of graduate students. Letter grading.

C217. Literature in Language Education. (4) Lecture, four hours. Survey of important theoretical and methodological issues related to teaching literature to students in ESL/EFL settings and examination of appropriate classroom materials. Strong emphasis on cultural basis for literature. Concurrently scheduled with course C117. Additional assignments required of graduate students. S/U or letter grading.

C218. Language Teaching Practicum. (4) (Formerly numbered 218.) Seminar, four hours. Requisites: courses C210, C216. Theoretical and practical concerns regarding second language teaching, with emphasis on fieldwork experiences and grounding of solutions to problems faced in current research in language education and language pedagogy. Project required if taken for letter grade. Concurrently scheduled with course C118. S/U or letter grading.

219. Current Issues in Language Education. (4) (Formerly numbered 229.) Requisite: course C210. Specialized topics in language education of interest to graduate students. Emphasis varies according to current topics of theoretical concern in the field. May be repeated for credit with topic change. S/U or letter grading.

220. Language Acquisition. (4) (Formerly numbered 241.) Requisite: course 202. Designed for advanced graduate students (beginning Ph.D. and second-year M.A.). Hands-on project-oriented survey of research on acquisition of both first and second languages from a crosslinguistic and interdisciplinary perspective.

221. Experiential Seminar: Second Language Learning. (4) (Formerly numbered 227.) Requisite: course 202. Students learn an uncommonly taught language with use of authentic language materials (video and audio recordings and print materials). Discussion of experience in terms of issues in language learning and language teaching. S/U or letter grading.

222. Discourse-Centered Language Learning. (4) (Not the same as course 222 prior to Fall Quarter 1997.) Requisite: course 202. Case-study and project-based research seminar on classroom language learning with authentic discourse input (usually in form of video and audio recordings of natural spoken discourse). Development of theoretical and technical tools for determining what can be learned from such recordings and how this learning might be facilitated, based on current second language acquisition research.

223. Topics in Psycholinguistics. (4) (Formerly numbered 260.) Requisite: course 202. Detailed examination of specialized topics in psycholinguistics. Topics vary from year to year and may include language and cognitive science, types and theories of bilingualism, learning theories and their influence on language teaching. May be repeated for credit with topic change.

224. Language Socialization. (4) (Formerly numbered 285.) Requisite: course 206. Exploration of process of socialization through language and socialization to use language across the life span, across communities of practice within a single society, and across different ethnic and socioeconomic groups. Ways in which verbal interaction between novices and experts is structured linguistically and culturally.

229. Current Issues in Language Acquisition. (4) (Formerly numbered 269.) Requisite: course 202. Designed to explore current issues in language acquisition from both a theoretical and applied research perspective and to provide actual experience in addressing a current topic. Specific topics vary according to trends in the field. May be repeated for credit with topic change.

230. Advanced Seminar: Interlanguage Analysis. (4) (Formerly numbered 251.) Requisite: course 220. Analysis of interlanguage from various points of view (e.g., topic-comment structure, tense, aspect, modality, thematic structure of utterances), with aim of understanding how interlanguage is organized. Original research projects.

231. Crosslinguistic Topics in Language Acquisition. (4) (Formerly numbered 271.) Requisite: course 220. Advanced seminar on language acquisition in which a particular linguistics topic (e.g., development of tense/aspect, reference, subordination, agreement) is pursued from crosslinguistic and cross-disciplinary perspectives. Focus on language-specific vs. universal (i.e., crosslinguistically valid) mechanisms of language development. May be repeated for credit with topic change.

240. Design and Development of Language Assessment Procedures. (4) Requisite: course 204. Considerations in design and development of language assessment procedures and major types of assessment procedures for different language abilities. Practical experience in design and construction of assessment procedures. Project required. S/U or letter grading.

241. Analysis and Use of Language Assessment Data. (4) Requisite: course 204. Collection, analysis, and use of data from language assessment procedures. Topics include collecting feedback, descriptive statistics, qualitative data reduction techniques, item analysis and approaches to estimation of reliability and to validation of data-based interpretations. Project required. S/U or letter grading.

242. Experimental Design and Statistics for Applied Linguistics. (4) (Formerly numbered 209.) Requisite: course 204. Specialized topics of interest to graduate students in applied linguistics, with focus on design and interpretation of research projects in the field. Exploration of issues in both qualitative and quantitative study design, interpretation of findings, and presentation of results. Emphasis varies according to current theoretical methodological trends in the field. Project required. S/U or letter grading.

249. Current Issues in Language Assessment. (4) (Formerly numbered 232.) Requisite: course 204. Designed to explore current issues in language assessment from both theoretical and practical perspectives and to provide actual experience in addressing a current issue. Specific topics vary according to trends in the field. May be repeated for credit with topic change. S/U or letter grading.

250. Advanced Seminar: Language Assessment. (4) Requisites: courses 204, 241. Designed to cover application of a technical issue such as reliability, validation, criterion-referenced assessment, generalizability theory, item-response theory, or program evaluation to language assessment in depth. Specific topics vary. Project required. May be repeated for credit with topic change. S/U or letter grading.

258. Assessment Laboratory. (4) Collaborative coursework, with focus on specific theoretical and applied issues in development of innovative language assessment procedures for use in real-world settings. Specific projects determined by research being conducted by the working group in language assessment. Activities include designing and developing measurement instruments, gathering and analyzing data, and interpreting and reporting results. May be repeated for credit. S/U or letter grading.

260. Discourse Analysis. (4) (Formerly numbered 283.) Requisite: course 206. Survey course covering language teaching and discourse analysis; discourse analysis and syntax; planned and unplanned discourse; conversational analysis; analysis of speech events; unequal power discourse; and analysis of classroom discourse.

263. Crosslinguistic Topics in Functional Grammar I: Typology. (4) Requisite: course 202. Survey of a particular linguistic area from typological perspective within functional grammar framework. Topics include tense/mood/aspect, nominal reference, word order. May be repeated for credit with topic change.

264. Crosslinguistic Topics in Functional Grammar II: Discourse. (4) Requisite: course 263. Crosslinguistic study of discourse function of grammatical devices. Topics include tense/mood/aspect, nominal reference, word order. May be repeated for credit with topic change.

265. Topics in Functional Grammar. (4) (Formerly numbered 249.) Requisite: course 201. Specialized topics in functional grammar of interest to graduate students in applied linguistics. Emphasis varies according to current topics of theoretical import in the field, such as voice, nominal reference, and word order. May be repeated for credit with topic change.

M266. Topics in Semantics and Pragmatics. (4) (Formerly numbered 266.) (Same as Anthropology M247.) Requisite: course 201. 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.

268. Crosslinguistic Research Laboratory. (4) (Formerly numbered 286.) Advanced procedures in data analysis in crosslinguistic research, including critical reading of relevant publications. Students must work toward a specific program-relevant product, such as thesis, dissertation proposal, qualifying paper, dissertation, research paper, or grant proposal. May be repeated for credit. S/U or letter grading.

269. Current Issues in Discourse Analysis. (4) (Formerly numbered 289.) Requisite: course 206. Specialized topics in discourse analysis of interest to graduate students in applied linguistics. Emphasis varies according to current topics of theoretical and practical concern in the field. May be repeated for credit with topic change.

M270A-M270B. Ethnographic Methods in Discourse Analysis I, II. (4-4) (Same as Anthropology M249A-M249B.) Two-term sequence on ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in a community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as a social and cultural practice. S/U or letter grading. **M270A.** Devoted to skills related to collecting socially and culturally meaningful data. **M270B.** Requisite: course M270A. Devoted to production of ethnographic analysis, including how to present an analysis in form of a conference talk and how to develop an analysis into a grant or dissertation proposal.

M270P. Ethnographic Technologies Laboratory I. (4) (Same as Anthropology M249P.) Corequisite: course M270A or Anthropology M249A. Hands-on mentorship in entering a community, obtaining informed consent, interviewing, note taking, and video-recording verbal interaction. S/U grading.

M270Q. Ethnographic Technologies Laboratory II. (4) (Same as Anthropology M249Q.) Corequisite: course M270B or Anthropology M249B. Hands-on mentorship in editing ethnographic video footage, incorporating video frame grabs into transcript and analysis of verbal interaction, writing a grant proposal, and assembling a conference presentation. S/U grading.

271. Advanced Seminar: Cohesion Analysis of English Structure. (4) (Formerly numbered 250.) Requisite: course C216. Investigation in depth of selected linguistic features of oral and written texts that go beyond sentence level and thus signal cohesion. Study of structures to determine their function in a variety of English texts representing several discourse types.

M272. Grammar and Discourse. (4) (Formerly numbered 272.) (Same as Anthropology M246A.) Requisite: course 201. Survey of grammar- and discourse-based approaches to study of language as meaningful form. Topics include grammatical and indexical categories, referential and social indexicality, relation of syntax to semantics and pragmatics, markedness, universals, cultural and cognitive implications of language structure and use. S/U or letter grading.

M273. Grammar and Discourse Practicum. (4) (Formerly numbered 273.) (Same as Anthropology M246B.) Requisite: course M272. Survey of advanced topics in grammar and discourse, including predicates, arguments and grammatical relations, noun phrase categories, case marking, verbal categories, topic marking devices, registers and speech varieties, reported speech, genre and text structure in discourse. Presentation and analysis of data from range of languages. S/U or letter grading.

274. Advanced Seminar: Contextual Analysis of English Structure. (4) (Formerly numbered 252.) Requisite: course C216. Examination of selected words and/or structures in oral and written texts to determine when and why they occur. Beginning with frequency and distribution of the form(s), exploration of meaning and function of the form(s).

278. Discourse Laboratory. (4) (Formerly numbered 288.) Requisites: courses 206, 260, two other discourse analysis courses. Designed for applied linguistics Ph.D. students. Advanced procedures in data analysis in the field of discourse analysis, including development of a large-scale research project and critical review of current research. May be repeated for credit. S/U or letter grading.

291. Current Issues in Applied Linguistics. (4) Specialized topics in applied linguistics of current relevance in two or more of the following areas: language acquisition, language assessment, and discourse analysis/functional grammar, and of interest to students in applied linguistics and TESL. Emphasis varies according to current topics of theoretical concern in the field. May be repeated for credit with topic change. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

400. Applied Linguistics and TESL M.A. Colloquium. (4) Discussion, four hours. M.A. candidates present and defend results of their thesis research. Required of all candidates but may not be applied toward M.A. degree requirements. Candidates for Ph.D. in Applied Linguistics may also use this course to report on their dissertations. S/U grading.

495. Training and Supervision of Teaching Assistants. (2) Seminar, two or more hours. Preparation: appointment as a teaching assistant. Orientation, preparation, and supervision of graduate students who have responsibility for teaching ESL courses at UCLA. Syllabus revision and materials preparation. May not be applied toward degree requirements for M.A. or certificate in TESL or Ph.D. in Applied Linguistics. 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. (4) Limited to graduate students. Independent study in an area related to English as a second language. May not be repeated for credit.

598. M.A. Research and Thesis Preparation. (4 to 8) Limited to graduate students. Survey of research needs and thesis preparation. Includes optional section on experimental design and statistical methods in Fall Quarter. Credit (four) toward degree is allowed only once, but all M.A. candidates must enroll in course each term they are registered and engaged in thesis preparation. S/U grading.

English as a Second Language

Lower Division Courses

The following courses are only for students whose native language is not English. Placement in these courses is established on the basis of the UCLA English as a Second Language Placement Examination (ESLPE), which students whose native language is not English must take in addition to the Subject A Examination (see Subject A in the Undergraduate Study section of this catalog).

Depending on the results of this examination, students may either be exempt from any special ESL requirement or may be required to take one or more courses. They are placed into the ESL track at a particular level and must enroll in one ESL course each term, beginning in their first term in residence at UCLA, until the sequence is completed. The required sequence for undergraduates is English as a Second Language 33A, 33B, 33C, and 35; each course must be passed with a grade of C or better (C– or a Passed grade is not acceptable). The required sequence for graduate students is English as a Second Language 33A, 33B, and 33C; each course must be passed with a grade of C or better if taken for a letter grade, or B or better if taken on an S/U basis. If students do not achieve a minimum score on the placement examination, they may be re-

quired to spend a term studying elementary English exclusively, through UCLA Extension, before retaking the ESLPE and continuing through the appropriate sequence of courses at UCLA.

Undergraduates may satisfy the English Composition requirement by completing course 36 with a grade of C or better (C– or a Passed grade is not acceptable). Admission into course 36 is determined by completion of course 35 with a passing grade or proficiency demonstrated on the ELSPE.

32. Oral Communication Skills: Stress and Intonation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 33A or 33B or 33C or 35 or proficiency demonstrated on English as a Second Language Placement Examination. Course 33B, 33C, or 35 may be taken concurrently. Develops oral skills that prepare nonnative speakers of English to participate in class discussions, make oral presentations before an audience, ask and answer questions, participate appropriately in conversations with members of the academic community, and improve through self-evaluation of speech. P/NP (undergraduates), S/U (graduates), or letter grading.

33A. Low Intermediate English as a Second Language. (4) Recitation, eight hours; laboratory, two hours. Requisite: Extension course XL832 (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Displaces eight units on student's Study List but yields only four units of credit toward a degree. Intensive instruction in structure of English, with focus on vocabulary building, listening and speaking skills, and basic composition techniques.

33B. High Intermediate English as a Second Language. (4) Recitation, five hours. Requisite: course 33A (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Emphasis on reading comprehension, vocabulary development, and composition techniques, with additional work on structure and oral skills.

33C. Advanced English as a Second Language. (4) Recitation, five hours. Requisite: course 33B (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Emphasis on academic reading, writing, study skills, and lecture comprehension.

34. Advanced Oral Communication Skills for ESL Students. (4) Lecture, four hours; outside study, eight hours. Requisite: course 33C or 35 (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. Develops oral skills that prepare nonnative speakers of English to present ideas extemporaneously, lead class discussions, give lectures or speeches before an audience, respond to questions posed by the audience, and improve through self-evaluation of speech. P/NP (undergraduates), S/U (graduates), or letter grading.

35. Developmental Composition for ESL Students. (4) Requisite: course 33C (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Developmental composition skills for ESL students, with focus on the writing process, grammatical structures, mechanics of writing, and practice with major forms of academic writing. Additional emphasis on academic reading skills.

36. Intermediate Composition for ESL Students. (4) Lecture, four hours; outside study, eight hours. Requisite: course 35 or proficiency demonstrated on English as a Second Language Placement Examination. Focus on major rhetorical techniques found in academic writing. Special attention to individual research, grammatical structures, and style. P/NP (undergraduates), S/U (graduates), or letter grading.

37. English Grammar and Style for Academic Purposes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 33B (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. 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 (undergraduates), S/U (graduates), or letter grading.

Upper Division Courses

103. Pronunciation for ESL Students. (4) Lecture, four hours; outside study, eight hours. Requisite: course 33C or 35 (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. Detailed and systematic study of the sounds of American English and way in which they are put together in connected speech, applied to improvement of student's own accent. P/NP (undergraduates), S/U (graduates), or letter grading.

106. Advanced Composition for ESL Students. (4) Requisites: course 36 (C or better) or proficiency demonstrated on English as a Second Language Placement Examination, and an appropriate Composition Placement Test score. Focus on production of fully developed, stylistically sophisticated expository and argumentative essays based on complex academic readings. Additional emphasis on grammatical structure and style.

107. Advanced Reading and Vocabulary for ESL Students. (4) Lecture, four hours; outside study, eight hours. Requisite: course 33C or 35 (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. 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 (undergraduates), S/U (graduates), or letter grading.

109. Introduction to Literature for ESL Students. (4) Lecture, four hours; outside study, eight hours. Requisite: course 33C or 35 (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. Selections from English and American literature presented so as to make full allowance for students' linguistic and cultural problems and to contribute to increasing command of the English language. P/NP (undergraduates), S/U (graduates), or letter grading.

199. Special Studies in English as a Second Language. (4) Independent studies course for undergraduate and graduate students who desire more advanced or specialized treatment of issues in English as a second language beyond those covered in current courses. May be repeated for credit. See academic coordinator for course contract. P/NP (undergraduates), S/U (graduates), or letter grading.

South and Southeast Asian Languages

Lower Division Courses

40A-40B-40C. Introductory Hindi. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Course 40A is enforced requisite to 40B, which is enforced requisite to 40C. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension.

41A-41B-41C. Intermediate Hindi. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Enforced requisite: course 40C. Course 41A is enforced requisite to 41B, which is enforced requisite to 41C. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts.

50A-50B-50C. Introductory Vietnamese. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Course 50A is enforced requisite to 50B, which is enforced requisite to 50C. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension.

51A-51B-51C. Intermediate Vietnamese. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Enforced requisite: course 50C. Course 51A is enforced requisite to 51B, which is enforced requisite to 51C. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts.

60A-60B-60C. Introductory Thai. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Course 60A is enforced requisite to 60B, which is enforced requisite to 60C. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension.

61A-61B-61C. Intermediate Thai. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Enforced requisite: course 60C. Course 61A is enforced requisite to 61B, which is enforced requisite to 61C. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts.

70A-70B-70C. Introductory Tagalog. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Course 70A is enforced requisite to 70B, which is enforced requisite to 70C. Coverage of basic Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension.

71A-71B-71C. Intermediate Tagalog. (4-4-4) Discussion, five hours; laboratory, one hour; outside study, six hours. Enforced requisite: course 70C. Course 71A is enforced requisite to 71B, which is enforced requisite to 71C. Reinforcement of basic Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts.

Upper Division Course

199. Special Studies in South and Southeast Asian Languages. (4) Independent studies course for juniors/seniors and graduate students who desire more advanced or specialized treatment of one language offered in the program beyond introductory and intermediate courses currently offered. May be repeated for credit. See academic coordinator for course contract. P/NP (undergraduates), S/U (graduates), or letter grading.

ARCHAEOLOGY

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Jesse L. Byock, Ph.D. (*Germanic Languages*)
Elizabeth Carter, Ph.D. (*Near Eastern Languages and Cultures*)
Christopher B. Donnan, Ph.D. (*Anthropology*)
Susan B. Downey, Ph.D. (*Art History*)
Steven Lattimore, Ph.D. (*Classics*)
Sarah P. Morris, Ph.D. (*Classics*)

Donald A. Preziosi, Ph.D. (*Art History*)
Dwight Read, Ph.D. (*Anthropology*)
Lothar von Falkenhausen, Ph.D. (*Art History*)

Professors Emeriti

C. Rainer Berger, Ph.D. (*Anthropology, Geography, Geophysics*)
Giorgio Buccellati, Ph.D. (*Ancient Near East, History*)
Merrick Posnansky, Ph.D. (*History, Anthropology*)
Henry B. Nicholson, Ph.D. (*Anthropology*)
James R. Sackett, Ph.D. (*Anthropology*)

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Richard Leventhal, Ph.D. (*Anthropology*)
Charles Standish, Ph.D. (*Anthropology*)
Daniel C. Polz, Ph.D. (*Near Eastern Languages and Cultures*)

Assistant Professors

Richard Lesure, Ph.D. (*Anthropology*)
Thomas W. Plummer, Ph.D. (*Anthropology*)

Scope and Objectives

The interdisciplinary program offers M.A. and Ph.D. degrees in Archaeology. It brings together interests and specialties represented by those departments offering courses in archaeology, as well as others offering courses relevant to archaeology.

The primary purpose of the program is to train scholars in archaeology for university-level teaching and research and other professional aims. Its resources are intended for those archaeology students whose academic goals cannot be met within any single department and who, consequently, require an individually designed plan of study combining academic preparation in two or more departments. Applications are especially encouraged from students whose interests may form bridges with disciplines and departments not offering archaeology (e.g., botany, chemistry, geology, mathematics, statistics, zoology, etc.). There are opportunities for participation in a variety of field, laboratory, and computer studies.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Archaeology Program offers the Master of Arts (M.A.) degree in Archaeology.

Admission

Since the M.A. program is interdisciplinary, any undergraduate major may be considered for admission, although those applicants who have had little previous archaeological educa-

tion may be admitted under probationary status and may be required to take a series of courses to make up deficiencies. A Graduate Record Examination (GRE) General Test report is required of all new applicants. The following application materials should be submitted directly to the chair of the program: an acceptable plan of study (including a statement of objectives, an outline of projected coursework, and a general indication of an M.A. paper); three letters of recommendation; a research paper preferably relevant to archaeology or comparable evidence of scholarly work. Applicants who have not completed a course in the history of archaeology or in quantitative methods in archaeology are required to take corresponding courses at UCLA. The courses do count toward the minimum course requirements for the degree. Applicants are accepted for admission for Fall Quarter only. The program's *Study Guidelines* brochure is sent on request to the Chair, Archaeology Program.

Areas of Study

Africa; analysis of archaeological materials; ancient Near East; Andean South America; Egypt; Islamic world; Caribbean; China and the Far East; classical Greece and Rome; dating techniques in archaeological sciences; India and Central Asia; Mesoamerica; Pacific; paleoenvironmental studies; Western North America.

Other areas of specialization are also available.

Course Requirements

A minimum of 42 units (nine courses, of which five must be graduate) taken for a letter grade are required, to be distributed as follows: a minimum of five courses (26) in the 200 and 500 series, including Archaeology M201A-M201B, M201C. Students must also take a laboratory-based course. The requirement can be met in the following ways: completion of Anthropology 117, 117P; completion of Archaeology M205 (courses taught by the directors of various laboratories); and, with the approval of the student's committee, an independent study course. A minimum of two additional elective graduate courses is required. The other units may be completed by taking either graduate or upper division courses. The proportion of graduate to undergraduate courses may vary depending on the student's preparation.

Comprehensive Examination Plan

The comprehensive examination consists of three examinations, given at the completion of each section of Archaeology M201A, M201B, and M201C respectively. The examinations are graded as high pass or no pass by a committee consisting of the chair of the Archaeology Program and the professor in charge of the course. Each section of the examination may be repeated once.

Thesis Plan

None.

Doctoral Degree

Admission

Completion of a master's program is required for the Ph.D. degree in Archaeology. Applicants who do not have a UCLA M.A. in Archaeology should refer to the Admission section under Master's Degree. The Graduate Record Examination (GRE) is required of all new applicants. Admission to the doctoral program for students completing a UCLA M.A. in Archaeology is based on (1) written recommendation by all three members of the M.A. committee; (2) submission of a plan of study, including projected coursework, choice of foreign language, description of qualifying examination components, and dissertation topics; and (3) quality of M.A. core examination results and M.A. paper.

Doctoral students entering the program with an M.A. from another university are required to pass the comprehensive core examination (see Master's Degree section).

Students entering with an M.A. from another university are required to demonstrate the ability to read at least one foreign language relevant to the area of interest and approved by their adviser. This requirement may be met by taking a reading examination administered by the program.

Major Fields or Subdisciplines

Africa; analysis of archaeological materials; ancient Near East; Egypt; Islamic world; Andean South America; Caribbean; China and the Far East; classical Greece and Rome; dating techniques in archaeological sciences; India and Central Asia; Mesoamerica; Pacific; paleoenvironmental studies; Western North America.

Other areas of specialization are also available.

Course Requirements

Students must be enrolled in a minimum of 12 units per quarter. Formal course requirements include a graduate-level course in research design, such as Anthropology 200, 283, Archaeology M201C and M265, if not taken during the M.A. program. Anthropology 285 and C291 are recommended as electives. Other course requirements are decided by the student's committee. Archaeology M201A-M201B and M201C are required. Additional requirements may be suggested by the dissertation committee.

No graduate degree is awarded until the student has worked in the field. Both theoretical and practical knowledge of methods and techniques used in the field are necessary.

This requirement may be met by taking a regular UCLA field course such as Anthropology 115P, Archaeology 259, Ancient Near East 261, Classics C251E. If a student wishes to fulfill this requirement by participation in fieldwork other than that in the courses listed above, the director of the project must submit a letter

about the student's work to the chair of the Archaeology Program. Except for the courses listed above, any given formula to fulfill the requirement has to be cleared in advance with the chair of the program.

Written and Oral Qualifying Examinations

Written Qualifying Examination. By the end of the sixth quarter of the doctoral program, after the foreign language requirement has been fulfilled, students take a written qualifying examination in the following three areas: (1) topical specialization; (2) analytical theory, method, and technique; and (3) regional culture history. If the examination is passed, students may then make arrangements to take the oral examination. If the written examination or any portion thereof is failed, students may make one further attempt if their committee deems it appropriate.

Oral Qualifying Examination. The University Oral Qualifying Examination must be taken by the end of the seventh quarter of the doctoral program. Students are required to submit to the doctoral committee a formal dissertation proposal of about 10 pages, including the particular research problem on which they are to be examined during the oral qualifying examination.

Archaeology

Upper Division Course

C110. Archaeological Materials Identification and Characterization. (6) Lecture, three hours; laboratory, four 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.

Graduate Courses

M201A-M201B. Graduate Core Seminars: Archaeology. (6-6) (Same as Anthropology M201A-M201B.) Seminar, three hours. Required of all students. Seminar discussions based on carefully selected list of 30 to 40 major archaeology works. These compulsory core seminars provide students with foundation in breadth of knowledge required of a professional archaeologist. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of the multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser.

M201C. Regional Analysis in Archaeology. (4) (Same as Anthropology M211.) Lecture, three hours. Survey of analytical methods used in archaeology to study prehistoric settlement systems. Specific issues include settlement distribution with respect to natural resources, settlement hierarchy, and patterns of exchange.

M205. Special Topics in Archaeology. (6) (Same as Anthropology M212S.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Open to undergraduates with consent of instructor. Special advanced topics in archaeology such as new strategies, methodologies, excavation projects, regional synthesis, or comparisons on a worldwide basis, including current work by core faculty of the program and special visitors.

C210. Archaeological Materials Identification and Characterization. (6) Lecture, three hours; laboratory, four 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.

M214. Comparative Study of Ancient States. (4) (Same as Anthropology CM214S.) Lecture, three hours. Comparative anthropological study of first complex societies in the Near East, Mesoamerica, and the Andes, including early Egyptian, Uruk, Teotihuacan, classic Maya, Wari, and Tiwanaku, with focus on political and economic structures of these societies and on causes of state development and collapse. S/U or letter grading.

259. Fieldwork in Archaeology. (2 to 12) 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.

M265. 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 the literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with the help of specialists. 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. Individual Studies for Graduate Students. (2 to 12) Hours to be arranged. May be repeated for credit with consent of adviser.

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

598. M.A. Paper Preparation. (2 to 12) May be repeated for credit with consent of adviser. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 12) May be repeated for credit with consent of adviser. S/U grading.

Related Courses

Related courses, not listed individually, include regional geography, ancient and regional history, ethnography, folklore, history of technology, and the Earth sciences. Also recommended are the appropriate modern and ancient languages for the area of study.

Most archaeology courses are taught in the various departments. The following is a list of such courses, by topic and department. Students are encouraged to examine the course listings of all departments for a truly interdisciplinary course of study.

Methodology and History

Ancient Near East (Near Eastern Languages)

261. Practical Field Archaeology

Anthropology

M115A-M115B. Historical Archaeology

115P. Archaeological Field Training

C115R. Strategy of Archaeology

M116Q. Dating Techniques in Environmental Sciences and Archaeology

117. Archaeological Laboratory Methods

117P. Intensive Laboratory Training in Archaeology

118A, 118B. Museum Studies

121A. Primate Fossil Record

121B. Australopithecines

121C. Evolution of Genus *Homo*

132. Technology and Environment

138. Methods and Techniques of Ethnohistory

158. Hunting and Gathering Societies

180. Quantitative Methods in Anthropology

183. History of Archaeology

186. Models and Modeling in Anthropology

210. Analytical Methods in Archaeological Studies

M211. Regional Analysis in Archaeology

217. Explanation of Societal Change

221A-221B. Fossil Evidence for Human Evolution

283. Formal Methods of Data Analysis in Anthropology

Art History

C203A-C203B. Museum Studies

265. Fieldwork in Archaeology

New World

Anthropology

113P. Archaeology of North America

113Q. Prehistory and Ethnography of California

113R. Southwestern Archaeology

114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere)

114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)

114R. Ancient Civilizations of Andean South America

212P. Selected Topics in Hunter/Gatherer Archaeology

212Q. Problems in Southwestern Archaeology

214. Selected Topics in Prehistoric Civilizations of the New World

215. Field Training in Archaeology

219. Complex Hunters/Gatherers in Theoretical Perspective

Art History

C117A. Pre-Columbian Art of Mexico

C117B. Pre-Columbian Art of the Maya

C117C. Pre-Columbian Art of the Andes

118A. Arts of Oceania

118D. Arts of Native North America

220. Oceanic, Pre-Columbian, African, and Native North American Art

Old World: Africa

Art History

118C. Arts of Sub-Saharan Africa

C119A. Advanced Studies in African Art: Western Africa

C119B. Advanced Studies in African Art: Central Africa

220. Oceanic, Pre-Columbian, African, and Native North American Art

History

M175A. Topics in African History: Prehistoric Africa—Technological and Cultural Traditions

197A-197Z. Undergraduate Seminars

201A-201U. Topics in History

Old World: Europe

Anthropology

112. Old Stone Age Archaeology

213. Selected Topics in Old World Archaeology

Art History

M102A. Minoan Art and Archaeology

M102B. Mycenaean Art and Architecture

M102C. Archaic Greek Art and Archaeology

M102D. Classical Greek Art and Archaeology

M102E. Hellenistic Greek Art and Archaeology

M102F. Etruscan Art

M102G. Roman Art

M102H. Late Roman Art

221. Topics in Classical Art

223. Classical Art

Classics

M153A. Minoan Art and Archaeology

M153B. Mycenaean Art and Architecture

M153C. Archaic Greek Art and Archaeology

M153D. Classical Greek Art and Archaeology

M153E. Hellenistic Greek Art and Archaeology

M153F. Etruscan Art

M153G. Roman Art

M153H. Late Roman Art

251A-251D. Seminars: Classical Archaeology

252. Topography and Monuments of Athens

253. Topography and Monuments of Rome

Indo-European Studies

131. European Archaeology: Proto-Civilizations of Europe

132. European Archaeology: Bronze Age

250A-250B. European Archaeology

Old World: India and the Far East

Art History

114A. Early Art of India

114C. Japanese Art

114D. Later Art of India

114E. Arts of Korea

114F. Arts of Southeast Asia

C115A. Advanced Indian Art

C115B. Advanced Chinese Art

C115C. Advanced Japanese Art

C115D. Art and Material Culture, Neolithic to 210 B.C.

C115E. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906

C115F. Art and Material Culture of Late Imperial China, 906 to 1911

C259. Advanced Japanese Art

260A. Indian Art

260B. Chinese Art

260C. Japanese Art

Chinese (East Asian Languages)

190. Archaeology in China

290A-290B. Seminars: Selected Topics in Chinese Archaeology

295A-295B. Seminars: Selected Topics in Chinese Cultural History

Old World: Islam

Art History

104A. Western Islamic Art

104B. Eastern Islamic Art

C104C. Problems in Islamic Art

213. Advanced Studies in Islamic Art

Old World: Near East

Ancient Near East (Near Eastern Languages)

160A-160B. Introduction to Near Eastern Archaeology

161A-161B-161C. Archaeology of Mesopotamia

162. Archaeology and Religion of the Holy Land

163A-163B. Archaeology of Iran

164A-164B-164C. Archaeology of Historic Periods in Mesopotamia

220. Seminar: Ancient Egypt

M250. Seminar: Ancient Mesopotamia

250X. Seminar: Ancient Mesopotamia

260. Seminar: Ancient Near Eastern Archaeology

262. Seminar: Object Archaeology

Anthropology

110. World Archaeology

Art History

101A. Egyptian Art and Archaeology

101B. Egyptian Art and Archaeology of the Middle and New Kingdoms

210. Egyptian Art

History

M105. History of Ancient Mesopotamia and Syria

193D. Religions of the Ancient Near East

200A-200U. Advanced Historiography

201A-201U. Topics in History

ARCHITECTURE AND URBAN DESIGN

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Samuel Aroni, Ph.D.

Baruch Givoni, Ph.D.

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Murray A. Milne, M.Arch.

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Julie Eizenberg, M.Arch.

Adjunct Assistant Professor

Roger Sherman, M.Arch.

Scope and Objectives

The Department of Architecture and Urban Design at UCLA offers four degree programs

tailored to the needs of different groups of students: M.Arch. I, M.Arch. II, M.A., and Ph.D.

M.Arch. I is a three-year first professional degree program which is accredited by the National Architectural Accrediting Board (NAAB). It does not assume any prior background in architecture. Students who do have some prior architecture background (e.g., a four-year undergraduate degree) may also enter the program and may petition to waive certain required courses and substitute more advanced electives in their place. M.Arch. I graduates normally pursue professional careers in architectural practice.

M.Arch. II is an advanced professional degree program for students who already hold a first professional degree in architecture. It provides opportunities for intensive concentration in a variety of areas of professional specialization.

The M.A. and Ph.D. degree programs provide opportunities to pursue research and scholarship in the field of architecture. Graduates typically pursue academic or applied research and consulting careers.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Architecture and Urban Design offers the following degrees: Master of Architecture I (M.Arch. I), Master of Architecture II (M.Arch. II), and Master of Arts (M.A.) in Architecture. The department also participates in a concurrent degree program with the Department of Urban Planning

Master of Architecture I

Admission

The M.Arch. I program accepts applications from students holding a bachelor's degree or its equivalent, comparable in standard and content to a bachelor's degree from the University of California. Applications are accepted from students with a broad diversity of backgrounds. No academic or experiential training in architecture is required. Students without previous experience in architecture are encouraged to review certain materials before enrolling. Students with an architectural background may be able to waive certain courses.

First-year classes assume some familiarity with the history and culture of architecture, possession of basic graphics skills, and understanding of fundamental concepts of mathe-

matics and physics. Applicants are also strongly advised to become familiar with basic works in the history and theory of architecture before entering the program. A suggested reading list is available from the graduate adviser. Entry into the program is, therefore, conditional on having taken at least one college-level course in each of the following areas: Newtonian physics, mathematics (covering algebra plus geometry or trigonometry), a university survey of the history of architecture (minimum one semester or two quarters) encompassing examples from antiquity to the present, and drawing or basic design. For further information on these requisites, contact the graduate adviser.

The Admissions Committee considers applications from those who, at the time of application, do not have these requisites. If applicants do not have the requisites, they must specify in the application how they plan to complete them before entry into the program. The graduate adviser can provide guidance on how to do so. Admission is only offered on the condition that the applicant produce satisfactory evidence of having completed requisites before commencing classes. Instructors may test background in these areas before admitting students to certain courses. If applicants lack this necessary proficiency, they may need to spend an additional year fulfilling curricular requirements.

Applicants are required to submit three letters of recommendation, academic transcripts, Graduate Record Examination (GRE) test scores, a statement of purpose, and a creative portfolio. In addition to the application for graduate admission, the Departmental Supplement should be submitted and is available from the Admissions Office, Architecture and Urban Design Department, School of the Arts and Architecture.

The M.Arch. I program is a full-time program and does not accept part-time students. All new students must enter in Fall Quarter. Additional information about the program may be obtained by writing directly to the admissions officer of the Architecture and Urban Design Department.

English Language Proficiency. If an applicant's primary language is not English, a score of at least 580 on the Test of English as a Foreign Language (TOEFL) is required for admission. In addition, on arrival at UCLA students are required to take the English as a Second Language Placement Examination (ESLPE) and, beginning in the first quarter of residence, to take any English as a Second Language courses needed, as determined by the results of the ESLPE. Because such courses do not count toward the minimum coursework requirement, students should expect to spend additional time in residence.

M.A. Urban Planning/M.Arch. I Architecture

The Architecture and Urban Design Department in the School of the Arts and Architecture and the Department of Urban Planning in the School of Public Policy and Social Research

offer a concurrent plan of study providing an integrated curriculum for architects interested in specializing in social, economic, and environmental policy issues and for urban planners interested in integrating architecture and urban design into policy and planning practice. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in architecture stresses physical, aesthetic, and technical issues in the design of buildings and building complexes. In the program, students pursue studies in both schools/departments and receive both the M.Arch. I and the M.A. in Urban Planning at the end of four years.

Students who are interested in the concurrent degree program must apply and be admitted to the M.Arch. I program in the Department of Architecture and Urban Design and to the M.A. program in the Department of Urban Planning.

During the first year a student follows the required urban planning curriculum. The second year is entirely in Architecture and Urban Design. The third and fourth year comprise a mix of both Architecture and Urban Design and Urban Planning courses, with the final design or written thesis or client or comprehensive project carried out in the fourth year. Students in the concurrent degree program must meet the thesis and comprehensive examination requirements separately for each department. This can be done with (1) an original piece of research of publishable length and quality (2) a client projects, or (3) a design project. While students are encouraged to choose a combined project topic that integrates planning and policy aspect with design, the project must have distinct Architecture and Urban Planning components which can be evaluated separately by faculty thesis committees in the respective departments. For example, a design project in architecture might be supported by a paper, for the urban planning component, explaining the community impact of the implementation of the project. Two thesis and comprehensive examination committees must be formed (one from each department) and following their approval of the proposed thesis and examination project, eight to twelve units of combined coursework is allowed towards preparation and completion of the final project. A total of 41 courses (35 four-unit and six two-unit courses) or 152 units of coursework is required to graduate. Students take at least 36 units in Urban Planning and 88 units in Architecture and Urban design to satisfy the specific requirements of each degree, including core courses in both programs and area of concentration courses from each program. To fulfill the core requirements for the M.A. in Urban Planning a student must take six core courses, plus one course related to planning practice or fieldwork. In Architecture and Urban Design a students take 23 core courses (17 four-unit and six two-unit courses). In addition a students take eight elective courses including two electives in the area of critical studies in architectural culture and six electives that fulfill the

needs of the selected area of concentration. These may be chosen from courses offered in Architecture and Urban Design and Urban Planning, which have been identified as acceptable to both programs. To fulfill final thesis, design thesis (in the form of a comprehensive examination) comprehensive or client project requirements, students need two or three courses (8-12) in the fourth year of study. Thirty-six units of coursework, or nine elective courses, are double counted in both Architecture and Urban Design and Urban Planning.

Students who decide not to complete the concurrent degree program can choose to complete either the M.Arch. I or the M.A. and must complete all the regular requirements for either program that is chosen.

For additional information, contact the graduate adviser in the Department of Urban Planning or the graduate adviser in the Department of Architecture and Urban Design.

Areas of Study

Students are required to concentrate several elective courses within a single curricular area. A minimum of three elective courses must be taken within this curricular area, including two courses in the area of critical studies in architectural culture and one studio or project application (Architecture and Urban Design 402 or 403 series), during the second year of study.

Specializations are currently available in the following areas: architectural design; urban design and policy; critical studies in architectural culture; architectural technology; design and computation.

Course Requirements

A minimum of 116 units of coursework is required of which at least 26 four-unit courses must be taken at the graduate level (200 and 400 series). Students must take at least eight units per quarter and may take up to 16 units in a quarter.

Required Courses. All students must successfully complete the following courses:

Architecture and Urban Design 201, 291, 401, 402, 403 series, 411, 412, 413, 414, 415, 416, 421, 422, 423, 425, 426, 431, 432, 433, 436, 441, 442, 597, and an elective in professional practice.

Design Studios. Design studios offered for M.Arch. I students are classified in three levels: introductory (411), intermediate (412, 413, 414), and advanced (402, 403 series, 415, 416). Within a given level, the design studios may be taken in any sequence. Any of these studios may be repeated for credit.

If students maintain at least a B average in the studios, they automatically pass from the introductory to the intermediate level, from the intermediate level to the advanced level, and (for those students who plan to take the comprehensive examination in architectural design) from the advanced level to preparation for the comprehensive examination in architectural design. Students who do not maintain a B av-

erage in the studios are reviewed by a committee consisting of all design studio instructors and are not permitted to advance unless explicitly allowed by that committee.

Elective Sequence. Students must complete an elective sequence consisting of at least three related courses, terminating in a 402, 403 series in advanced studio (normally in the spring of the second year). The elective sequence is intended to allow students to gain in-depth knowledge of a chosen area of specialization and apply that knowledge in a design studio. Elective sequences are offered in the following areas: (1) urban design and policy, (2) critical studies in architectural culture, (3) architectural technology, (4) design and computation.

Details of currently available and approved elective sequences are available from the graduate adviser. Students who wish to meet the elective sequence requirement with sequences not on this standard list must secure approval from the M.Arch. I curriculum committee.

Additional Elective Courses. As well as completing an elective sequence, students are expected to explore a variety of topics by taking additional elective courses. Within the Architecture and Urban Design Department, electives are offered in the four areas listed under Elective Sequence above. In addition, elective work outside the department may be taken.

Students are required to take at least 20 units of elective coursework (including the elective sequence). At least 16 units must be taken within the Department of Architecture and Urban Design. The usual pattern is as follows:

First year: Fall, Winter, Spring — none.

Second year: Fall, Winter, Spring — four units each term.

Third year: Fall, Winter — four units each term.

Many of the elective courses are organized in sequences that begin with an introductory course in the fall, continue on to a more advanced course in the winter, and culminate with a 402 or 403 series studio in the spring. At the beginning of Fall Quarter of the second year, students should consult the academic adviser and carefully plan the elective coursework.

Waiving Required Courses. Students who can demonstrate that they already have adequate background in topics covered by specific required courses may petition to waive those courses and replace them with electives. However, permission to waive required courses does not, in itself, reduce the minimum number of 29 courses required for the M.Arch. I degree, nor does it reduce the nine-quarter residence requirement.

A petition to waive an individual required course should be addressed to the faculty member responsible for that course and may be granted at the faculty member's discretion, possibly by means of a special examination.

The petition should present evidence of adequate background in the specific topic of the course, preferably through a transcript and a syllabus of the course.

Independent Study. In addition to the eight units of Architecture and Urban Design 597, students may also apply eight units of 596 coursework toward the elective course requirements for graduation. Of this total of 16 units of 500-series courses, eight units may be applied toward the graduate course requirement.

All independent work with 500-series course numbers must be undertaken with the guidance and approval of a departmental faculty member who evaluates the work on a satisfactory/unsatisfactory basis.

Course of Study. A normal three-year path through the curriculum is listed below. Required courses other than design studios are normally only offered once a year, so failure to successfully complete one of these courses at the point shown may lengthen the time required to complete the program. Sections of Architecture and Urban Design 415 (advanced) required studios are normally available each quarter. Sections of Architecture and Urban Design 402 and the 403 series are available in spring and may be available in other quarters as well.

First YearFall: Architecture and Urban Design 201, 411, 421.

Winter: Architecture and Urban Design 412, 422, 431, 436.

Spring: Architecture and Urban Design 413, 423, 432, 442.

Second YearFall: Architecture and Urban Design 414, 424, 433, elective (in sequence), additional elective.

Winter: Architecture and Urban Design 415 (or 401 or 402), 441, elective (in sequence).

Spring: Architecture and Urban Design 401 (or 402 or 403 or M404), elective in professional practice, additional elective.

Third YearFall: Architecture and Urban Design 291, 416, 426, elective.

Winter: Architecture and Urban Design 401 (or 402 or 415), elective.

Spring: Architecture and Urban Design 597 or 598.

Comprehensive Examination Plan

All students are required to successfully complete a comprehensive examination and may choose to be examined in any one of the following areas: (1) architectural design, (2) urban design and policy, (3) critical studies in architectural culture, (4) architectural technology, (5) design and computation.

The examinations are administered by the appropriate curriculum area committees.

Students who opt to take the comprehensive examination in architectural design must enroll in eight units of preparation for the comprehensive examination. All students must enroll in

eight units of Architecture and Urban Design 597, supervised by the appropriate curriculum area committee. Course 597 may not be taken until all other required courses have been successfully completed. Details of the comprehensive examination policies, established by each curriculum area committee, are available from the graduate adviser.

Thesis Plan

None.

Master of Architecture II

Admission

The M.Arch. II is a second professional degree program in architecture and urban design. The degree can be completed in four quarters in residence. It consists of one year of coursework, plus one or more academic terms to write a thesis or comprehensive examination and enroll in additional academic work as electives. In some areas of specialization more than one year of coursework may be necessary due to the sequence of requisites.

In this advanced professional degree program, the architectural graduate or experienced professional can study in specific areas to develop specialized conceptual and methodological skills and explore particular professional issues. The program is based on the concept of a combination of advanced theoretical studies and professional applications.

The M.Arch. II program emphasizes advanced studies in architecture and requires that applicants must hold a five-year Bachelor of Architecture degree or equivalent.

Applicants must state their major area of specialization on their application, as applicants are admitted to a specific major and option, and can only change by petition to the Advanced Graduate Studies Curriculum Committee.

Applicants are required to submit three letters of recommendation, academic transcripts, Graduate Record Examination (GRE) test scores, a statement of purpose, and a creative portfolio. In addition to the application for graduate admission, the Departmental Supplement should be submitted and is available from the Admissions Office, Architecture and Urban Design Department, School of the Arts and Architecture.

English Language Proficiency. If an applicant's primary language is not English, a score of at least 580 on the Test of English as a Foreign Language (TOEFL) is required for admission. In addition, upon arrival at UCLA students are required to take the English as a Second Language Placement Examination (ESLPE) and, beginning in the first quarter of residence, to take any English as a Second Language courses needed, as determined by the results of the ESLPE. Because such courses do not count toward the minimum coursework requirement, students should expect to spend additional time in residence.

Areas of Study

Students are required to select their major area at the time of application to the program. The five major areas include architectural design; urban design and policy; critical studies in architectural culture; architectural technology; design and computation.

Course Requirements

A minimum of four academic quarters in residence is required. This is a full-time program, and students are expected to remain continuously in residence until all academic work is completed, unless a leave of absence is granted.

A minimum of 44 units of coursework (normally 11 four-unit courses) is required. At least 32 units must be at the graduate level. This includes eight units of Architecture and Urban Design 597 or eight units of course 598. The remaining 12 units may be either upper division (undergraduate) or graduate courses. Eight units of 596 courses may be included as part of the 44-unit requirement but may not be part of the graduate course requirement.

Major Area. Students are required to select their major area at the time of application to the program and must take a minimum of 32 units of coursework in that area. Requirements for each of the five major areas are established individually as follows:

Architectural Design

Students are required to complete at least 12 units of advanced design studio work, plus 12 units of approved seminar courses.

Urban Design and Policy

Students are required to complete a year-long sequence of related urban design studio and seminar courses, consisting of one studio and one seminar course each quarter.

Critical Studies in Architectural Culture

Students are required to complete an approved sequence of three core courses for this area, consisting of (1) two lecture/seminar courses which establish substantive foundations; (2) an Architecture and Urban Design 402 or 403-series project course which explores applications; and (3) 12 units of elective coursework in this area.

Architectural Technology

Students are required to complete an approved sequence of three core courses for this area, consisting of (1) two lecture/seminar courses which establish substantive foundations; (2) an Architecture and Urban Design 402 or 403-series project course which explores applications; and (3) 12 units of elective coursework in this area.

Design and Computation

Students are required to complete an approved sequence of three core courses for this area, consisting of (1) two lecture/seminar courses which establish substantive foundations; (2) an Architecture and Urban Design 402, 403-series project course which explores

applications; and (3) 12 units of elective coursework in this area.

In partial fulfillment of the requirements for the M.Arch. II degree, students are required to complete either a thesis or a comprehensive examination.

Comprehensive Examination

The comprehensive examination consists of a design or research project on a topic approved by the comprehensive examination committee. The three-person examination committee consists of a chair and two other faculty members. The committee is established by the student at least one quarter before presentation of the comprehensive examination. Students must take at least eight units of Architecture and Urban Design 597 supervised by the chair of the examination committee.

The comprehensive examination must be submitted within two years after entry into the program.

The comprehensive examination is intended to provide the opportunity for the presentation of a design project or independent scholarly research in a professional format of the highest standard. This format must be approved in advance by the comprehensive examination committee.

The comprehensive examination differs from the thesis in three ways. First, an oral defense or public presentation may be required. Second, students submit a report of this work ready for binding for the permanent collection of the Arts Library, which may be as large as 11x17 inches and may include photographs or original drawings, if properly mounted. This report must contain the title page, abstract, signature page, and bibliography, as in a thesis. Third, the report must be submitted to and accepted by the departmental graduate adviser.

Thesis Plan

The thesis consists of a research project or a design project on a topic approved by the student's thesis committee. The three-person thesis committee consists of a chair and two other faculty members. The committee is established by the student at least one quarter before presentation of the thesis. Students must take at least eight units of Architecture and Urban Design 598 supervised by the chair of the thesis committee.

The thesis must be submitted within two years after entry into the program.

The thesis is intended to provide the opportunity for the presentation of an independent scholarly research or design project in a written format in accordance with UCLA regulations for theses and dissertations. The thesis is filed at the University Archives after it meets the approval of the thesis committee and general University thesis requirements. The copy is microfilmed, then bound and placed in the permanent collection of the Arts Library.

The thesis and comprehensive plans are identical in terms of the quality of the work that is expected and the deadlines that apply.

Master of Arts

Admission

The Master of Arts in Architecture is an academic degree and prepares students to do specialized research or teaching in fields related to the architecture profession. Applicants are required to hold a baccalaureate degree (or its equivalent) comparable in standard and content to a bachelor's degree from the University of California. Applicants should possess the experience and knowledge that would allow advanced research in whatever aspect of architecture they plan to explore within the context of the master's program.

Applicants are required to submit three letters of recommendation, academic transcripts, a statement of purpose, Graduate Record Examination (GRE) test scores, and a creative portfolio. In addition to the application for graduate admission, the Departmental Supplement should be submitted and is available from the Admissions Office, Architecture and Urban Design Department, School of the Arts and Architecture.

English Language Proficiency. If an applicant's primary language is not English, a score of at least 580 on the Test of English as a Foreign Language (TOEFL) is required for admission. In addition, on arrival at UCLA students are required to take the English as a Second Language Placement Examination (ESLPE) and, beginning in the first quarter of residence, to take any English as a Second Language courses needed, as determined by the results of the ESLPE. Because such courses do not count toward the minimum coursework requirement, students should expect to spend additional time in residence.

It may be possible for an M.A. student in Architecture to petition to transfer from the M.A. to the Ph.D. program. See Doctoral Degree, Admission.

Areas of Study

Students are required to focus their work on a specific academic area or professional issue. Specializations are currently available in the following areas: critical studies in architectural culture; architectural technology (including energy-conserving design); design and computation. In addition, students have the option of the open M.A. wherein they structure their own area of interest from the courses offered by the department.

Course Requirements

Candidates for the M.A. are expected to be in residence at UCLA for at least two years and undertake six quarters of study. Students must choose and pursue one area of specialization. A thesis or a comprehensive project is required. When the committee members have signed the thesis proposal, students may take

at least four and no more than eight units of Architecture and Urban Design 598 and begin work on the thesis itself. The course should be taken at some point during the last year of study.

Students are required to complete a minimum of 16 courses (64) of graduate or upper division work. At least five (20) of the courses must be 200-series courses and at least two (eight) must be 500-series courses. No more than 20 units of 500-level courses may be counted toward the total unit requirement for the degree. Up to seven courses may be taken from upper division (undergraduate) or graduate courses offered campuswide.

The University of California minimum requirements for the Master of Arts degree must be completed.

Students must enroll in at least four and no more than eight units of course 598. Students may also apply 12 units of course 596 toward the unit requirements for graduation. Courses in the 400 series may not be applied toward the graduate course requirement for the M.A. degree, but a limited number may be applied toward elective course requirements.

Comprehensive Examination Plan

Students can choose to present a design project as a comprehensive examination (see M.Arch. I). This should be determined at least three months prior to the anticipated date of graduation.

Thesis Plan

Students can choose to do a research thesis. This should be determined at least three months prior to the anticipated date of graduation.

Doctoral Degree

Admission

Applicants to the Ph.D. degree in Architecture must hold a bachelor's degree from an accredited college or university. It is anticipated that most applicants have completed a first professional degree in architecture (a five-year Bachelor of Architecture degree or a professional Master of Architecture degree). If applicants have degrees in other fields, they are also encouraged to apply but they may, at the discretion of the Ph.D. program committee, be required to complete specific coursework in the Department of Architecture and Urban Design as a condition of admission.

Students must fulfill the requirements of the Graduate Division and the Architecture and Urban Design Department. The application dossier must include (1) a short biographical résumé; (2) transcripts of academic record; (3) examples of research and/or creative work; (4) three letters of recommendation; (5) statement of purpose and proposed program of studies; (6) Graduate Record Examination (GRE) scores.

Where feasible, the Ph.D. program committee may require an interview. Applicants whose

native language is other than English are required to pass the Test of English as a Foreign Language (TOEFL) before entering.

Admission to the program is granted to a small group each year, according to the following criteria:

- (1) Evidence of capacity for original scholarship and research in architecture, and ability to achieve eminence in the field.
- (2) Demonstration of an outstanding academic record through the evidence of grades (3.5 minimum grade-point average), GRE scores, and references.
- (3) Demonstration in the work submitted of adequate communication skills, particularly writing skills.
- (4) Presentation of a clear and realistic statement of purpose.

Petition to transfer from the M.A. to the Ph.D. program: M.A. students interested in applying to the Ph.D. program should work closely with an adviser in the field during the first year. Students should select courses which result in a research product (such as a seminar paper, project analysis, or computer program). In addition, they should anticipate the requirements for the Ph.D. program and begin to prepare for the language requirement and minor.

In the spring of the first year, M.A. students may petition the Ph.D. committee for acceptance into the doctoral program. The request must be accompanied by a current transcript, a research sample, a research proposal, and a short written report by the primary adviser. Based on these materials the Ph.D. committee recommends one of the following options: (a) immediate admission into the Ph.D. program; (b) completion of a thesis leading to an M.A. degree and the option thereafter to apply separately for admission into the Ph.D. program; (c) recommend the student take a terminal M.A. degree.

Major Fields or Subdisciplines

Students are required to undertake a program of study that includes one major area, normally drawn from the following: (1) critical studies in architectural culture; (2) architectural technology; (3) design and computation.

Majors outside these areas, or combinations of some of them, may be undertaken, subject to the approval of the Ph.D. program committee, if supported by qualified departmental faculty members who are available and willing to provide the necessary instruction and guidance.

Each major field is organized and coordinated by a major field committee, consisting of faculty and students with active interests in that area. It is the responsibility of each such committee to initiate research programs, organize discussions, make curriculum and staffing recommendations, and serve as a source of consultation, guidance, and stimulation for the student.

Minor Field. Students are required to include in the program of study at least one minor field, which must be from outside the Department of Architecture and Urban Design.

The objectives of the minor field requirement are to assure adequate academic breadth in students' preparation and to encourage participation by architecture Ph.D. students in the general intellectual life of the University. In planning minor fieldwork, students are advised accordingly, and the choice must be approved by the adviser.

Due to the wide diversity of backgrounds of Ph.D. students in architecture, it is appropriate to allow some flexibility in requirements for completion of the minor. The normal method of completing and demonstrating competence in the minor field is to complete at least 16 units of coursework, which represent a unified course of study in that field, with grades of B or better. If a qualified departmental faculty member is willing to provide the necessary supervision, the Ph.D. program committee, in consultation with that faculty member and the student, may accept an alternative method of completing the requirement (for example, a substantial research project). Any proposal to complete the minor by such an alternative method must explicitly demonstrate, to the satisfaction of the Ph.D. program committee, that the objectives of the minor field requirement are met.

Course Requirements

Students must be in residence in the Ph.D. program a minimum of two years. (Note: this is an absolute minimum; longer residence requirements apply to most students, as detailed below.)

Generally, students are required to take sufficient coursework to provide adequate preparation for the qualifying examination and the dissertation. Minimum unit requirements are as follows:

All candidates are required to complete six quarters in residence and 72 units of coursework.

Students who hold a professional degree in architecture before admission to the program are required, in order to become eligible to take the qualifying examination, to complete four quarters in residence and 48 units of coursework.

Doctoral students with an M.Arch. I, M.Arch. II, or M.A. degree in Architecture and Urban Design from UCLA may petition the Ph.D. program committee to, at its discretion, reduce these requirements to a minimum of three quarters in residence and 36 units of coursework.

To be counted toward these requirements, units must be in graduate courses, at least 50 percent of the units must be courses in architecture and urban design, and an overall grade-point average of 3.0 or better must be maintained. In exceptional cases, and with the prior approval of the Ph.D. program committee,

upper division courses may be applied toward these requirements to a strictly limited extent.

Students are required to take a proseminar in architectural theory, normally in Fall Quarter of the first year.

Since the Ph.D. is an academic rather than a professional degree, it is expected that a substantial proportion of the coursework is in the 200 series. The minimum requirement is for at least 32 units to be in 200-series courses.

Students who are admitted to the Ph.D. program without having the background of a professional degree in architecture are required to take, in addition to the other course requirements, at least 24 units of graduate-level courses in architecture as recommended by the adviser and approved by the Ph.D. program committee.

No more than eight units of Architecture and Urban Design 596 may be applied toward degree requirements, but eight units of course 597 and as many units of course 599 as necessary may be applied.

Written and Oral Qualifying Examinations

After successful completion of (1) the first-year review evaluating research skills, (2) mathematics, computing, or foreign language requirement, and (3) coursework requirements, as detailed above, students may apply to take the two qualifying examinations. The application to take the qualifying examinations must be made to the Ph.D. program committee. The committee application includes an outline and brief discussion of the proposed dissertation.

The purpose of the examinations is to establish broad mastery of the field of architecture, the required levels of competence in the major and minor fields, appropriateness of the proposed dissertation, and adequate preparation to undertake it.

The examinations consist of the following parts:

- (1) A comprehensive written and oral examination in the major field.

Students fail the comprehensive oral examination in the major field if more than one committee member votes no pass regardless of the size of the committee. If a majority of the examining committee so recommends, the comprehensive examination in the major field may be repeated once within an established time frame. Students cannot replace more than one original committee member with a new member in the reconstituted committee. Students who do not meet these requirements within the time frame are recommended for termination.

- (2) A written examination in the minor field (this may be waived under certain circumstances, see following).

- (3) The University Oral Qualifying Examination focusing primarily on the subject of the proposed dissertation.

It is the normal expectation that all parts of the qualifying examinations do extend over more than two quarters.

The major and minor field examinations are conducted by a three-member examination committee appointed by the chair of the Architecture and Urban Design Department on the advice of the Ph.D. program committee. It consists of Academic Senate members who serve as the inside members of the doctoral committee.

The written examination in the major field is a substantial exercise followed by an oral presentation to the examination committee. The work must demonstrate that students have achieved the level of competence of a scholar specializing in the field, could teach an introductory course in the field, and can contribute to the progress of the field through scholarship and research.

The written examination in the minor field is a short exercise and may be waived for candidates who hold a recognized master's degree in the field in which the minor is located or, at the discretion of the examination committee, on the basis of outstanding grades (at least two A grades out of the four minor field courses).

The University Oral Qualifying Examination explores the proposed dissertation topic and the ability to undertake the proposed work successfully.

Students may receive academic credit for preparation for the qualifying examinations by enrolling in Architecture and Urban Design 597.

Architecture and Urban Design

Lower Division Course

88. Lower Division Seminar: Special Topics in Architecture and Urban Design. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in architecture and urban design approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

M190. Human Environment: Introduction to Architecture and Urban Planning. (4) (Same as Urban Planning M190.) Lecture, three hours; outside study, nine hours. Kinds of problems that arise in creating and maintaining an environment for urban activities, and approaches and methods of architecture and urban planning in helping to cope with such problems. Complexities involved in giving expression to human needs and desires in provision of shelters and movement systems, to possibilities and limitations of technology and building forms, and to issues involved in relating the human-made to the natural environment. Students encouraged to comprehend major urban issues both as citizens and as potential technical experts.

C191. Introduction to Sustainable Architecture and Community Planning. (4) Lecture, three hours. Energy and alternative resource-conscious design integration into architectural and urban design: passive, active, and photovoltaic solar systems and recycling of water, waste, and building materials at scale of buildings and communities. Concurrently scheduled with course C247A.

C192. Modern and Postmodern Architecture. (4) Lecture, three hours. Examination of 20th-century architecture from revolutionary concepts of modern movement, including manifestations in international style, to current transcendence of that movement with postmodernism and a resurgent new modernism. Concurrently scheduled with course C282B.

C193. City Studies: Culture and City Form. (4) Lecture, three hours. Design of cities from early times to the present, with special emphasis on great 19th- and 20th-century cities of Europe and America. Establishment of basic principles of good city design. Discussion of current theories of city design. Concurrently scheduled with course C280.

194A-194B. History of Architecture and Urban Design. (4) Lecture, three hours. Consideration of architectural and urban projects in relation to their theoretical, philosophical, and sociopolitical contexts, including issues of gender and diversity. **194A.** Introduction to history of architecture and urban design from prehistory to age of mannerism. Discussion of world at large, analyzing synchronic architectural and urban solutions. **194B.** Introduction to history of architecture and urban environments from Baroque period to the present.

199. Special Studies. (2 to 8) Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit.

Graduate Courses

201. Theories of Architecture. (4) (Formerly numbered 201A.) 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 the nature of speculative inquiry in an architectural context.

203. Decision Making in Planning and Design. (4) Lecture, three hours. Exploration of challenges of decision making in general and in the design professions, which have far-reaching effects not only on clients but also on professionals' own prospects. Psychological and mathematical approaches for improving decision quality.

204. Imaging the Future. (4) Seminar, three hours. Introduction to social and technological forecasting, including nature and limitations of forecasting, ideology and values in forecasting, review of integrative forecasting techniques, and role of forecasting in environmental planning, design, and management processes.

M225A-M225B-M225C. Fundamentals of Architectonics. (4-4-4) (Same as Design CM221, CM222, CM223.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. S/U or letter grading. **M225A.** Proportion; **M225B.** Symmetry; **M225C.** Comparison and Order.

226A. Introduction to Computer-Aided Architectural Design, Two-Dimensional. (4) Lecture, three hours; laboratory, one hour. Concepts of hardware, software, and networks; paint, draft, multimedia, DTP, and presentation programs; CAD in an office environment.

226B. Introduction to Computer-Aided Architectural Design, Three-Dimensional. (4) Lecture, three hours; laboratory, one hour. Concepts of three-dimensional space, modeling, and virtual reality; file formats; modeling, rendering, and animation programs; video conference.

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

M227A. Programming Computer Applications in Architecture and Urban Design. (4) (Same as Design CM241.) Lecture, three hours; outside study, nine hours. Introductory course in logic of computing through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. May be repeated for credit with consent of adviser. S/U or letter grading.

M227B. Introduction to Geometric Modeling. (4) (Same as Design CM242.) Lecture, three hours; outside study, nine hours. Requisite: course M227A. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. May be repeated for credit with consent of adviser. S/U or letter grading.

M227C. User Interaction Techniques in Design. (4) Lecture, three hours; outside study, nine hours. Requisite: course M227A or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. May be repeated for credit with consent of adviser. S/U or 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.

242. Climate Responsive Design. (4) Preparation: professional degree in architecture. Theory and method of design of buildings which specifically respond to local climate; intensive course in building climatology for advanced graduate studies students.

243. Energy Modeling. (4) Preparation: one course in building climatology and one course in environmental controls. Geometric description of a building and computerized modeling of its instantaneous energy flows, using one of the large energy analysis computer programs such as DOE 2.1B.

C247A. Introduction to Sustainable Architecture and Community Planning. (4) Lecture, three hours. Energy and alternative resource-conscious design integration into architectural and urban design: passive, active, and photovoltaic solar systems and recycling of water, waste, and building materials at scale of buildings and communities. Concurrently scheduled with course C191.

247B. Energy/Resource-Conserving Solar Design and Practice. (4) Lecture, three hours. Preparation: one climatology course. Requisite: course C247A. Extension of concepts and sizing of integrated systems introduced in course C247A; stand-alone approaches particularly in developing countries; impacts of global warming, deforestation on architecture; recycling; programming for project studio 403B.

248A-248B. Passively Integrated Solar Systems. (4-4) Requisites: courses 242, 442. Analysis of different passively integrated solar systems for heating and cooling buildings, considering their anticipated performance and suitability for different climates and building types. Focus on quantitative aspects, including calculations of performance in terms of energy saving and expected indoor comfort conditions. **248A.** Heating; **248B.** Cooling.

255A-255B. Climatic Issues in Urban Design. (4-4) Seminar, three hours. In-depth examination of impact of urban design (e.g., urban density, urban profile, public parks) on some aspect of urban climate, such as urban temperature, wind field, solar radiation availability, etc.

M259. Advanced Real Estate Development for Planners and Architects. (4) (Same as Urban Planning M259.) Discussion, three hours. Requisite: Urban Planning 216. Review of basic site planning and design, with emphasis on how development plans (including proposed design solutions) are iteratively modified to achieve economic and political feasibility. Organized as a studio to produce a buildable project, including design and finance plans, for a client. S/U or letter grading.

271. Elements of Urban Design. (4) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socio-economic, and technological framework of urban systems and its dynamic interrelations.

M272. Real Estate Development for Planners and Architects. (4) (Same as Urban Planning M272.) Lecture, two hours; workshop, two hours. 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 which are iteratively modified to meet economic feasibility tests.

279. Housing for Developing Countries. (4) Discussion, three hours. Considerations of sociocultural, economic, and political factors, materials, structural systems, shelter accessories, and manufacturing technologies related to priorities of developing countries in housing policies and planning and design of shelter.

C280. City Studies: Culture and City Form. (4) Lecture, three hours. Design of cities from early times to the present, with special emphasis on great 19th- and 20th-century cities of Europe and America. Establishment of basic principles of good city design. Discussion of current theories of city design. Concurrently scheduled with course C193.

282A. Roots of Modernism. (4) Lecture, three hours. Overview of developments in Western architecture during the 18th and 19th centuries, covering Romantic and historicist trends of the 1700s, eclectic preferences of the 1800s, and turn-of-the-century premodern developments including art nouveau.

C282B. Modern and Postmodern Architecture. (4) Lecture, three hours. Examination of 20th-century architecture from revolutionary concepts of modern movement, including manifestations in international style, to current transcendence of that movement with postmodernism and a resurgent new modernism. Concurrently scheduled with course C192.

283. Special Topics in Modern Architecture. (4) Lecture, three hours. Exploration of topics central to development of modern architecture. Examination of themes such as modernism and psychoanalysis, architecture and environment, modern domestic architecture, and windows, mirrors, and glass in modern architecture through readings from literary, artistic, theoretical, and architectural sources.

284. Architectural Culture of the French Enlightenment. (4) Lecture, three hours. Exploration of French architectural culture of the 18th century. Examination of urban places and activities, intersection of new social and architectural formations, transformation of architectural institutions, and developments in theories of architecture, as well as techniques of their dissemination.

286A-286B. Ancient Architecture. (4-4) Lecture, three hours. Study of architectural developments from archaic Greece to the late Roman Empire. Examination of ancient buildings as functional constructs whose appearance was determined by aesthetic, religious, social, political, urban, and technological factors.

287. Architecture in Europe and the Middle East, 400 to 1500. (4) Lecture, three hours. Study of East/West relationships, cultural concerns, and social interactions as seen through some major urban and architectural developments in Europe and the Middle East.

288A-288B. Renaissance and Baroque Architecture. (4-4) Lecture, three hours. Examination of European architecture from the 15th to 17th century, with primary focus on developments in the Italian peninsula. Examination of Renaissance and baroque structures contextually, exploring changing cultural and theoretical values as well as aesthetic characteristics.

289. Special Topics in Architecture and Urban Design. (2 to 4) Selected academic topics initiated by students, student teams, or faculty and directed by a faculty member. May be repeated for credit.

290. Landscape Studies. (4) Lecture, three hours. Introduction to cultural geography of American built environment. Exploration of key issues through case studies of settlement patterns, vernacular and political landscapes, origin myths, Enlightenment rationales, technological change, market forces, historic preservation, gardens, horticulture, and landscape design. 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.

292. Social Meaning of Space. (4) Discussion, three hours. Evolution of concept of space from its origins in ritual and primitive social organizations, concentrating on the child's evolving conception of space, literature on perceptual development, and studies of adaptation to spatial order of the human-made environment.

293. Politics, Ideology, and Design. (4) 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 a set of varied physical environments and to a 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.

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

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

297. Group Process in Design. (4) Lecture, two hours; discussion, two hours; laboratory, two hours. Designed to equip students with knowledge and skills needed to work effectively in design processes with other professionals and with client and user groups in organizational and other settings where interaction is important in determining design outcomes.

298A-298B-298C. Research Practicum in Architecture. (2 to 4 each) (Formerly numbered 298A-298D.) In-depth examination of research methods in the various major fields. May be repeated for credit.

298A. Research Practicum in Critical Studies in Architectural Culture; **298B.** Research Practicum in Technology; **298C.** Research Practicum in Design Theory and Methods.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

401. Projects in Architecture. (4) Studio, eight hours. Students may choose from a number of different projects in relevant problem areas to be offered by faculty members. May be repeated for credit.

402. Projects in Urban Design. (4) Studio, eight hours. Students may choose from a number of different projects in relevant problem areas to be offered by faculty members. May be repeated for credit.

403A-403D. Projects with Specific Topics. (2 to 4 each) Studio, eight hours. Preparation: prior courses of particular sequence. **403A.** Projects in Policy, Programming, and Evaluation; **403B.** Projects in Architectural Technology; **403C.** Projects in Design and Computation; **403D.** Projects in History and Theories of Architecture.

M404. 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 a 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.

411. Introductory Design Studio. (4) Studio, 12 hours. Architectural composition is initially studied in terms of its separate elements. After each is studied by means of a manipulative exercise which allows for experimentation of its intrinsic possibilities, students then undertake a series of closely controlled exercises dealing with combining the elements. Design of a small building in which previously acquired knowledge is synthesized into a single design in latter part of course.

412. Building Design Studio. (4) Studio, 12 hours. Requisite: course 411. Design of project starts with exploration of architectural program in relation to design process and, particularly, implications of program on architectural forms and concepts. In second phase, structural elements are introduced to fulfill program requirements and to support and further develop intended forms and concepts.

413. Building Design with Landscape Studio. (4) Studio, 12 hours. Requisite: course 412. Building design and site planning in relation to water, landforms, and plants in natural landscape, with special attention to natural light, heat, and ventilation.

414. Major Building Design. (4) Studio, 12 hours. Designed for second-year graduate students. Design projects which enable students to concentrate specifically on architectural issues, with 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, environmental control, physical context, and cultural environment in design of buildings and to present their ideas in graphic or model form.

415. Major Building Design II. (4) Studio, 12 hours. Requisite: course 414. Design projects which enable students to concentrate on specific architectural issues, with 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, mechanical systems, physical context, and cultural environment in design of buildings and to present their ideas in graphic or model form. Special emphasis on integration of environmental control systems.

416. Comprehensive Design Studio. (4) Studio, 12 hours. Preparation: completion of required coursework up to first term of third year. Course completes regular required sequence of design work, preparing students for third-year thesis preparation. Comprehensive design projects are structured to test students on integration of structural aspects, mechanical systems, site planning, and climatic considerations within their design solutions.

421. Studio Support. (2) Lecture/studio, 90 minutes. Studio support course, related to course 411, which introduces sketching, drawing, drafting, perspectives, model building, and computer-aided design through lectures, seminars, and independent or studio-related exercises.

422. Studio Support. (2) Lecture/studio, 90 minutes. Studio support course, related to course 412, which introduces sketching, drawing, drafting, perspectives, model building, and computer-aided design through lectures, seminars, and independent or studio-related exercises.

423. Studio Support. (2) Lecture/studio, 90 minutes. Studio support course, related to course 413, which introduces theoretical and technical issues such as site planning, urban design, landscape design, design with climate, and building typology, etc., through lectures, seminars, and independent or studio-related exercises.

424. Studio Support. (2) Lecture/studio, 90 minutes. Studio support course, related to course 414, which introduces theoretical and technical issues such as programming and program manipulation, site planning, urban design, integration of technical systems, architectural expression, landscaping, and presentation, etc., through lectures, seminars, and independent or studio-related exercises.

425. Studio Support. (2) Lecture/studio, 90 minutes. Design development of project initiated in preceding studio (usually course 414). One room or part of building is developed in detail, with integration of a range of technical systems such as structures, mechanical systems, etc.

426. Studio Support. (2) Lecture/studio, 90 minutes. Studio support course, related to course 416, which introduces theoretical and technical issues such as programming and program manipulation, site planning, urban design, integration of technical systems, architectural expression, landscaping, and presentation, etc., through lectures, seminars, and independent or studio-related exercises.

428. Advanced Architectural Drawing. (4) Discussion, three hours; studio, three hours. Emphasis on exploration of interrelationship between drawing and design. Development of more advanced design strategies and modes of graphic exploration and presentation.

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.

432. Structures II. (4) (Lecture, three hours. Requirement: 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.

433. Structures III. (4) Lecture, three hours. Requirement: 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: seismology, magnitude, intensity, history. Seismic instrumentation. Case studies of recent earthquakes and damage. Earthquake design concepts and seismic code requirements.

434. Structures IV. (4) Lecture, three hours. Requirement: course 433. Considerations of concrete structures. Materials of construction: cement aggregates, concrete mix design. Construction methods and structural systems. Reinforced concrete theory: elastic and ultimate strength analysis and design of beams, columns, and slabs. Case studies of concrete structures. Economics of high-rise concrete apartment buildings.

436. Building Construction. (4) Limited to M.Arch. I students. Principles of structure and enclosure; basic nature, production, classification of primary building materials. Building elements explored for formal and functional properties; production and assembly possibilities in factory and field, application and role within building. Hands-on project.

437. Construction Documents. (4) Studio, eight hours. Preparation: one course in basic building construction (such as 436). Office/field communications explored through design of simple structure and creation of key working drawings and outline specifications. Introduction to CADD (computer-aided design and drafting) systems.

438. Systems Building. (4) Discussion and survey of past and present developments in Europe, the U.S.S.R., and the U.S. Impacts, demands, socioeconomic and legal constraints, user needs, performance specifications. Systems engineering and design. Measurement regulation, modular coordination, closed systems, open systems, design of systems, subsystems, components, elements, and materials.

441. Environmental Control Systems. (4) 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 a building.

442. Building Climatology. (4) Preparation: basic physics. Design of buildings which 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.

444. Light and the Visual Environment. (4) Preparation: one course in building climatology. Exploration of extent to which physical form of a building controls the luminous environment of its occupants; design of naturally and artificially illuminated interior spaces; parameters of human visual comfort.

445. Architectural Acoustics. (2 to 4) Lecture, three hours. Applied course in acoustical designing in architecture, including design of partitions to provide good sound insulation. Acoustical materials. Acoustical design of auditoriums. Control of noise in HVAC systems.

448. Communication and Diffusion of Innovation. (4) Seminar, three hours. Innovation in the building industry and design professions. Successful creation and introduction of innovative products, processes, and technologies. Students expected to contribute to the meager literature of the field through case studies and projects. Visitors and field trips.

461. Architectural Practice. (4) Seminar, three hours. Historical development of the 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.

496. Special Projects in Architecture. (2 to 8) Projects initiated either by individual students or student teams and directed by a faculty member. May be repeated for credit.

497. Special Projects in Urban Design. (2 to 8) Projects initiated either by individual students or student teams and directed by a faculty member. May be repeated for credit.

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 Research and Study in Architecture and Urban Design. (2 to 8) May be repeated for credit. S/U grading.

597. Preparation for Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) May be repeated for credit. S/U grading.

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

599. Ph.D. Dissertation Research in Architecture. (2 to 8) Limited to doctoral students. May be repeated for credit. S/U grading.

ART

School of the Arts and Architecture

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(310) 825-3281
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Mary Kelly, M.A., *Chair*

Professors

Chris Burden, M.F.A.
Roger Herman, M.F.A.
Henry T. Hopkins, M.A.
Mary Kelly, M.A.
Paul McCarthy, M.F.A.
Lari Pittman, M.F.A.
Charles Ray, M.F.A.
Nancy Rubins, M.F.A.
Adrian Saxe, B.F.A.

Professors Emeriti

Samuel Amato, B.F.A.
Laura F. Andreson, M.A.
William J. Brice
Raymond B. Brown, M.A.
Elliot J. Elgart, M.F.A.
Robert F. Heineken, M.A.

Associate Professors

Barbara Drucker, M.F.A.
James Welling, M.F.A.
Patricia Wickman, M.F.A.

Lecturers

Anne Marie Karlsen, M.F.A.
Don Suggs, M.F.A.

Scope and Objectives

The Department of Art offers professional art training which emphasizes experimentation and encourages students to draw from many disciplines in their creative process. The department provides a strong background in theory and criticism to support contemporary studio practice. Bachelor of Arts and Master of Fine Arts degrees are offered in painting/drawing, new genres, photography, sculpture, and ceramics. An interdisciplinary studio option is offered within the M.F.A. program. In addition, a Master of Arts degree is offered in critical and curatorial studies. All programs have access to the art resources at UCLA and in the Los Angeles community.

Undergraduate Study

Art B.A.

Preparation for the Major

Required: Art 1A, 1B, 11A, 11B, 11D, 11E, 31, 32, and one course from Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57.

The Major

Required: A minimum of 13 upper division courses, including Art 100, 150, six courses from at least four of the following: 130, 133, 137, 140, 145, 147, 148, one course from Art History 101A through C119B, and four art electives.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Art offers the Master of Arts (M.A.) degree in Art and the Master of Fine Arts (M.F.A.) degree.

Master of Arts

Admission

Students are admitted to the M.A. program in Fall Quarter only. Regular admission requires a B.A. or equivalent and faculty consent following the annual review of creative work in February. Applicants must submit slides (maximum 20) or videotape (if applying to the video field).

Provisional admission may be granted for work with faculty sponsors for three quarters, pending reconsideration of regular admission.

Areas of Study

Drawing, painting, sculpture, photography, ceramics, and alternative media. No limit to the variations, extent, or value of these designations is intended.

Course Requirements

A minimum of 36 quarter units in the department in courses numbered 130 through 280 is required, with a B average or better.

Within those 36 units, a minimum of 20 quarter units in the 200 series must be taken in the field of specialization, including four units of Art 276. In addition, four units of Art 280 are required as part of the 36 units.

A minimum total of 36 quarter units of art history, theory, and criticism in undergraduate or graduate study is also required, including Art 280. Art history courses completed as an undergraduate count toward fulfilling the Art Department's 36-unit art history requirement, but do not count toward the 36 units required for the degree. Students with few or no art history courses in undergraduate study may take art history upper division or graduate courses at UCLA as electives to be counted toward the 36-unit art history requirement and toward the total units required for the degree. Subjects re-

lated to the special interests of the student may be substituted by petition.

A maximum of two 596 courses (eight units) may be applied toward the 36 units required for the degree.

Comprehensive Examination Plan

Each degree is granted on the basis of the quality of the student's work as demonstrated in the exhibition which accompanies the final comprehensive examination. The number of units of credit attained is irrelevant to this.

A review of work precedes the final comprehensive examination. The examination, usually oral, includes a formal exhibition of work and a document of vita, photo records of works, and a statement of the artist. The document is retained as property of the University.

Thesis Plan

None.

Master of Fine Arts

Admission

Students are admitted to the M.F.A. program in Fall Quarter only. See Admission section for the M.A. in Art above. The M.A. is not prerequisite to the M.F.A., but may be elected as a stated degree objective. Usually, however, students proceed directly to the M.F.A. as a terminal degree. The unit requirements applied to the M.A. do not apply to the M.F.A., with the exception of accumulative art history units.

Areas of Study

Painting and drawing, sculpture, photography, ceramics, new genres, and interdisciplinary studio. No limits to the variations, extent, or value of these designations is intended.

Course Requirements

A minimum of 72 quarter units in the department in courses numbered 130 through 280 is required, with a B average or better.

Within those 72 units, a minimum of 40 quarter units in the 200 series must be taken, including four units of Art 276 and a minimum of 24 quarter units in the field of specialization. In addition, eight units of Art 280 are required as part of the 72 units.

A minimum total of 40 quarter units of art history in undergraduate or graduate study is also required (including Art 280). Art history courses completed as an undergraduate count toward fulfilling the Art Department's 40-unit art history requirement but do not count toward the 72 units required for the degree. Students with few or no art history courses in undergraduate study may take art history upper division or graduate courses at UCLA as electives to be counted toward the 40-unit art history requirement and toward the total units required for the degree. Subjects related to the special interests of the student may be substituted by petition.

A total of 12 units of Art 596 may be applied toward the 72 units required for the degree; four

units may be applied toward the graduate course requirement.

Comprehensive Examination Plan

The comprehensive examination plan is the same as the plan offered for the Master of Arts in Art.

Thesis Plan

None.

Art

Lower Division Courses

1A. Drawing. (4) Studio, eight hours; five hours arranged. Course in basic drawing skills intended as preparation for work in a variety of media.

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.

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 the photographic medium within the 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 a 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.

31. Modernism. (4) Discussion, three hours. Survey of 20th-century European/American art, its antecedents, and its social and political context.

32. Survey of Critical Thought. (4) Discussion, three hours. Overview of premodern, modern, and postmodern theory as reflected in critical writing and artistic practice, with emphasis on the 1940s to the present.

Upper Division Courses

100. Issues in Contemporary Art. (4) Discussion, three hours. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Selected topics in theoretical, critical, aesthetic, and historical studies and their relevance to practicing artists. May be repeated for a maximum of 16 units.

130. Advanced Drawing. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Drawing as both an independent expressive medium and as a means of visualization. May be repeated for a maximum of 16 units.

133. Advanced Painting. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Varied media and subjects to further develop students' technical and expressive means to implement their ideas. May be repeated for a maximum of 16 units.

137. Advanced New Genres. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Emphasis to be selected by faculty from one or more of the following media: installation, performance, video, film, other nontraditional media and processes. May be repeated for a maximum of 16 units.

140. Advanced Printmaking. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Selected studies in fine printmaking, historical and contemporary: woodcut, etching and engraving, lithography, silk screen, mixed media. May be repeated for a maximum of 16 units.

145. Advanced Sculpture. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Selected studies in sculpture, historical and contemporary: modeling, carving, casting, welding, and other media; forms in space, including installations and non-studio pieces. May be repeated for a maximum of 16 units.

147. Advanced Photography. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. 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 a maximum of 16 units.

148. Advanced Ceramics. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11E, 31, 32. Selected studies in ceramics, with emphasis on individualized creative experimentation with materials and techniques introduced in course. Methods and processes to be selected from a range of possibilities, including handforming and modeling, preparation and use of molds, slipcasting, and use of potter's wheel. May be repeated for a maximum of 16 units.

150. Senior Studio. (4) Studio, eight hours; five hours arranged. Requisites: courses 1A, 1B, 11A through 11D, 31, 32. Limited to seniors. Advanced studio projects, with emphasis on analysis and criticism of individual creative work and ideas. May be repeated once for credit.

M186A. Beyond the Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186A and World Arts and Cultures M166A.) Studio/lecture, six hours. Corequisite: course M186AL. Investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a community. Students research, design, and work with community participants. P/NP or letter grading.

M186AL-M186BL-M186CL. Beyond the Mexican Mural: Muralism and Community Laboratory. (2-2-2) (Same as Chicana and Chicano Studies M186AL-M186BL-M186CL and World Arts and Cultures M166AL-M166BL-M166CL.) Laboratory, two hours. Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is an art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in a 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 a community setting. P/NP or letter grading. **M186AL.** Beginning; **M186BL.** Intermediate; **M186CL.** Advanced.

M186B. Beyond the Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186B and World Arts and Cultures M166B.) Studio/lecture, six hours. Requisites: courses M186A/M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

M186C. Beyond the Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186C and World Arts and Cultures M166C.) Studio/lecture, six hours. Requisites: courses M186B/M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

M188. Whose Monument Where: Course on Public Art. (4) (Same as Chicana and Chicano Studies M188 and World Arts and Cultures M167.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in the U.S. as a basis for cultural insight and critique of American values from perspective of an artist. Use of urban Los Angeles as textbook in urban space issues such as who is the "public," what is "public space" at the end of the 20th century, what defines a neighborhood, and do different ethnic populations use public space differently. P/NP or letter grading.

197. Honors Course. (4) Hours to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Limited to juniors/seniors. Individual studies for majors. May be repeated once for credit.

199. Special Studies in Art. (2 to 8) Hours to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual studies for majors. May be taken for a maximum of eight units.

Graduate Courses

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

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.

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.

274. 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.

275. New Genre. (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.

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.

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 a significant body of original work reflecting student's expressive and theoretical concerns. May be repeated for credit.

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.

280. Graduate Seminar: Art. (4) Discussion, 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.

281. Exhibition and System. (4) Examination of temporary exhibition and its associated field of publications as an intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. May be repeated for credit. S/U or letter grading.

282. 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. S/U or letter grading.

375. Teaching Apprentice Practicum (1 to 4). Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. May not be applied toward M.A. course requirements. May be repeated. S/U grading.

The Department of Art reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

ART HISTORY

College of Letters and Science

UCLA
100 Dodd Hall
Box 951417
Los Angeles, CA 90095-1417

(310) 206-6905
<http://www.humnet.ucla.edu/humnet/arthist/ArtHistoryHome.html>

Anthony Vidler, Dipl.Arch, *Chair*

Professors

Albert Boime, Ph.D.
Robert L. Brown, Ph.D.

Susan B. Downey, Ph.D.
 Cecelia F. Klein, Ph.D.
 David M. Kunzle, Ph.D.
 Donald F. McCallum, Ph.D.
 Donald A. Preziosi, Ph.D.
 Anthony Vidler, Dipl.Arch.
 Lothar von Falkenhausen, Ph.D.
 Cécile Whiting, Ph.D.
 Joanna Woods-Marsden, Ph.D.

Professors Emeriti

Katharina Otto-Dorn, Ph.D.
 Carlo Pedretti, M.A.

Associate Professor

Irene A. Bierman, Ph.D.

Assistant Professor

Miwon Kwon, Ph.D.
 Barbara Zeitler, Ph.D.

Lecturers

Shelley M. Bennett, Ph.D.
 Jean S. Weisz, Ph.D., *Senior Emerita*

Scope and Objectives

The department offers programs leading to the Bachelor of Arts, Master of Arts, and Ph.D. degrees. Art history courses survey Western and non-Western art from earliest human history to the present. Students learn to treat artistic monuments and trends from a historical point of view, analytically rather than subjectively. The curriculum prepares students for careers in which broad knowledge of art is important and provides students preparing for graduate study with a foundation for research requiring independent critical judgment.

The rich and varied art resources available at UCLA and throughout Southern California offer students extraordinary opportunities to supplement the formal curriculum.

Undergraduate Study

Art History B.A.

Preparation for the Major

Required: Two courses from Art History 50, 51, 54, 57 and two courses from 55A, 55B, 56A, 56B. It is strongly recommended that these courses be taken prior to enrollment in upper division courses.

The Major

Required: Eleven upper division art history courses as follows:

(1) A total of six courses (24 units) from the following 12 areas, distributed as follows: one course from three different areas in Group A (three courses total) and one course from three different areas in Group B (three courses total):

Group A: (1) 101A, 101B, M102A through M102E, (2) M102F through M102K, (3) 105A through 105E, (4) 106A through 106D, 108A, 108B, (5) 108C, 109A through 109D, (6) 110A through 110G, C150A through 150D, (7) C112A through CM112D.

Group B: (8) 104A, 104B, C104C, (9) 114A, 114D, 114F, C115A, (10) 114C, 114E, C115B

through C115F, (11) C117A, C117B, C117C, 118D, 118E, (12) 118A, 118C, C119A, C119B.

(2) Five art history electives from the above 12 areas; courses 127, 197, and 199 may also be included.

Two terms of one foreign language or equivalent are also required. The language is in addition to the college foreign language requirements.

Art History majors should be aware that the upper division course requirements in the major (44 units) do not meet the upper division requirement of 60 units for graduation. Additional upper division units must be taken to reach the 60-unit total.

It is recommended that students have each term's program approved by the departmental adviser.

Honors Program

The honors program is designed for Art History majors who are interested in carrying out an independent research project that culminates in a departmental honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior Art History majors who have completed a minimum of four upper division art history courses with a departmental grade-point average of 3.5 or better and an overall GPA of 3.0 or better are eligible to apply. Consult the art history undergraduate counselor one term prior to beginning the honors program.

To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses in the department and an overall GPA of 3.0 or better, and (3) complete Art History 195A-195B with a grade of A– or better.

To qualify for graduation with highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.85 or better in upper division courses in the department and an overall GPA of 3.65 or better, and (3) complete courses 195A-195B with a grade of A.

Museum Studies Minor

The Museum Studies minor introduces undergraduate students to the history, theory, and practice of museums and museology through a group of linked and related courses from various disciplines in the College of Letters and Science and School of the Arts and Architecture. The program exposes students to museum studies as historically and currently practiced in the visual arts, in anthropology and ethnography, and in history and cultural studies more broadly. The minor complements and in part may serve as an introduction to the recently approved M.A. concentration in museum studies.

To enter the minor students must be in good academic standing (minimum 3.0 cumulative grade-point average), have completed 45 units at UCLA, and file a petition with the program adviser, 100 Dodd Hall, (310) 206-6905.

Required Lower Division Courses (eight units): Anthropology 9 or 33 and one course from Art History 50 through 57, with grades of B or better.

Required Upper Division Courses (28 units): Art History C103A-C103B, World Arts and Cultures 165A, 165B, and three elective courses selected from Art History 100, C103C, World Arts and Cultures 165C, and a wide range of other courses from various departments and programs, with approval of the program director. Courses from other departments and programs may be applied as electives on an individual case basis only.

A minimum of 20 units applied toward the minor requirements must be in **addition** to courses applied toward major requirements, and at least 16 units applied toward the minor must be taken in residence at UCLA. All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Transfer credit for any of the above is subject to departmental approval; consult the departmental adviser before enrolling in any courses for the minor.

Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Art History offers the Master of Arts (M.A.) degree in Art History.

Admission

A minimum grade-point average of 3.25 overall and 3.5 in upper division art history courses is required of applicants to the M.A. program. The Graduate Record Examination (GRE) is required, although no minimum score has been established. Three letters of recommendation (preferably from art historians) are required. The statement of purpose submitted with the application is given weight in the evaluation and should be as specific as possible about the applicant's interests in art history. Also required are two writing samples (two 10-page research papers). In addition, applicants must have completed six full courses in the history of art (grades of B or better and not including studio courses), with at least two courses in

Fields A and B noted below. Specific areas may not be offered in satisfaction of more than one requirement.

Applicants demonstrating exceptional promise but lacking some or all of the six required courses may, at the discretion of the graduate review committee, be admitted on condition that they make up those courses. Deficiencies must be made up during the first two quarters of residence and may not be applied toward the required courses for the degree. Instead of taking a course, students may elect to substitute a competency examination in the deficient area.

Prospective students may contact the graduate counselor, Department of Art History, for brochures and information. The department has no special departmental application.

Areas of Study

Sixteen areas in four fields:

Field A: (1) Aegean; (2) Greek and Roman; (3) medieval and Byzantine; (4) Renaissance and baroque; (5) modern and contemporary; and (6) American.

Field B: (7) African; (8) oceanic; (9) Native North American; (10) pre-Columbian; (11) Islamic; (12) Indian and Southeast Asian; (13) Chinese; and (14) Japanese.

Field C: (15) Critical theory.

Field D: (16) Museum Studies

Course Requirements

The M.A. degree requires the completion of a major and two minors within the art history major. There are four major/minor options available to M.A. students.

Option I: Western Major

Major from Field A, areas 1-6 — four courses in one area.

First minor from Field A, areas 1-6, or from Field C, area 15 — two courses from one area other than the major selected from Field A areas 1-6, or two courses from Field C, area 15.

Second minor from Field B, areas 7-14 — two courses in one area.

Option II: Non-Western Major

Major from Field B, areas 7-14 — four courses in one area.

First minor from Field B, areas 7-14, or from Field C, area 15 — two courses in one area other than the major selected from Field B, areas 7-14, or two courses from Field C, area 15.

Second minor from Field A, areas 1-6 — two courses in one area.

Option III: Critical Theory Major

Major from Field C, area 15 — two courses from Field C, area 15, plus four courses in one area from Field A or B, areas 1-6 or 7-14.

The first and second minors for this option are chosen as in options I and II based on the major selection from Field A or B, areas 1-6 or 7-14 — two courses in one area for each minor.

Instructors from the student's major and two minor areas normally serve on the thesis committee. If the student wishes to complete two of the three areas with one instructor, a petition explaining the reasons for this must be approved by the graduate review committee.

For major/minor options I and II, students are required to take a minimum of 10 graduate and upper division courses, of which at least eight must be in art history and of which at least six must be graduate courses in the 200 series and 596. At least four of these must be in the 200 series, and no more than two may be directed studies (596) projects. Course 598 is not applicable toward an advanced degree.

For major/minor option III, students are required to take a minimum of 13 graduate and upper division courses but may be required to take up to 14 courses, of which at least eight must be in art history and of which at least six must be graduate courses in the 200 series and 596. At least four of these must be in the 200 series, and no more than two may be directed studies (596) projects. Course 598 is not applicable toward an advanced degree.

Option IV: Museum Studies Major

Major from Field D, area 16—two courses from Field D, area 16, plus four courses in one area from Field A, B, or C, areas 1-6 or 7-14 or 15.

The first and second minors for this option are chosen as in options I and II based on the major selection from areas 1-6 or 7-14 or 15—two courses in one area for each minor. Language requirements: The language of the student's major historical field is required, in conformity with foreign language requirements listed above.

For major/minor option IV, students are required to take a minimum of 13 graduate and upper division courses, of which at least eight must be in art history and of which at least six must be graduate courses in the 200 series and 596. Courses C203A-C203B are required. Of the courses taken from outside the department, a minimum of three must be from a museum studies- or museology-related subject in another department, taken for graduate or upper division credit. No more than two of the graduate courses may be directed studies (596) projects. A list of recommended courses from which the student may select is provided by the student's adviser.

All students must take (1) Art History 200 and (2) either course 201 or 202. Courses should be determined in consultation with students' major and minor advisers with the stipulation that progress toward the M.A. may not be impeded by requiring a course not offered at least once every two years.

On completion of all course and foreign language requirements, the department requests the Graduate Division to appoint the thesis committee. After the committee has been appointed, students may petition for advancement to candidacy for the M.A. degree. Candidates have one calendar year after advance-

ment to candidacy to complete all requirements for the degree.

Comprehensive Examination Plan

None.

Thesis Plan

The thesis committee consists of the student's major adviser and two other University of California faculty, one of whom must be a UCLA Art History Department faculty member. Normally, students' two minor advisers serve in this capacity. For details on the acceptable status of these members, see the publication, *Standards and Procedures for Graduate Study at UCLA*, available in Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall. Students and the major adviser must be in agreement on the members of the thesis committee.

At this time, the student selects, in consultation with and with the written consent of the thesis committee, a thesis topic in the major field. This thesis should deal succinctly with the topic in an independent, critical, and original fashion while taking fully into account the present state of research on the problem. It must be clearly written, correctly documented, and illustrated and must meet the minimum standards for the master's thesis as set out by the UCLA Graduate Division in *Standards and Procedures for Graduate Study at UCLA*. It should not exceed 50 pages in length and must be researched and written in consultation with the thesis committee members. If the thesis is rejected by one member of the committee, it may, at the request of the major adviser, be submitted to the graduate review committee for final judgment; otherwise, the student's candidacy must be terminated.

Doctoral Degree

Admission

The M.A. in Art History is usually required for admission to the program leading to the Ph.D. degree in Art History. However, students with an M.A. degree in other disciplines can apply for admission. The graduate review committee determines the equivalency of the M.A. on an individual basis. An M.A. in Art History from another institution may be accepted as equivalent to that from UCLA or the holder may be accepted into the program at a stage determined by the graduate review committee. All incoming Ph.D. students must show evidence of having taken and passed with a grade of B or better at least two courses (upper division and/or graduate) in areas not related to the proposed major (as outlined in M.A. course requirements). Deficiencies must be made up during the first two quarters of residence and may not be applied toward the eight courses required for the Ph.D. degree.

The application must include, in addition to official transcripts, all of the following: (1) a standard statement of purpose (approximately 400 words); (2) a copy of the applicant's M.A. thesis or, if no thesis was written, one major research

paper written at the M.A. level in the major or intended major field; (3) three or more letters of recommendation from individuals familiar with the applicant's scholarly work, of which one must be a detailed letter of assessment and endorsement from the individual who served as the major adviser for the M.A.; (4) a written statement from the intended Ph.D. major adviser of willingness to supervise the applicant's Ph.D. work; (5) evidence of reading fluency in two appropriate foreign languages; (6) Graduate Record Examination (GRE) scores.

If an applicant is applying directly to the Ph.D. program from the M.A. in Art History program at UCLA, there is a slightly modified procedure. For details, see the graduate counselor.

A reading knowledge of French and German is requisite for admission at the Ph.D. level for those majoring in all areas except Asian (i.e., Chinese, Japanese, South Asian, Southeast Asian), pre-Columbian and Latin American, Native North American, oceanic, Islamic, and Italian art history. An applicant may demonstrate this knowledge by (1) submitting proof of a GSFLT (Graduate School Foreign Language Test) score of 600 or better (for French, German, and Spanish only; examination not given for Italian); (2) taking and passing the relevant UCLA department language examinations; or (3) submitting proof of completion of UCLA's German 6 and/or French 5 with a grade of B or better. If an applicant plans on majoring in Japanese or Chinese art history, substitute either Chinese or Japanese respectively for either French or German. If an applicant plans on majoring in South Asian, Southeast Asian, or Islamic art history, substitute for either French or German an appropriate research language of South Asia, Southeast Asia, or the Islamic Middle East. The choice must be made in consultation with, and with the consent of, the major adviser. The Asian and Islamic requirements, however, are normally satisfied by enrolling in an appropriate course sequence for six consecutive quarters (normally beginning with the first quarter of graduate study) and by maintaining a grade of B or better. If one intends to major in pre-Columbian and Latin American art history, applicants must demonstrate reading fluency in Spanish plus one additional foreign language. In the case of Spanish, UCLA's Spanish 25, passed with a grade of B or better, fulfills the requirement. Applicants intending to major in Native North American or oceanic art must master one European language and one additional foreign language. If an applicant intends to focus on Italian art history, competency in German and either French or Italian must be demonstrated. For the latter, UCLA's Italian 5, passed with a grade of B or better, satisfies the requirement.

If the applicant has passed a required foreign language at another institution, the relevant UCLA departmental foreign language examination must be taken and passed nonetheless, or an official recent (within two years) GSFLT score of 600 or better in the language must be submitted. Exceptions are granted only when

the examination taken at another institution (1) has been passed within the past two years and (2) can be demonstrated to have been equivalent in nature to that of the UCLA departmental foreign language examination. Coursework in foreign languages taken at another institution may not be used as evidence of reading competence.

Major Fields or Subdisciplines

Twenty-two areas in three fields:

Field A: (1) Aegean; (2) American; (3) baroque; (4) Byzantine; (5) contemporary (post-1945); (6) 18th century; (7) Greek; (8) medieval; (9) 19th century; (10) Renaissance; (11) Roman; and (12) 20th century.

Field B: (13) African; (14) Chinese; (15) Indian; (16) Islamic; (17) Japanese; (18) Native North American; (19) oceanic; (20) pre-Columbian; (21) Southeast Asian.

Field C: (22) critical theory.

Course Requirements

At the time of application to the Ph.D. program, the student selects a major field of study within art history; by the end of the second quarter of residence, an additional minor (or minors) is selected. The faculty member responsible for the minor serves as the minor adviser. The major and minor advisers are responsible for the student's course of study and completion of requirements within the field. In addition, the major adviser must be consulted regarding the student's overall course of study at least once each quarter. A change of adviser and of either the major or minor field must be changed by the graduate review committee.

If a student enters the Ph.D. program deficient in Art History 200 or its equivalent, it must be added to the total requirements. In some cases, course 201 may also be required if recommended by the faculty adviser.

The department offers three options in the selection of majors and minors.

Option I

Major from Field A, areas 1-12, or Field B, areas 13-21 — five courses in one area.

Minor from Field A or B, areas 1-12 or 13-21 — three courses in one area other than the major field, or from Field C, three courses from area 22.

Option II

Major from Field A, areas 1-12, or Field B, areas 13-21 — five courses in one area.

Minor from an extra-departmental area such as history, anthropology, or film — three courses in one area.

Option III

Major from Field C, area 22 — four courses from Field C, area 22, plus four courses in one area from Field A or B, areas 1-12 or 13-21.

Minor from Field A or B, areas 1-12 or 13-21 — three courses in one area not chosen as part

of the major or three courses in one area from an extra-departmental area.

For major/minor options I and II, a minimum total of eight graduate and upper division courses is required, of which at least four must be art history courses at the graduate (200 and 596) level. Of this total, at least two must be taken, and up to five may be taken, as extra-departmental upper division and/or graduate courses with approval of the major or minor advisers (where applicable).

For option III, a minimum total of 11 graduate and upper division courses is required, of which at least four must be art history courses at the graduate (200 and 596) level. Of this total, at least two must be taken, and up to five may be taken, as extra-departmental upper division and/or graduate courses with approval of the major or minor advisers (where applicable).

Written and Oral Qualifying Examinations

After completion of coursework and language study, students must take the Ph.D. written comprehensive examination to test breadth and depth of knowledge in the major and minor fields of study. If the examination is failed, or any part thereof, that portion may be repeated during the subsequent quarter of residence. No further repetition is allowed.

After passing the written comprehensive examination, students select a dissertation topic. The members of the doctoral committee are then nominated, and the committee is appointed by the dean of the Graduate Division.

After having submitted a dissertation proposal, students then take the University Oral Qualifying Examination, given by the doctoral committee. Assuming there is no more than one no pass vote, students may initiate the procedure to become advanced to candidacy.

Art History

Lower Division Courses

50. Ancient Art. (4) Lecture, three hours; quiz, one hour. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture.

51. Medieval Art. (4) Lecture, three hours; quiz, one hour. Early Christian, Byzantine, Islamic, Carolingian, Ottoman, Romanesque, and Gothic art and architecture.

54. Modern Art. (4) Lecture, three hours; quiz, one hour. Art and architecture from 1800 to the present in Europe and the U.S.

55A. Introduction to African Art. (4) Lecture, three hours; discussion, one hour. Introduction to field of African art history, with focus on selected traditions. P/NP or letter grading.

55B. Arts of Pre-Columbian America. (4) Lecture, three hours; discussion, one hour. Survey of sequence of cultures which developed in the area between (and including) Mexico and Peru from ca. 1000 B.C. to the Conquest.

56A. Art of India and Southeast Asia. (4) Lecture, three hours; discussion, one hour. Survey of major artistic monuments of Indo-Iranian and Southeast Asian cultures, concentrating on formal and iconographical problems, as well as social and political conditions under which artworks were patronized and produced.

56B. Introduction to Chinese Art. (4) Lecture, three hours; discussion, one hour. Introduction to discipline of Chinese art history. Fundamentals of formats, methods, and materials of Chinese art, visual and textual sources, peculiarities of patronage, traditional art history and criticism, and approaches to representation in premodern China.

57. Renaissance and Baroque Art. (4) Lecture, three hours; discussion, one hour. History of art and architecture in Western Europe from 1400 to 1750.

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

88A. Buddha's Life and Teachings in Art, Texts, and Worship. Development of Buddhist art in India through Buddha's teachings, expressed in art, architecture, texts, and ritual. Re-creation of Buddha's life by analyzing art and reading Buddhist texts of his life.

Upper Division Courses

100. Art Historical Theories and Methodologies. (4) Discussion, three hours. Requisites: three courses from 50 through 57. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts.

101A. Egyptian Art and Archaeology. (4) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during the Predynastic period and Old Kingdom.

101B. Egyptian Art and Archaeology of the Middle and New Kingdoms. (4) Lecture, three hours. Requisite: course 50. Study of architecture, sculpture, painting, and minor arts during the Middle and New Kingdoms.

M102A. Minoan Art and Archaeology. (4) (Same as Classics M153A.) Lecture, three hours. Requisite: course 50 or Classics 10. Study of development of art and architecture in Minoan Crete from ca. 3000 to 1000 B.C. P/NP or letter grading.

M102B. Mycenaean Art and Architecture. (4) (Same as Classics M153B.) Lecture, three hours. Requisite: course 50 or Classics 10. Study of development of art and architecture in Mycenaean Greece from ca. 2000 to 1000 B.C. P/NP or letter grading.

M102C. Archaic Greek Art and Archaeology. (4) (Same as Classics M153C.) Lecture, three hours. Requisites: course 50, Classics 10. Study of development of art and architecture of Greek world from approximately 800 through 490 B.C. P/NP or letter grading.

M102D. Classical Greek Art and Archaeology. (4) (Same as Classics M153D.) Lecture, three hours. Requisites: course 50, Classics 10. Recommended: upper division classics or Greek courses. Study of development of art and architecture of Greek world from approximately 490 through 350 B.C. P/NP or letter grading.

M102E. Hellenistic Greek Art and Archaeology. (4) (Same as Classics M153E.) Lecture, three hours. Requisites: course 50, Classics 10. Study of development of art and architecture of Greek world from middle of the 4th century B.C., including transmittal of Greek art forms to the Romans. P/NP or letter grading.

M102F. Etruscan Art. (4) (Same as Classics M153F.) Lecture, three hours. Requisite: course 50 or Classics 20. Arts of Italic peninsula from ca. 1000 B.C. to end of the Roman Republic. P/NP or letter grading.

M102G. Roman Art. (4) (Same as Classics M153G.) Lecture, three hours. Requisite: course 50. Art and architecture of Rome and its Empire from ca. 300 B.C. to A.D. 300. P/NP or letter grading.

M102H. Late Roman Art. (4) (Same as Classics M153H.) Lecture, three hours. Requisites: courses 50, M102G. Art of Roman Empire from the 2nd through 4th century (A.D.). P/NP or letter grading.

M102I-M102J-M102K. Classical Archaeology. (4-4-4) (Same as Classics M153I-M153J-M153K.) Lecture, three or four hours. Requisite: course 50 or Classics 10 or 20 or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. P/NP or letter grading. **M102I.** Greco-Roman Architecture; **M102J.** Greco-Roman Sculpture; **M102K.** Greco-Roman Painting.

C103A-C103B. Museum Studies. (4-4) (Formerly numbered 110F.) Lecture, three hours; demonstrations/field trips. Concurrently scheduled with courses C203A-C203B. In Progress and P/NP or letter grading. **C103A.** Introduction to historical evolution of museums and museology, theories and methods of their operations, historical and critical relationships between museology, art history, and new technologies for archiving and exhibiting artifacts and historical materials. **C103B.** Lectures and discussions organized to foster active critical engagement with museum policies, operations, and productions involving focused study and on-site research on particular museum institutions and exhibitions.

C103C. Museum Studies Practicum (2 to 4). Lecture, three hours. Requisites: courses C103A-C103B. 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 C203C. Letter grading.

104A. Western Islamic Art. (4) Lecture, three hours. From the Tigris and Euphrates Rivers to Spain, 7th to 16th century.

104B. Eastern Islamic Art. (4) Lecture, three hours. From the Tigris and Euphrates Rivers through Afghanistan and parts of central Asia; Ottoman Empire.

C104C. Problems in Islamic Art. (4) Lecture, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. Concurrently scheduled with course C214.

105A. Early Christian Art. (4) Lecture, three hours. Requisite: course 51. Origins and development of architecture, sculpture, and painting of early Christianity to the iconoclastic controversy.

105B. Early Medieval Art. (4) Lecture, three hours. Requisite: course 51. Art and architecture of Western Europe from the Migration period until A.D. 1000.

105C. Romanesque Art. (4) Requisite: course 51. Art and architecture of Western Europe in the 11th and 12th centuries.

105D. Gothic Art. (4) Lecture, three hours. Requisite: course 51. Art and architecture of Europe in the 13th century.

105E. Byzantine Art. (4) Lecture, three hours. Requisite: course 51. Theory and development of Byzantine art from the iconoclastic controversy to 1453 and diffusion of Byzantine art in Armenia, Georgia, the Caucasus, and Russia.

105F. Late Gothic Art and Architecture. (4) Lecture, three hours. Strongly recommended preparation: course 51. Art and architecture of Europe in the 14th and early 15th centuries. P/NP or letter grading.

106A. Italian Art of the Trecento. (4) Lecture, three hours. Requisite: course 57. Art and architecture of the 14th century.

106B. Italian Art of the Quattrocento. (4) Lecture, three hours. Requisite: course 57. Art and architecture of the 15th century.

106C. Italian Art of the Cinquecento. (4) Lecture, three hours. Requisite: course 57. Art and architecture of the 16th century.

106D. Late Renaissance Art: Counter-Reformation. (4) Lecture, three hours. Requisite: course 57. Painting, sculpture, and architecture of the late 16th and early 17th centuries considered in context of the Counter-Reformation.

108A-108B. Northern Renaissance Art. (4-4) Lecture, three hours. Requisite: course 57. Course 108A is requisite to 108B. Painting and sculpture in the Northern Renaissance.

108C. From Bruegel to Rubens. (4) Lecture, three hours. Requisite: course 57. Art and history in the Spanish southern Netherlands (i.e., present-day Belgium), circa 1550 to 1650, in context of Spanish rule and revolt against it (1568 to 1585), truce with the northern independent (Dutch) Netherlands (1609 to 1621), and renewal of war (1621 to 1648). P/NP or letter grading.

109A. Baroque Art. (4) Lecture, three hours. Requisite: course 57. Art and architecture of Italy and Spain, 16th to late 17th century.

109B. Baroque Art. (4) Lecture, three hours. Requisite: course 109A. Art and architecture of Northern Europe, 16th to late 17th century.

109C. European Art of the 18th Century. (4) Lecture, three hours. Requisite: course 57. Painting, architecture, and sculpture of the 18th century examined in light of political and intellectual developments. Special emphasis on effect of the rise of democratic institutions, especially the French Revolution.

109D. Art and Architecture of Georgian England. (4) Lecture, three hours.

110A. European Art of the 19th Century. (4) Lecture, three hours. Requisite: course 54. Neoclassicism and Romanticism, with emphasis on France — development and influence of David, Ingres, and Delacroix.

110B. European Art of the 19th Century: Realism and Impressionism. (4) Lecture, three hours. Requisite: course 54. Inquiry into problem of realism, with emphasis on French art, but including developments in England and Germany.

110C. European Art of the 19th and 20th Centuries: Postimpressionism to Surrealism. (4) Lecture, three hours. Requisite: course 54. Study of major developments in modern art, 1880s to 1930, including Seurat, Cezanne, Gauguin, Van Gogh, Art Nouveau, Fauvism, German expressionism.

110E. Art and Politics in the Contemporary Americas: Post-World War II U.S. Art and Politics. (4) Requisite: course 54. Selective survey of media and art supporting, condoning, and resisting U.S. capitalism and imperialism, with special emphasis on Vietnam era and arts of protest.

110F. Selected Topics in Modern Art. (4) Lecture, three hours. Requisite: course 54. Changing topics in modern art (post-1780) which reflect interests of individual regular and visiting faculty members. May be repeated once for credit. P/NP or letter grading.

110G. Art and Politics in the Contemporary Americas: Latin America. (4) Requisite: course 54. Nationalist and revolutionary responses of Latin America to U.S. imperialism. Discussion of the cases of Mexico, Cuba, Chile, and Nicaragua.

C110H. Latin American Art of the 20th Century. (4) Lecture, three hours. 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 C254. P/NP or letter grading.

C112A. American Art before the Civil War. (4) Lecture, three hours. Painting, sculpture, and architecture in the U.S. from Colonial period through the Civil War. Concurrently scheduled with course C212A.

C112B. American Art in the Gilded Age, 1860 to 1900. (4) Lecture, three hours. Painting, sculpture, and architecture in the U.S. from the Civil War to turn of the century. Concurrently scheduled with course C212B.

C112C. American Art, 1900 to 1945. (4) Lecture, three hours. Painting, sculpture, and photography in the U.S. from 1900 to 1945. Concurrently scheduled with course C212C. P/NP or letter grading.

CM112D. African American Art. (4) (Same as Afro-American Studies CM112D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. Concurrently scheduled with course CM212D. P/NP or letter grading.

114A. Early Art of India. (4) Lecture, three hours. Not open to freshmen. Survey of Indian art from Indus Valley cultures to the 10th century. Emphasis on Buddhist and Hindu backgrounds of the arts.

114C. Japanese Art. (4) Lecture, three hours. Not open to freshmen. Japanese art from its beginning in prehistory through the 19th century. Emphasis on development of Buddhist art and its relationship with the culture.

114D. Later Art of India. (4) Lecture, three hours. Not open to freshmen. Survey of Indian art from the 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.

114E. Arts of Korea. (4) Lecture, three hours. Art and archaeology of Korea from the Neolithic Period through the Yi dynasty. Particular emphasis on early archaeology and state formation, Buddhist art, Koryo ceramics, and Yi literati painting.

114F. Arts of Southeast Asia. (4) Lecture, three hours. Not open to freshmen. Southeast Asian art from its beginning in prehistory through the 19th century. Study of art of selected cultures from Burma, Malaysia, Thailand, Cambodia, Vietnam, and Indonesia.

C115A. Advanced Indian Art. (4) Lecture, three hours. Requisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C257.

C115B. Advanced Chinese Art. (4) Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C258.

C115C. Advanced Japanese Art. (4) Lecture, three hours. Requisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C259.

C115D. Art and Material Culture, Neolithic to 210 B.C. (4) Lecture, three hours. 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 C261A. P/NP or letter grading.

C115E. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 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 C261B. P/NP or letter grading.

C115F. 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 C261C. P/NP or letter grading.

C117A. Pre-Columbian Art of Mexico. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of northern Mesoamerica from ca. 1200 B.C. to the Conquest, with emphasis on historical and iconographic problems. Concurrently scheduled with course C218A.

C117B. Pre-Columbian Art of the Maya. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected Maya-speaking cultures of southern Mesoamerica from ca. 2000 B.C. to the Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course C218B.

C117C. Pre-Columbian Art of the Andes. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from ca. 4000 B.C. to the Conquest, with particular emphasis on history and iconography of art of Peru. Concurrently scheduled with course C218C.

C117D. Aztec Art. (4) Lecture, three hours. Requisite: course 55B or C117A. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico in the centuries before the Spanish conquest, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C218D. P/NP or letter grading.

118A. Arts of Oceania. (4) Lecture, three hours. Requisite: course 55A. Survey of arts of the major island groupings of the Pacific, emphasizing style-regions and broad historical relationships.

118C. Arts of Sub-Saharan Africa. (4) Lecture, three hours. Survey, with emphasis on sculpture, of selected traditions within a style-region framework.

118D. Arts of Native North America. (4) Lecture, three hours. Requisite: course 55A. Survey of painting, sculpture, and other arts from the Eskimo to peoples of the Caribbean and Southwestern U.S.

118E. Advanced Studies in Non-Western Art. (4) Lecture, three hours. Requisite: course 118A or 118C or 118D. Selected topics in arts of non-Western peoples which reflect interests of individual regular and visiting faculty members. P/NP or letter grading.

C119A. Advanced Studies in African Art: Western Africa. (4) Lecture, three hours. Selected topics in arts of peoples living west and north of Cameroun, with emphasis on special problems of theory and method. Concurrently scheduled with course C216A.

C119B. Advanced Studies in African Art: Central Africa. (4) Lecture, three hours. Selected topics in arts of peoples of equatorial, southern, and eastern Africa, with emphasis on special problems of theory and method. Concurrently scheduled with course C216B.

127. 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.

C150A. Contemporary Art, 1940s to 1950s. (4) Lecture, three hours. Requisite: course 54. Study of major artistic and cultural trends following World War II in the U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C250A. P/NP or letter grading.

C150B. Contemporary Art, 1960s to 1970s. (4) Lecture, three hours. Requisite: course 54. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C250B. P/NP or letter grading.

C150C. Contemporary Art, 1980s to the Present. (4) Lecture, three hours. Requisite: course 54. Study of politics of representation at end of the century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C250C. P/NP or letter grading.

150D. Selected Topics in Contemporary Art. (4) (Formerly numbered 110D.) Lecture, three hours. Requisite: course 54. Changing topics in contemporary art (post-1945) which reflect interests of individual regular and/or visiting faculty members. May be repeated once for credit. P/NP or letter grading.

195A-195B. Departmental Honors Courses. (4) 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 an appropriate faculty member, culminating in departmental honors thesis of approximately 30 pages. In Progress grading.

197. Honors Course. (4) Hours to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Limited to juniors/seniors. Individual studies for majors. May be repeated once for credit.

199. Special Studies in Art. (2 to 8) Hours to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual studies for majors. Eight units may be applied toward the major. P/NP or letter grading.

Graduate Courses

200. Art Historical Theories and Methodologies. (4) Discussion, three hours. Critical examination of history of the discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts from antiquity to the present. May be repeated for credit with consent of adviser.

201. Topics in Historiography of Art History. (4) Discussion, three hours. Critical examination of historiographic traditions of specific areas and fields within the discipline of art history, concentrating on particular time periods, geographical areas, artistic traditions, or the work of one or more authors. May be repeated for credit with consent of adviser.

202. Topics in Theory and Criticism in Art History. (4) Discussion, 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.

C203A-C203B. Museum Studies. (4) (Formerly numbered 203.) Lecture, three hours; demonstrations/field trips. May be repeated for credit with consent of adviser. Concurrently scheduled with courses C103A-C103B. In Progress and S/U or letter grading.

C203A. Introduction to historical evolution of museums and museology, theories and methods of their operations, historical and critical relationships between museology, art history, and new technologies for archiving and exhibiting artifacts and historical materials. **C203B.** Lectures and discussions organized to foster active critical engagement with museum policies, operations, and productions involving focused study and on-site research on particular museum institutions and exhibitions.

C203C. Museum Studies Practicum. (2 to 4) Lecture, three hours. Requisites: courses C203A-C203B. 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 C103C. Letter grading.

203D. Selected Topics in Museum Studies. (4) Discussion, three hours. Changing topics in museological, curatorial, and exhibition practices which reflect interests of regular and visiting faculty members. S/U or letter grading.

204. Restoration, Preservation, and Conservation. (4) Seminar, two hours. May not be repeated.

205. Studies in Prints. (4) Seminar, two hours. Critical studies in history and connoisseurship of graphic arts in the Western world. Group or individual studies often culminate in professionally directed exhibitions produced by Grunwald Center for the Graphic Arts. May be repeated for credit with consent of adviser.

206. Studies in Drawings. (4) Seminar, two hours. Critical studies in history and connoisseurship of draughtsmanship in the Western world. Individual studies emphasizing professional presentation. Group studies may culminate in exhibitions sponsored by Grunwald Center for the Graphic Arts. May be repeated for credit with consent of adviser.

210. Egyptian Art. (4) Seminar, two hours. Requisites: courses 101A, 101B, M102A. Art in Egypt during the Late period and Greco-Roman period. Students should be ready to prepare for every meeting a briefing of a topic from archaeological memoirs, not to exceed 10 minutes. Some lectures. May be repeated for credit with consent of adviser.

211. Topics in Aegean Art. (4) Seminar, two hours. Requisites: courses M102A, M102B. Art and architecture of Aegean Bronze Age (3000 to 1000 B.C.). Monuments or theoretical problems related to art and culture of Crete, Greece, the Cyclades, or Western Anatolia. May be repeated for credit with consent of adviser.

C212A. American Art before the Civil War. (4) Lecture, three hours. Painting, sculpture, and architecture in the U.S. from Colonial period through the Civil War. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112A.

C212B. American Art in the Gilded Age, 1860 to 1900. (4) Lecture, three hours. Painting, sculpture, and architecture in the U.S. from the Civil War to turn of the century. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112B.

C212C. American Art, 1900 to 1945. (4) Lecture, three hours. Painting, sculpture, and photography in the U.S. from 1900 to 1945. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112C. S/U or letter grading.

CM212D. African American Art. (4) (Same as Afro-American Studies CM212D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. May be repeated for credit with consent of adviser. Concurrently scheduled with course CM112D. S/U or letter grading.

213. Advanced Studies in Islamic Art. (4) Seminar, two hours. Art and architecture of Islamic world (Spain to Iran) from the 7th to 17th century. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser.

C214. Problems in Islamic Art. (4) Lecture, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser. Concurrently scheduled with course C104C.

C216A. Advanced Studies in African Art: Western Africa. (4) Lecture, three hours. Selected topics in arts of peoples living west and north of Cameroun, with emphasis on special problems of theory and method. May be repeated for credit with consent of adviser. Concurrently scheduled with course C119A.

C216B. Advanced Studies in African Art: Central Africa. (4) Lecture, three hours. Selected topics in arts of peoples of equatorial, southern, and eastern Africa, with emphasis on special problems of theory and method. May be repeated for credit with consent of adviser. Concurrently scheduled with course C119B.

217. Primitivism and Art. (4) Lecture, three hours. History of primitivism in visual arts and its institutional base from ancient Greece to the present, with emphasis on relevance to contemporary issues, critiques, and theory. May be repeated for credit with consent of adviser. S/U or letter grading.

C218A. Pre-Columbian Art of Mexico. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of northern Mesoamerica from ca. 1200 B.C. to the Conquest, with emphasis on historical and iconographic problems. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117A.

C218B. Pre-Columbian Art of the Maya. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected Maya-speaking cultures of southern Mesoamerica from ca. 2000 B.C. to the Conquest, with particular emphasis on history and iconography. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117B.

C218C. Pre-Columbian Art of the Andes. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from ca. 4000 B.C. to the Conquest, with particular emphasis on history and iconography of art of Peru. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117C.

C218D. Aztec Art. (4) Lecture, three hours. Requisite: course 55B or C117A. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico in the centuries before the Spanish conquest, with emphasis on their social and historical context and major scholarly debates. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117D. S/U or letter grading.

219A. Oceanic Art. (4) Discussion, two hours. Studies in selected topics in the art of Pacific islands. May be repeated for credit with consent of adviser.

219B. Pre-Columbian Art. (4) Discussion, two hours. Studies in selected topics in art of pre-Hispanic Latin America. May be repeated for credit with consent of adviser.

219C. African Art. (4) Discussion, two hours. Studies in selected topics in art of sub-Saharan Africa. May be repeated for credit with consent of adviser.

219D. Native North American Art. (4) Discussion, two hours. Studies in selected topics in art of the American Indian. May be repeated for credit with consent of adviser.

220. Oceanic, Pre-Columbian, African, and Native North American Art. (4) Discussion, two hours. Studies in selected topics comparing arts of Oceania, Africa, and pre-Columbian and Native North America. May be repeated for credit with consent of adviser.

221. Topics in Classical Art. (4) Lecture, two to three hours. Studies in Parthian art. Site-by-site survey of the Near East (Afghanistan, Iran, Iraq, Syria) during period of Greek and Parthian control. May be repeated for credit with consent of adviser.

223. 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.

225. 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.

226A-226B. Medieval Art and Architecture. (4) Studies in selected topics in Byzantine and European medieval art. Seminar extends over two consecutive terms. May be repeated for credit with consent of adviser. In Progress grading.

229. Renaissance and Baroque Paleography. (4) Seminar. Preparation: knowledge of Italian, working knowledge of Latin. Workshop approach to documents pertaining to artistic commissions from the 15th to 17th century in Italy to study various aspects of handwriting in official and private deeds, correspondence, treatises, and inscriptions. May be repeated for credit with consent of adviser.

230. 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.

231. Leonardo and Renaissance Theory of 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.

235. 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.

240. Baroque Art. (4) Seminar, two 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.

M241A-M241B. Seminars: Modern European History. (4) (Same as History M230A-M230B.) Seminar, three hours. May be repeated for credit with consent of adviser. In Progress and S/U or letter grading.

244. Topics in European Art from 1700 to 1900. (4) Lecture, two to three hours. May be repeated for credit with consent of adviser.

245. European Art from 1700 to 1900. (4) Seminar, two hours. May be repeated for credit with consent of adviser.

246. Art and Architecture of Georgian England. (4) Seminar, two hours. May be repeated for credit with consent of adviser.

C250A. Contemporary Art, 1940s to 1950s. (4) Lecture, three hours. Requisite: course 54. Study of major artistic and cultural trends following World War II in the U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C150A. S/U or letter grading.

C250B. Contemporary Art, 1960s to 1970s. (4) Lecture, three hours. Requisite: course 54. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C150B. S/U or letter grading.

C250C. Contemporary Art, 1980s to the Present. (4) Lecture, three hours. Requisite: course 54. Study of politics of representation at end of the century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C150C. S/U or letter grading.

251. Contemporary Art. (4) Discussion, three hours. Selected topics in contemporary art, criticism, and theory. S/U or letter grading.

253. Modern Art. (4) Seminar, two hours. Changing topics in modern art (including illustration and other popular forms) which 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.

C254. Latin American Art of the 20th Century. (4) Lecture, three hours. 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. May be repeated for credit with consent of adviser. Concurrently scheduled with course C110H. S/U or letter grading.

255. American Art. (4) Seminar, two hours. Requisite: course C112A or C112B or C112C, depending on topic. Topics in American art from Colonial period to the present. Discussion of weekly readings, student oral presentations, and papers. May be repeated for credit with consent of adviser.

C257. Advanced Indian Art. (4) Lecture, three hours. Requisite: course 114A. Study in Indian sculpture and architecture. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115A.

C258. Advanced Chinese Art. (4) Lecture, three hours. Study in Chinese painting and sculpture. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115B.

C259. Advanced Japanese Art. (4) Lecture, three hours. Requisite: course 114C. Study in Japanese painting and sculpture. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115C.

260A. 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.

260B. Chinese Art. (4) Lecture, two 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.

260C. Japanese Art. (4) Lecture, two 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.

C261A. Art and Material Culture, Neolithic to 210 B.C. (4) Lecture, three hours. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). May be repeated for credit with consent of adviser. Concurrently scheduled with course C115D. Extensive research paper required of graduate students. S/U or letter grading.

C261B. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906. (4) Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115E. S/U or letter grading.

C261C. 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.). May be repeated for credit with consent of adviser. Concurrently scheduled with course C115F. S/U or letter grading.

265. Fieldwork in Archaeology. (2 to 8) Participation in archaeological excavations or other archaeological research under supervision of the staff. May be repeated for credit with consent of adviser.

M270. Art Law. (4) (Same as Law M301.) Knowledge of fine arts, arts management, or international law desirable. Limited enrollment; management and art history students may cross-register with consent of instructors. Legal issues related to the fine arts. Consideration of U.S. domestic law as well as international treaties and foreign law in addressing such controversial issues as the international trade in art, art in public places, and moral rights. Distinguished guest speakers and one field trip.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching Art History. (1 to 4) Preparation: apprentice personnel employment as a 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 M.A. or Ph.D. 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 8) S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 12) S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) S/U grading.

Related Courses

Classics

251A. Seminar: Classical Archaeology — Aegean Bronze Age

251B. Seminar: Classical Archaeology — Greco-Roman Architecture

251C. Seminar: Classical Archaeology — Greco-Roman Sculpture

251D. Seminar: Classical Archaeology — Greco-Roman Painting

ARTS AND ARCHITECTURE

School of the Arts and Architecture

UCLA
1100 Dickson Art Center
Box 951620
Los Angeles, CA 90095-1620

(310) 206-3564
<http://www.arts.ucla.edu>

Scope and Objectives

There is no major in arts and architecture; however, the following courses are part of the schoolwide curriculum.

Arts and Architecture

Upper Division Courses

100. Selected Topics in the Arts. (4) Lecture, four hours; discussion and/or laboratory, three hours; outside study, five hours. Selected topics in the arts explored through a variety of approaches which may include projects, readings, discussion, research papers, and oral presentations. Topics to be announced in advance. May be repeated for a maximum of eight units. P/NP or letter grading.

101. Aesthetics of Multimedia. (4) Lecture, three hours; laboratory, one hour; outside study, eight hours. The arts stand at expressive center of new forms of digital expression described as "multimedia." Historical roots of this new expression traced over 1,500 years of world culture as preparation for collaborative multimedia student projects.

ASIAN AMERICAN STUDIES

Interdepartmental Program College of Letters and Science

UCLA
3230 Campbell Hall
Box 951546
Los Angeles, CA 90095-1546
(310) 825-2974
<http://www.sscnet.ucla.edu/aasc/>

Chi-Fun Cindy Fan, Ph.D., *Chair*
Min Zhou, Ph.D., *Vice Chair*

Professors

Edna Bonacich, Ph.D. (*Sociology, UC Riverside*)
Lucie C. Cheng, Ph.D. (*Sociology*)
Shirley Hune, Ph.D. (*Urban Planning*)
Jerry Kang, J.D., *Acting (Law)*
Snehendu B. Kar, Dr.P.H., M.Sc. (*Community Health Sciences*)
Geraldine V. Padilla, Ph.D. (*Nursing*)
Stanley Sue, Ph.D. (*Psychology, UC Davis*)
Robert A. Nakamura, M.F.A. (*Film and Television*)
Don T. Nakanishi, Ph.D. (*Education*)

Professor Emeritus

Harry H.L. Kitano, Ph.D. (*Social Welfare*)

Associate Professors

King-Kok Cheung, Ph.D. (*English*)
Chi-Fun Cindy Fan, Ph.D. (*Geography*)

James E. Lubben, D.S.W. (*Social Welfare*)
Valerie J. Matsumoto, Ph.D. (*History*)
Ailee Moon, Ph.D. (*Social Welfare*)
Paul Ong, Ph.D. (*Urban Planning*)
Min Zhou, Ph.D. (*Sociology*)

Assistant Professors

Pauline Agbayani-Siewert, Ph.D. (*Social Welfare*)
Wei-Yin Hu, Ph.D. (*Economics*)
Marjorie Kagawa-Singer, Ph.D. (*Community Health Sciences*)
Jinqi Ling, Ph.D. (*English*)
David Wong Louie, M.F.A. (*English*)
Kyeyoung Park, Ph.D. (*Anthropology*)
Michael Salman, Ph.D. (*History*)
Shu-mei Shih, Ph.D. (*East Asian Languages and Cultures*)
Cindy Yee-Bradbury, Ph.D. (*Psychology*)
Henry Yu, Ph.D. (*History*)

Adjunct Associate Professor

Yuji Ichioka, Ph.D. (*History*)

Scope and Objectives

The Asian American Studies Program, an interdepartmental program supported by the Asian American Studies Center, promotes the study of Asian American and Pacific Island peoples in the U.S. from several disciplines. An undergraduate major leading to a B.A. degree is available for those students who wish to pursue their studies about Asian Pacific Americans in more depth, while the graduate program leads to the M.A. degree. Students enrolled in an organized undergraduate major other than Asian American Studies may pursue a minor in the field.

A major goal of the program is to communicate the experiences of Asian Pacific Americans as an ethnic group. Courses examine the important issues and concerns of Asian Pacific Americans, including their history, social organization, and culture.

Undergraduate Study

Asian American Studies B.A.

The B.A. program in Asian American Studies provides a general introduction for students who anticipate advanced work at the graduate level or careers in research, public service, and community work related to Asian Pacific Americans. An overall grade-point average of 2.0 is required for admission to the major.

Preparation for the Major

Required: Asian American Studies 21 or Social Sciences 20.

The Major

Required: A total of 14 upper division courses, including Asian American Studies 100A-100B, one research methods course, two Asian American theme courses, two courses with focus on an Asian Pacific American subgroup, two ethnic/race/gender relations courses, two courses on Asian or an Asian Pacific subgroup's history/culture/social or political institutions, and three elective courses selected from Asian American studies or the approved list of interdepartmental courses. At least seven of

the courses taken for the major must be from the approved list of interdepartmental courses (available in the program office each term).

Students must also demonstrate proficiency equivalent to the completion of a one-year course of study in an Asian language prior to graduation.

No more than eight units of course 199 may be applied toward the major.

All courses applied toward the major must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and students must maintain an overall grade-point average of 2.0 in all courses.

Asian American Studies Minor

The Asian American Studies minor is designed for students who wish to gain understanding of and competence in Asian American studies.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition with the program counselor, Asian American Studies Center, 3230 Campbell Hall.

Required Upper Division Courses (28 units): Asian American Studies 100A-100B; one Asian American theme course selected from M110, M112A, M112B, 113, 115, M117, M119, M123, M129A, M163, 196, 197A through 197Z, 199; one course with focus on an Asian Pacific American subgroup selected from 130A through 130E, M132A, M132B, M153, M154, 171A through 171E, 196, 197A through 197Z, 199; and three Asian American studies elective courses. No more than four units of course 199 may be applied toward the minor, and only courses in Asian American studies or those multiple-listed with the program may be taken to fulfill requirements for the minor.

All minor courses must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Asian American Studies Specialization

The specialization in Asian American Studies was discontinued effective Winter Quarter 1998. Students currently participating in this program (1) must complete both a departmental major and the Asian American studies specialization by Winter Quarter 2000 or (2) may modify their programs to fit the minor requirements.

Students must take Asian American Studies 100A-100B, one Asian American theme course, one course with focus on an Asian American subgroup, and two Asian American studies elective courses. No more than four units of course 199 may be applied toward the specialization.

All courses applied toward the specialization must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and students must maintain an overall grade-point average of 2.0 in all courses.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

In addition to the University's minimum requirements, applicants for the Master of Arts program in Asian American Studies are expected to present evidence of their previous interest in Asian American studies through courses taken at the undergraduate level, by research papers written independently or for related classes, or by work experience in an Asian American community. In any case, applicants are required to submit a paper or article, preferably on Asian Americans, directly to the program as part of the application. Three letters of recommendation are also required.

Areas of Study

Since the Asian American Studies program is interdepartmental, its major fields are determined by the participating faculty from various departments.

Course Requirements

A total of 11 graduate and upper division courses is required for the degree. Of that number, seven must be graduate level (200 or 500 series). Three of the graduate courses must be selected from Anthropology 231, Education 204D, 253G, English M260A, History 201H, 245, Law M315, Sociology 235, 261, 263.

The remaining four of the minimum 11 courses must be approved by the faculty adviser. These four courses, three of which may be upper division, should be selected to give the student additional training in a discipline or greater understanding of a particular topic.

Two courses in the 500 series may be applied toward the 11 courses; only one of the two may be applied toward the required seven graduate courses.

Comprehensive Examination Plan

The M.A. degree may be completed through a written comprehensive examination. The written examination is administered by a committee consisting of at least three faculty members appointed annually by the administrative head of the interdepartmental program in Asian

American Studies. The examination is based on an annually updated "Approved List of Core Works in Asian American Studies," a collection of books, novels, articles, and reports in the field of Asian American studies. The examination is normally offered during the break between Winter and Spring Quarters. Students must notify the administrative head of the interdepartmental program of their intention to take the written examination at least one academic quarter before it is administered. Students are given two chances to pass the examination. Academic credit for examination preparation is given through Asian American Studies 596.

Thesis Plan

Plan A (Thesis). The thesis is intended to provide the opportunity for independent scholarly research on the historical and contemporary experiences of the Asian American population and should be an original contribution to the field. It should be the length and quality of a publishable journal article. A thesis committee of three faculty members is normally constituted at the beginning of the student's second year in residence in the Fall Quarter, at which time the student is expected to submit a plan of research for approval. After approval and completion of the thesis, the committee conducts an oral examination on its subject, usually in the Spring Quarter of the second year. The approved thesis must be typed and filed according to University regulations governing master's theses. Academic credit for thesis research and preparation is given through Asian American Studies 598.

Plan B (Field Research Thesis). A field research thesis is recommended for students who are interested in the practical application of what they have learned in their graduate coursework or who are intending to pursue careers with Asian American community organizations and agencies. A field research thesis committee, consisting of three faculty members (one of whom is designated as the chair) and possibly the chief administrative officer of the client community organization, meets with the student and approves the project plan at the beginning of the student's second year in residence in the Fall Quarter. The chief administrative officer of the client community organization may either be appointed as an additional member of the committee, in which case the officer would be expected to read and sign the thesis as the fourth member, or serve as an unofficial and unappointed consultant for the student, in which case the officer would not sign the thesis. After the thesis is completed, the committee conducts an oral examination on the written report of the thesis, usually in the Spring Quarter of the student's second year. The approved thesis report must be typed and filed according to University regulations governing master's theses. Academic credit for field research is given through course 596 or 598.

Asian American Studies

Lower Division Courses

21. Asians and Pacific Islanders in American Society. (4) Lecture, three hours; discussion, one hour. Multidisciplinary examination of history and cultures of Asians and Pacific Islanders in the U.S. Topics include origins and history of migration to the U.S., social movements, ethnic images in literature and art, communities in the U.S. and California, and their current issues. P/NP or letter grading.

99. History of Asians in America. (4) (Formerly numbered 100A.) Lecture, three hours; discussion, one hour. Multidisciplinary examination of history of Asians and Pacific Islanders in the U.S. P/NP or letter grading.

Upper Division Courses

100. Contemporary Asian American Communities. (4) (Formerly numbered 100B.) Lecture, three hours; discussion, one hour. Multidisciplinary introduction to Asian American communities in the U.S. Topics include demographics and social, political, and economic issues. P/NP or letter grading.

101A. Field Studies Methods in Asian Pacific Communities. (4) Lecture, three hours. Preparation: one course from Asian American Studies 100 through 197Z. 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.

101B. Internships in Asian Pacific Communities. (4) Discussion, 90 minutes; fieldwork, eight hours minimum. Prerequisite: course 101A or another Asian American studies course (except 199). Integrates academic and empirical work by providing students the 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. P/NP grading.

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.

105. Asian American Historiography. (4) Seminar on exploration of how works of history are written about Asian Americans. Focus on problems of historiography and method when considering source materials related to history and experience of Asian Americans. P/NP or letter grading.

107A. Introductory Video Ethnography and Documentary Workshop. (4) (Formerly numbered 107.) Laboratory, three hours. Introduction to concepts and methods of video documentation and video ethnography of the Asian Pacific American community. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Students required to do off-campus fieldwork and complete video documentary. P/NP or letter grading.

107B. Advanced Video Ethnography and Documentary Workshop. (4) Laboratory, three hours. Prerequisite: course 107A. Advanced concepts and methods of video documentation and video ethnography of the Asian Pacific American community. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Students required to do off-campus fieldwork and complete video documentary. P/NP or letter grading.

M110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems. (4) (Same as Health Services M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and health care delivery in the U.S. Letter grading.

M112A. Asian American Literature to 1980. (4) (Formerly numbered M112.) (Same as English M102A.) Preparation: satisfaction of Subject A requirement. Survey of Asian American literature from early period of formation to cultural nationalist movement of late 1960s and 1970s. Works of such authors as Edith Eaton, Carlos Bulosan, Hisaye Yamamoto, Louis Chu, and Maxine Hong Kingston included. P/NP or letter grading.

M112B. Asian American Literature since 1980. (4) (Formerly numbered M112.) (Same as English M102B.) Preparation: satisfaction of Subject A requirement. Survey of contemporary Asian American literature with emphasis on its growing ethnic diversity following influx of new immigrants. Works of such authors as Theresa Cha, Bharati Mukherjee, David Wong Louie, Garrett Hongo, and Jessica Hagedorn included. P/NP or letter grading.

113. Asian Americans and the Law. (4) Survey of major federal and California case and legislative law directed specifically toward Asian Americans from 1850 to World War II and relocation. Major subject areas include anti-Asian labor legislation, legal prohibitions against Asians' right to testify, Japanese relocation orders, and equal educational opportunity for Asians. P/NP or letter grading.

115. Asian American Women. (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.

M117. 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.

M119. Asian American Aesthetics. (4) (Same as World Arts and Cultures M152.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Exploration of shared and distinctive aspects of aesthetics found among groups of Asian Americans through lecture, readings, and field study. Formal and informal expressions of the culture, with focus on origins, artists, arts activists, and reinterpretations of culture through the arts. Individual project required. P/NP or letter grading.

121B. Exploring Asian American Theater: Special Problems. (4) Study of an Asian American play; 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.

M123. Asian Pacific Americans in the U.S. Economy. (4) (Same as Economics M189.) Lecture, three hours. Examination of several dimensions of Asian American participation, from labor market experience to use of government services to entrepreneurial activity. Attention to linking understanding of Asian American experience to public policies available to address problems of economically disadvantaged. P/NP or letter grading.

M129A. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4) (Formerly numbered M197.) (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-130E. Asian American History and Experience. (4 each) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of specific Asian American populations. Examination of historical and contemporary sociocultural, economic, and political issues as they affect formation and character of various Asian American communities. P/NP or letter grading. **130A.** Filipino American Experience; **130B.** Korean American Experience; **130C.** Vietnamese American Experience; **130D.** Japanese American History; **130E.** Chinese American Experience.

131A. Filipino American Community and Family. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 130A. Introduction to Filipino American families and communities. Examination of interaction of Filipino American families and the larger social and political environment. P/NP or letter grading.

M132A. Korean American Literature. (4) (Same as Comparative Literature M168.) Seminar, three hours. Comprehensive introduction to Korean American literature, with emphasis on Korean American experience, problems of gender, race, and class, nationalism, generational relationships, and impact of traditional Korean culture on Korean American literature. P/NP or letter grading.

M132B. Chinese Immigrant Literature and Film. (4) (Same as Chinese M153 and Comparative Literature M171.) Lecture, two hours; discussion, one hour; outside study, nine hours. 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.

M133. Indian Identity in the U.S. and the Diaspora. (4) (Same as History M189B.) Lecture, three hours. 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.

135A. Asian Pacific American Communities in Hawaii: Critical Issues Past and Present. (4) Lecture, four hours. Through perspectives of history, economy, politics, education, ethnicity, and critical issues in Asian and Pacific Islander communities, study of Hawaii as a model for multiculturalism. Selected guest lectures by prominent Hawaii residents. Interaction with faculty and students at University of Hawaii. Field trips. Given in Hawaii. P/NP or letter grading.

135B. Asian Pacific Communities in Hawaii: Field Studies. (4) Lecture, one hour; discussion, three hours; internship, 10 hours minimum. Prerequisite or co-requisite: course 135A. Participation in academic internships (minimum 50 hours) in social service, cultural, political, educational, and community organizations to gain experiential learning experience in Hawaii's multicultural society. Given in Hawaii. P/NP or letter grading.

M153. The U.S. and the Philippines. (4) (Same as History M153.) Lecture, three hours. Recommended preparation: History 190A-190B, 190C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in the 20th century.

M154. Chinese Immigration. (4) (Same as Sociology M153.) Lecture, two 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 the social environment. P/NP or letter grading.

M163. Investigative Journalism and Communities of Color. (4) (Same as Afro-American Studies M195.) Lecture, three hours. Role of investigative journalism in understanding interethnic conflict and cooperation. Exploration of different perspectives on issues by comparing mainstream, ethnic, and alternative media coverage.

171A-171E. Critical Issues in U.S.-Asia Relations. (4 each) Lecture/seminar, three hours. Not open to freshmen. Critical examination of U.S. involvement in specific Asian countries, including study of historical, cultural, political, and socioeconomic factors that shape relations between Asia and the U.S. Examination of impact of relationships in the Pacific Rim and Asian Americans and their communities. P/NP or letter grading. **171A.** U.S.-Philippine Relations; **171B.** U.S.-Korea Relations; **171C.** U.S.-Vietnam Relations; **171D.** U.S.-Japan Relations; **171E.** U.S.-China Relations.

196. Seminar: Asian American Studies. (4) Seminar, three to four hours. Limited to senior Asian American Studies majors. Organized on a topics basis with readings, discussions, and papers. Consult Asian American Studies Center for topics to be offered in a specific term. P/NP or letter grading.

197A-197Z. Topics in Asian American Studies. (4 each) Lecture, three to four hours. Limited to juniors/seniors. Variable topics in Asian American studies on selected issues in education, literature, social process, public policy, and economic development. P/NP or letter grading:

M197C. Topics in Asian American Literature. (Same as English M197C.) Preparation: satisfaction of Subject A requirement. Variable specialized studies course in Asian American literature. Topics include specific genres (autobiography, poetry, or drama); specific nationalities within the Asian American community; and themes related to such problems as generational differences, gender politics, or interethnic encounters. May be repeated for credit. P/NP or letter grading.

M197H. Culture, Media, and Los Angeles (6 units). (Same as Afro-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.

199. Special Topics in Asian American Studies. (2 to 4) Requisite: course 100A or 100B or comparable knowledge in Asian American studies. Limited to juniors/seniors. Special individual studies on topics such as ethnic literature, public policies, economic development, immigrant education, and/or social policies related to Asian American studies. May be repeated for a maximum of eight units.

Graduate Courses

200A. Critical Issues in Asian American Studies. (4) Designed for graduate students. Examines and seeks to develop a critical appreciation of research literature on Asians in America and to develop alternative interpretations of the Asian American experience. Topics include Asian American history and economic/political and social/psychological issues.

200B. Critical Issues in Asian American Communities. (4) Lecture, three hours. Designed for graduate students. Evaluation of traditional and contemporary theories and models of community for their appropriateness to understanding Asian Pacific American communities. Consideration of specific topics which explicate development, structure, and dynamics of Asian Pacific American communities in studying community issues and concerns.

200C. Critical Issues in Asian American Studies. (4) Lecture, three hours. Designed for graduate students. Critical review of research methods, strategies, and philosophies in Asian American studies.

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.

M239. Race and Ethnicity as a Concept in Practice and Research. (4) (Same as Community Health Sciences M239.) Discussion, three hours. Integration of cross-cultural findings in health care with current American (U.S.) health care system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

M261. Theorizing the Third World. (4) (Same as Comparative Literature M274.) Seminar, three hours; outside study, nine hours. Investigation of politics of power, gender, and race in complex relationships between the so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

M290Q. 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 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.

M297A-297Z. Topics in Asian American Studies. (4 each) Designed for graduate students. Selected topics in Asian American studies:

M297A. Topics in Asian American Literature. (Same as English M260A.) Lecture, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit.

297B. Asian Migration to the U.S. Emphasis on Asia as main regional source for international migrants. Topics include patterns and theories of international migration and their relevance to the Asian experience, sending and receiving country perspectives, research and policy issues. S/U or letter grading.

297C. Urbanization in Asia — Policy Issues and Problems. Urbanization in less-developed countries in Asia with specific reference to its peculiar features and characteristics, and relationship of urbanization to the development process. Topics include urbanization development, structural and policy determinants of urbanization, urban policy and strategies, and country case studies. S/U or letter grading.

M297D. Asian Americans and Legal Ideology. (Same as Law M315.) Exploration of Asian American experience as it relates to American legal system, considering both dominant and oppositional concepts of law. Consideration of primary historical documents to examine ways Asian Americans have been victims of the legal system, as well as astute manipulators of the legal system.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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 M.A. degree requirements. May be repeated once for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Hours to be arranged.

598. Research for and Preparation of M.A. Thesis. (2 to 8) Preparation of research data and writing of M.A. thesis. S/U grading.

Related Courses

Afro-American Studies

M158B-M158C. Introduction to Afro-American History
M164. Afro-American Experience in the U.S.

American Indian Studies

M161. Comparative American Indian Societies

Anthropology

M134. Cultural Construction of Gender and Sexuality: Homosexualities

146. Language and Culture of Polynesia: Past, Present, and Future

M154P. Gender Systems: North American

M154Q. Gender Systems: Global

M155Q. Women and Social Movements

166. Cross-Cultural Research on Urban Gangs

167. Urban Anthropology

177. Cultures of the Pacific

Chicana and Chicano Studies

101. Theoretical Concepts in Chicana and Chicano Studies

Communication Studies

M124. Psychology of Language and Gender

130. Cultural Factors in Interpersonal Communication

153. The Media and Aggression against Women

Community Health Sciences

M140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model?

Comparative Literature

M168. Korean American Literature

M171. Chinese Immigrant Literature and Film

Economics

152. Trade Unions and Professional Associations

M189. Asian Pacific Americans in the U.S. Economy

English

M102A. Asian American Literature to 1980

M102B. Asian American Literature since 1980

119. Literature of California and the American West

196. Interracial Encounters in Contemporary American Literature

M197C. Topics in Asian American Literature

Film and Television

106C. History of African, Asian, and Latin American Film

128. Media and Ethnicity

Geography

142. Population Geography

144. Ethnicity in the American City

148. Economic Geography

150. Urban Geography

Health Services

M110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems

History

M153. The U.S. and the Philippines

154A-154B. U.S. Urban History

155A-155B. American Working Class Movements

157A-157B. North American Indian History

160A-160B. U.S. and Comparative Immigration History

161. Asians in American History

163. History of California

164. History of Los Angeles

182A-182B. Thought and Society in China

183A. Culture and Power in Late Imperial China

183B. Society and Economy in China since 1500

183C. History of Women in China, A.D. 1000 to the Present

184. 20th-Century China

185. Japanese Popular Culture

186. Shinto, Buddhism, and Japanese Folk Religion

187A-187B-187C. Japanese History

188A. Early History of India

188B-188C. History of British India I, II

189A. Cultural and Political History of Contemporary South Asia

M189B. Indian Identity in the U.S. and the Diaspora

- 189C. Special Topics in Contemporary Indian History
 190A-190B. History of Southeast Asia
 190C. Philippine History
 190D. Vietnam: Past and Present

Information Studies

- 111D. Ethnic Groups and their Bibliographies: Asian American History and Culture

Lesbian, Gay, Bisexual, and Transgender Studies

- M134. Cultural Construction of Gender and Sexuality: Homosexualities

Political Science

- M144A. Ethnic Politics: Chicano/Latino Politics
 M144B. Ethnic Politics: African American Politics

Psychology

- 129C. Culture and Mental Health
 175. Community Psychology

Social Welfare

101. Social Welfare in a Multicultural Society
 104A. Filipino American Community and Family
 104B. Japanese American Redress
 104F. Japanese American Community and Family

Sociology

151. Comparative Immigration
 152. Comparative Acculturation and Assimilation
 M153. Chinese Immigration
 156. Ethnic and Status Groups
 157. Social Stratification
 158. Urban Sociology
 160. Intergroup Conflict and Prejudice
 188. Comparative East Asian Societies before World War II

Theater

- 102E. Theater of Non-European World

Urban Planning

197. Planning for Minority Communities

Women's Studies

130. Women of Color in the U.S.
 M155Q. Women and Social Movements

ASTRONOMY

See Physics and Astronomy

ATMOSPHERIC SCIENCES

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Roger M. Wakimoto, Ph.D., *Chair*
 James C. McWilliams, Ph.D., *Vice Chair*

Professors

Michael Ghil, Ph.D. (*Climate Dynamics*)
 Kuo-Nan Liou (*Radiative Transfer and Remote Sensing*)

Lawrence Lyons, Ph.D. (*Atmospheric Physics*)
 James C. McWilliams, Ph.D. (*Geophysical Fluid Dynamics*; *Louis B. Slichter Professor of Geophysics and Planetary Physics*)
 Carlos R. Mechoso, Ph.D. (*Atmospheric Dynamics*)
 J. David Neelin, Ph.D. (*Atmospheric Dynamics*)
 Richard M. Thorne, Ph.D. (*Atmospheric Physics*)
 Richard P. Turco, Ph.D. (*Atmospheric Chemistry*)
 Roger M. Wakimoto, Ph.D. (*Atmospheric Dynamics*)

Professors Emeriti

Akio Arakawa, D.Sc.
 James G. Edinger, Ph.D.
 George L. Siscoe, Ph.D.
 Sekharipuram V. Venkateswaran, Ph.D.
 Morton G. Wurtele, Ph.D.
 Michio Yanai, D.Sc.

Associate Professor

Robert G. Fovell, Ph.D. (*Atmospheric Dynamics*)

Assistant Professors

Suzanne E. Paulson, Ph.D. (*Atmospheric Chemistry*)
 Bjorn B. Stevens, Ph.D. (*Atmospheric Chemistry*)
 Jochen P. Stutz, Ph.D. (*Atmospheric Chemistry*)

Adjunct Professor

David Halpern, Ph.D. (*Physical Oceanography*)

Scope and Objectives

The atmospheric sciences present a wide variety of problems of compelling scientific interest and increasing social concern. This is exemplified by efforts to improve air quality, depredations caused by severe storms and floods, attempts to control or modify weather phenomena, problems of long-range weather forecasts and climate change, and expanding scientific frontiers into our outer atmosphere and atmospheres of other planets.

The department offers a broad curriculum in dynamic and synoptic meteorology, atmospheric physics and chemistry, and upper atmosphere and space physics.

The Bachelor of Science degree qualifies students for entry-level technical positions or represents valuable background for training in other professions. Master of Science and Ph.D. degree holders work in universities, research centers, laboratories, and government services and, increasingly, in the rapidly burgeoning private sector.

Undergraduate Study

Atmospheric, Oceanic, and Environmental Sciences B.S.

Preparation for the Major

Required: Atmospheric Sciences 2, 3, 6, 10; Chemistry and Biochemistry 20A; Mathematics 3A, 3B, and 3C, or 31A, 31B, 32A, 32B, 33A, and 33B; Physics 1A, 1B, and 1C (or 2AH, 2BH, and 17), 4AL, 4BL; Program in Computing 3 or 10A.

To be admitted as Atmospheric, Oceanic, and Environmental Sciences majors, **transfer students** should have completed one year of calculus and one year of calculus-based physics with laboratory, with grades of C or better.

The Major

Required: Atmospheric Sciences 101, 102, 103, 104, three additional upper division atmospheric sciences courses selected in consultation with the undergraduate advisers, and two courses from a list of chemistry, mathematics, and physics courses selected in consultation with the undergraduate advisers.

Students preparing for graduate studies in atmospheric chemistry should take Chemistry and Biochemistry 20B, 103, Mathematics 115A, 135A, 136, Physics 131, 132; students preparing for graduate studies in upper atmosphere and space physics should take Mathematics 115A, 135A, Physics 110A, 110B, M122; students preparing for graduate studies in atmospheric dynamics and physics should take Atmospheric Sciences 101, CM120, C125, Mathematics 115A, 135A, 136, Physics 131, 132.

Atmospheric and Oceanic Sciences Minor

The Atmospheric and Oceanic Sciences minor provides a formal vehicle for students specializing in other science fields to pursue interests in the atmospheric and oceanic environment. It is designed to be flexible, recognizing that many topics in this field cross traditional disciplinary boundaries.

To enter the minor, students must have an overall grade-point average of 2.0 or better and must make an appointment with a departmental undergraduate adviser for approval in selecting a coordinated program of courses from within the department and related disciplines. For further information, contact the department at (310) 825-1217.

Required Courses (28 units): Seven four-unit courses, including (1) three from Atmospheric Sciences 101, 102, 103, 104, C110, C115, CM120, C125, 130, M140, C145, 160, C165, C170, 180, C185 and (2) four additional courses, two of which must be upper division, from any of the above atmospheric sciences courses beyond the minimum three required or from Atmospheric Sciences 2, 3, 6, 10, 190 (must be taken twice), Chemistry and Biochemistry 103, 110A, 110B, 113A, C113B, 114, Earth and Space Sciences 15, Mathematics 115A, 115B, 132, 135A, 135B, 136, 146, M170A, 170B, Organismic Biology, Ecology, and Evolution C109, C119, 122, 123, 133, 147, 148, Physics 110A, 110B, 112, M122, 131, 132, Statistics 110A, 110B. Other relevant courses from related disciplines may be substituted with prior approval of the department.

Groups of courses relevant to specific subareas of atmospheric sciences include (1) *atmospheric chemistry*: Atmospheric Sciences 104, M140, Chemistry and Biochemistry 103, 110A, 110B, C113B, 114; (2) *atmospheric chemistry and biology*: Atmospheric Sciences 101, 104, Organismic Biology, Ecology, and Evolution C109, C119, 122, 133; (3) *atmospheric dynamics*: Atmospheric Sciences 101, 102,

C125, Physics 112, 131, 132; (4) *atmospheric dynamics and mathematical modeling*: Atmospheric Sciences 101, C125, 180, Mathematics 115A, 115B, 132, 135A, 135B, 136, 142, 146; (5) *oceanography and biology*: Atmospheric Sciences 101, 103, 104, Organismic Biology, Ecology, and Evolution C109, 123, 147, 148; (6) *upper atmosphere*: Atmospheric Sciences 101, CM120, C125, C170, Physics 110A, 110B, M122.

One course may be taken on a Passed/Not Passed basis; all other minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Atmospheric Sciences offers the Master of Arts (M.A.) degree in Atmospheric Sciences.

Admission

For the M.A. program, there are no admission requirements in addition to University minimum requirements and no application form in addition to the one used by Graduate Admissions/Student and Academic Affairs. Three letters of recommendation are required. For departmental brochures and information, write to the Department of Atmospheric Sciences. In addition to students holding bachelors' degrees in meteorology or atmospheric sciences, graduates with degrees in related disciplines — astronomy, chemistry, engineering, geophysics, oceanography, mathematics, and physics — are encouraged to apply for graduate status in the department. Programs are arranged by consultation between the student and the department's graduate advisers, and considerable flexibility is maintained so that maximum advantage may be taken of previous education.

Areas of Study

Dynamic and synoptic meteorology; atmospheric physics and chemistry; upper atmosphere and space physics.

Course Requirements

A total of nine courses must be completed in graduate status, five of which must be in the 200 or 500 series. Students must attain a grade of B (3.0) or better in one course in each

of two fields other than the field of specialization.

Only one 500-series course (four units) may be applied toward the minimum graduate course requirement for the M.S. degree.

Core Courses. General core: Atmospheric Sciences C200A, C200B; dynamic and synoptic core: C201A, 201B, 201C; atmospheric physics and chemistry core: M203A, C203B, 203C; upper atmosphere and space physics core: C205A, 205B, 205C.

Atmospheric Sciences C200A is required of all students without formal background in fluid dynamics. Atmospheric Sciences C200B is required of all students without formal background in the atmospheric sciences.

Dynamic/Synoptic Specialization. Students are required to answer five questions — one from the general core, two from the dynamic/synoptic core, one from the atmospheric physics and chemistry core, and one from the upper atmosphere and space physics core or, for those students with prior formal study in fluid dynamics and the atmospheric sciences, three questions from the dynamic/synoptic core and one each from the other two core groups.

Atmospheric Physics and Chemistry Specialization. Students are required to answer five questions (two questions from the combined general core and dynamic/synoptic core question alternatives, two from the atmospheric physics and chemistry core, and one from the upper atmosphere and space physics core).

Upper Atmosphere and Space Physics Specialization. Students are required to answer five questions (two questions from the combined general core and dynamic/synoptic core question alternatives, one from the atmospheric physics and chemistry core, and two from the upper atmosphere and space physics core).

The special oral examination for each student is designed based on an individual list of topics selected in consultation with the graduate advisers. The list should represent the equivalent of two courses in the student's area of research specialization. The oral examination for each student is conducted by a Departmental Guidance Committee of three members, appointed by the chair of the department at the conclusion of the first year of study.

Comprehensive Examination Plan

The comprehensive examination, based on selected coursework, is conducted at the end of Fall and Spring Quarters. Grading of the examination is based on a 4.0 scale, with a 3.0 required for a pass at the M.S. level, and a 3.5 or better to continue for the Ph.D. Students are permitted two attempts to obtain the requisite grade either for termination at the M.S. level or for continuation toward a Ph.D. Students are encouraged to take the examination as soon as possible. The examination must, however, be attempted by the end of the student's first

two years of study and, if necessary, be retaken at the earliest available time.

Thesis Plan

Students who have a grade-point average of 3.5 or better may petition the department to obtain the M.S. by writing an original thesis. The petition must be received by the graduate advisers at least one year before completion of the degree (at the end of the first year of study). Provided a high academic standard in coursework is maintained, the accepted thesis may be used instead of the comprehensive examination for continuation toward the Ph.D. degree.

Doctoral Degree

Admission

For the Ph.D. degree in Atmospheric Sciences, there are no admission requirements in addition to University minimum requirements and no application form in addition to the one used by Graduate Admissions/Student and Academic Affairs. Three letters of recommendation are required. For departmental brochures and information, write to the Department of Atmospheric Sciences. In addition to students holding bachelors' degrees in meteorology or atmospheric sciences, graduates with degrees in related disciplines — astronomy, chemistry, engineering, geophysics, oceanography, mathematics, and physics — are encouraged to apply for graduate status in the department. Programs are arranged by consultation between the student and the department's graduate advisers, and considerable flexibility is maintained so that maximum advantage may be taken of previous education.

Major Fields or Subdisciplines

Dynamic and synoptic meteorology; atmospheric physics and chemistry; upper atmosphere and space physics.

Course Requirements

For students entering the department with an M.S. degree, there are no specific course requirements other than Atmospheric Sciences 270 in which a formal seminar attended and graded by all faculty members must be presented. The graduate advisers may, at their discretion, prescribe courses in areas in which they deem students to have insufficient background in order to help them pass the comprehensive examination.

Written and Oral Qualifying Examinations

Students who selected the M.S. comprehensive examination plan must also take an in-depth oral examination in their area of research specialization. Subsequently, a doctoral committee is appointed to conduct the University Oral Qualifying Examination on the selected dissertation topic and related areas, and the final dissertation defense which is required of all students. Each of these examinations must be passed in no more than two attempts.

Atmospheric Sciences

Lower Division Courses

1. Introduction to Weather Maps and Weather Forecasting. (4)

Lecture, three hours. Introduction to weather maps and satellite imagery and their use in making a weather forecast. Discussions also include structure of the National Weather Service and services it provides to the general public. Course allows students to make weather forecasts for Los Angeles and one city east of the Rocky Mountains.

2. Air Pollution. (4) Lecture, three hours; discussion, one hour. Causes and effects of high concentrations of pollution in the 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.

2E. Air Pollution. (5) Lecture, three hours; discussion, three hours. Course for students with interests in environmental studies parallel to course 2; discussion section focuses on intersection of science and policy for issues in local, regional, and global air pollution; use of case-study approach and participation of experts from social, health, and life sciences in class discussions. Letter (majors) or P/NP or letter (nonmajors) grading.

3. Introduction to the Atmospheric Environment.

(4) Lecture, three hours; discussion, one hour. Nature and causes of weather phenomena, including winds, clouds, rain, lightning, tornadoes and hurricanes, solar and terrestrial radiation; phenomena of the higher atmosphere; ionosphere and auroras; causes of air pollution; proposed methods and status of weather modification.

3A. Introduction to the Atmospheric Environment. (5) Lecture, three hours; discussion, three hours. Enforced prerequisite: Physics 1B. Course for majors parallel to course 3; discussion section includes use of calculus. Discussion topics include atmospheric thermodynamics, extratropical synoptic-scale disturbances, atmospheric aerosol and microphysical processes, clouds and storms, radiative processes, atmospheric dynamics. Letter grading.

3E. Introduction to the Atmospheric Environment. (5) Lecture, three hours; discussion, three hours. Course for students with interests in environmental studies parallel to course 3; discussion section emphasizes environmental aspects of atmospheric phenomena, with focus on scientific issues of severe weather and climate change and particular attention to those topics that are relevant to policy issues. Letter (majors) or P/NP or letter (nonmajors) grading.

4. California Weather and Climate. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 3 or 3A. Sequel to course 3 dealing in greater detail with atmospheric phenomena relevant to the weather of California, and nature of weather and climate of various regions of the state. Topics include extratropical cyclones and fronts, thunderstorms, severe weather, sea and land breezes, Santa Ana winds, low-level temperature inversions, air pollution, climate change, and discussion of present weather.

5. Climates of Other Worlds. (4) Lecture, three hours; discussion, one hour. Introduction to atmospheres of planets and their satellites in the solar system using information obtained during the recent planetary exploration program. Elementary description of origin and evolution of atmospheres on the planets. Climates on the planets, conditions necessary for evolution of life, and its resulting effect on planetary environment.

6. Climate and Climatic Change. (4) Lecture, three hours; discussion, one hour. Introduction to physical causes of climate, classification of climate, and global distribution of climate types. Description of climate changes over time scales ranging from lifetime of Earth to el niño events. Discussion of causes of climatic change (e.g., long-term steady increase in solar luminosity, short-term fluctuations in solar luminosity, changes in Earth's orbit, changes in atmospheric composition, volcanoes, anthropogenic changes such as increased CO_x and nuclear war). State of the art in modeling and predicting climate.

6A. Climate and Climatic Change. (5) Lecture, three hours; discussion, three hours. Enforced prerequisite: Physics 1B. Course for majors parallel to course 6; discussion section includes use of calculus. Discussion topics include atmospheric circulation, oceanic circulation, greenhouse effect, ice ages, ocean/atmosphere interactions, ozone hole, past climates, climate prediction. Letter grading.

6E. Climate and Climatic Change. (5) Lecture, three hours; discussion, three hours. Course for students with interests in environmental studies parallel to course 6; discussion section places scientific and technological aspects of climate and climate change in context of societal impacts of climate variations. Discussion of modern methods used to predict climate change and their impact. Letter (majors) or P/NP or letter (nonmajors) grading.

8. Clouds, Rain, and Storms. (4) Lecture, three hours; discussion, one hour. The raindrop and the ice crystal. Relation of meteorological conditions to cloud types. Precipitation mechanisms from clouds. Different scales of atmospheric cloud organization. Description and dynamics of spectacular weather systems, ranging from tornadoes to hurricanes. Severe weather forecasting.

10. Introduction to the Earth System. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Overview of Earth as a system of distinct, yet connected, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Effects of biological processes in shaping the physical environment. Mechanisms that drive climate of Earth and that have produced a protective ozone shield around the planet. Exploration of possibility of technological solutions to global pollution problems.

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

Upper Division Courses

101. Fundamentals of Atmospheric Dynamics and Thermodynamics. (5) (Formerly numbered 104A, 104B, C142.) Lecture, four hours; discussion, one hour. Prerequisites: Mathematics 3B or 31B, Physics 1B or 6B. Recommended: course 3. Introduction to atmospheric environment, with emphasis on thermodynamics, dynamics, and structure of atmosphere. Laws of thermodynamics; work, heat, and cyclic processes. Adiabatic processes, moisture, and atmospheric stability. Hydrostatic balance. Fundamental equations of motion, with applications to atmospheric flow. Circulation and vorticity. Letter grading.

102. Climate Change and Climate Modeling. (4) Lecture, three hours. Prerequisites: Mathematics 3C or 32A, Physics 1C or 6C. 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. Heat balance of Earth and Greenhouse effect. Physical processes in climate system. Atmospheric and oceanic circulation. El Niño and year-to-year climate prediction. P/NP or letter grading.

103. Physical Oceanography. (4) (Formerly numbered 143.) 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) (Formerly numbered 2A, 144.) Lecture, three hours; discussion, one hour. Requisite: Chemistry 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.

C110. Advanced Dynamic and Synoptic Meteorology. (6) (Formerly numbered 104C, C105.) Laboratory, six 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.

C115. Mesometeorology. (4) Lecture, three hours. 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 the dry line. Discussions on design of field project. Concurrently scheduled with course C228. P/NP or letter grading.

CM120. Introduction to Fluid Dynamics. (4) (Formerly numbered CM140.) (Same as Earth and Space Sciences M140.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Rotating frame. Hydrostatic and geostrophic balance. Sound and shock waves. Viscous flow. Concurrently scheduled with course C200A. Letter grading.

C125. Introduction to Geophysical Fluid Dynamics. (4) (Formerly numbered C141.) Lecture, three hours. Requisite: Physics 131. Recommended: course CM120. Equations of motion in a rotating frame, with special emphasis on shallow-water model. Potential vorticity. Geostrophic motion. Gravity and Rossby waves. Geostrophic adjustment. Quasi-geostrophic motion. Laplace tidal equation. Kelvin and mixed Rossby gravity waves. Baroclinic instability. Concurrently scheduled with course C201A. Letter grading.

130. Circulation of Santa Monica Basin. (4) (Formerly numbered 147.) Lecture, four hours. Requisite: course 103. Design and construction of physical oceanographic measurement program to describe large-scale geostrophic circulation in Santa Monica Basin, which has depths as large as 1,000 meters and extends 50 kilometers offshore from Los Angeles. Letter grading.

M140. Environmental Chemistry Laboratory. (4) (Formerly numbered M151.) (Same as Chemistry M104.) Lecture, two hours; laboratory, three hours. Requisite: Chemistry 20B. Laboratory experience for students who wish to pursue a career in environmental science. Essential laboratory procedures to be performed in context of timely environmental issues involving smog formation, acid rain, and ozone depletion. Hands-on experience using scientific instruments and analytical techniques appropriate for environmental assessment. P/NP or letter grading.

C145. Microphysics of Clouds, Precipitation, and Aerosols. (4) (Formerly numbered C152.) Lecture, three hours; discussion, one hour. Requisites: Physics 1A, 1B, and 1C, or 6A and 6B. Theoretical foundation combined with application and observation data. Topics include cloud formation and structure; condensation processes; thermodynamic equilibrium; nucleation; aerosol processes — formation, diffusion, sedimentation, condensation; precipitation; and thunderstorms. Concurrently scheduled with course C203B. Letter grading.

160. Remote Sensing of the Environment. (4) (Formerly numbered 146.) Lecture, three hours. Requisite: Physics 1C or 6B. Introductory course for physical sciences, life sciences, or engineering majors interested in environmental issues. Introduction to properties of radiation in the atmosphere and principles of active and passive remote sensing of atmospheres and surfaces as it applies to monitoring of Earth's environment and global change. Letter grading.

C165. Atmospheric Radiation. (4) Lecture, three hours. Requisite: Physics 1C or 6B. Principles of radiative transfer. Absorption, emission, and scattering processes. Transfer of solar and thermal infrared radiation in the atmosphere. Radiation and climate. Radiation and ozone formation. Applications of radiation principles to remote sensing. Concurrently scheduled with course C203C. Letter grading.

C170. Introduction to Solar System Plasmas. (4) (Formerly numbered C154.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1C. Introduction to basic plasma physical processes occurring in the 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 C205A. Letter grading.

180. Numerical Methods in Atmospheric Sciences. (4) (Formerly numbered 161.) Lecture, three hours; discussion, one hour. Preparation: one course in C or FORTRAN programming. Requisite: Mathematics 33B. Survey of numerical methods employed in atmospheric and related sciences: theory, application, and programming. Letter grading.

C185. Statistics in Atmospheric Sciences. (4) (Formerly numbered C162.) Lecture, three hours; discussion, one hour. Requisite: Mathematics M170A or Statistics M100A. Survey of methods used for data analysis in atmospheric sciences, with emphasis on practical applications. Methods include linear regression, factor analysis, and cluster analysis. Concurrently scheduled with course C213. P/NP or letter grading.

190. Operational Meteorology. (2) (Formerly numbered 198.) Laboratory, six hours. Requisite: course C110. Limited to junior/senior atmospheric 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.

195. Senior Paper. (4) Limited to senior atmospheric sciences majors. Supervised through individual consultation with an appropriate faculty member, students write a research paper on a topic of their own choosing within their area of concentration in the major. May be used for writing honors thesis.

199. Special Studies in Meteorology (2 or 4). Special individual studies.

Graduate Courses

C200A. Introduction to Fluid Dynamics. (4) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Rotating frame. Hydrostatic and geostrophic balance. Sound and shock waves. Viscous flow. Concurrently scheduled with course CM120. Letter grading.

C201A. Introduction to Geophysical Fluid Dynamics. (4) Lecture, three hours. Equations of motion in a rotating frame, with special emphasis on shallow-water model. Potential vorticity. Geostrophic motion. Gravity and Rossby waves. Geostrophic adjustment. Quasi-geostrophic motion. Laplace tidal equation. Kelvin and mixed Rossby gravity waves. Baroclinic instability. Concurrently scheduled with course C125. Letter grading.

201B. Atmospheric Wave Motions. (4) Lecture, three hours. Requisite: course C125/C201A. Wave motions in a compressible, stratified, and rotating atmosphere. Acoustic and gravity waves, anelastic and quasi-static approximations. Kelvin/Helmholtz instability. Quasi-static oscillations of a planetary atmosphere. Quasi-geostrophic motions. Baroclinic and barotropic instabilities. Propagation of planetary waves. Letter grading.

201C. Introduction to Atmospheric Turbulence and Convection. (4) Lecture, three hours. Requisite: course C200A. Small-scale nonhydrostatic motions in the atmosphere. Introduction to turbulence and thermal convection. Planetary boundary layer, effects of moisture on atmospheric motions, theory of moist convection, cumulus convection.

M203A. 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.

C203B. Microphysics of Clouds, Precipitation, and Aerosols. (4) Lecture, three hours; discussion, one hour. Theoretical foundation combined with application and observation data. Topics include cloud formation and structure; condensation processes; thermodynamic equilibrium; nucleation; aerosol processes — formation, diffusion, sedimentation, condensation; precipitation; and thunderstorms. Concurrently scheduled with course C145. Letter grading.

C203C. Atmospheric Radiation. (4) (Formerly numbered 203C.) Lecture, three hours. Principles of radiative transfer. Absorption, emission, and scattering processes. Transfer of solar and thermal infrared radiation in the atmosphere. Radiation and climate. Radiation and ozone formation. Applications of radiation principles to remote sensing. Concurrently scheduled with course C165. Letter grading.

C205A. Introduction to Solar System Plasmas. (4) Lecture, three hours; discussion, one hour. Introduction to basic plasma physical processes occurring in the 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. Letter grading. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

205B. Descriptive Solar-Terrestrial Physics. (4) Lecture, three hours; discussion, one hour. Solar, interplanetary, magnetospheric, ionospheric, auroral, geomagnetic phenomenological background for studies in space physics. Complements theoretical space physics courses. Contextual understanding and literacy in space physics terminology provided. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

Dynamic and Synoptic Meteorology

210. Dynamics of Planetary Circulations. (4) Lecture, three hours. Requisite: course 201B. Interaction between waves and mean zonal and meridional circulations. Vacillation. Regimes of thermally forced planetary circulations and their stability. Frontogenesis. Geostrophic turbulence. Forced planetary waves. Persistent anomalies of atmospheric circulation. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

212A. Numerical Methods in Geophysical Fluid Dynamics. (4) Lecture, three hours. Requisite or corequisite: course C201A. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

212B. Numerical Modeling of the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

212C. Numerical Modeling of the 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.

C213. Statistics in Atmospheric Sciences. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics M170A or Statistics M100A. Survey of methods used for data analysis in atmospheric sciences, with emphasis on practical applications. Methods include linear regression, factor analysis, and cluster analysis. Concurrently scheduled with course C185. Letter grading. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

214. Theoretical Climatic Dynamics. (4) Lecture, three hours. Radiative transfer and energy-balance models (EBMs). Multiple equilibrium climates and their stability. Coupled EBMs of the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

215. Ocean Circulation. (4) Lecture, three hours. Requisites: courses C200A, C201A. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

216A. Tropical Motions with Moist Processes. (4) Lecture, three hours. Requisite: course 201C. Cumulus convection and the boundary layer in the tropics. Cloud clusters and mesoscale convection systems. Interaction of cumulus convection with large-scale environment. Tropical cyclones. Monsoon meteorology. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

216B. Wave Motions in the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

218. Dynamics of the 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

220. Dynamics of the Middle Atmosphere. (4) Lecture, three hours. Requisite: course C201A. Structure and composition of the middle atmosphere. Waves in the middle atmosphere, including tides, planetary waves, and gravity waves. Quasi-biennial oscillations. Stratospheric sudden warnings. Semiannual oscillations. Wave-mean flow interactions. Interactions between middle and lower atmosphere. Letter grading. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

221. Geophysical Turbulence. (4) Lecture, three hours. Requisites: courses C200A, C201A. Phenomena, theory, and modeling of turbulence in Earth's oceans and atmosphere — from fine structure to planetary scale motions. Regimes of turbulence include homogeneous flows in two and three dimensions, shear flows, convection, stably stratified flows, and geostrophic motions. Examination of relationships between turbulence and its transport effects on general circulations. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

M224B. 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

C227. Advanced Dynamic and Synoptic Meteorology. (6) Laboratory, six 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 C110. Letter grading. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

C228. Mesometeorology. (4) (Formerly numbered 228.) Lecture, three hours. 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 the dry line. Discussions on design of field project. Concurrently scheduled with course C115. Letter grading. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

Atmospheric Physics and Chemistry

230A-230B. Atmospheric Chemistry I, II. (4-4) Lecture, three hours. Requisite: course M203A. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

230A. 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.

230B. Photochemistry of stratosphere and mesosphere; basic ionospheric processes; stratospheric pollution and the ozone layer; physical chemistry of upper atmosphere clouds and aerosols; comparative photochemistry of planetary atmospheres; observational techniques and results.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

234A-234B. Cloud and Precipitation Physics I, II. (4-4) Lecture, three hours. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

234A. Requisite: course C203B. Microstructure of atmospheric clouds; structure of the three phases of water substance, including surface effects; thermodynamic theory for equilibrium between the three phases of water substance, including surface effects; theory of homogeneous and heterogeneous nucleation of water drops and ice crystals.

234B. Requisite: course 234A. Theory of growth and evaporation of water drops and ice crystals by diffusion of water vapor; hydrodynamics of rigid bodies in a viscous medium; hydrodynamics of cloud drops, rain drops, and atmospheric ice particles; growth of cloud drops and atmospheric ice particles by collision.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

240B. Remote Sensing. (4) Lecture, three hours. Requisites: courses 203C, 240A. Theory and techniques of remote sensing; atmospheric spectroscopy; methods based on scattering, absorption, and extinction; passive and active techniques; inversion methods; remote sensing of terrestrial meteorological parameters and trace constituents; remote sensing of surfaces and biosphere; remote sensing of planetary atmospheres. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

244. Methods of Radiative Transfer. (4) Lecture, three hours; laboratory, one hour. Requisites: courses 203C, 240B. Analytical and numerical methods of radiative transfer, pure scattering atmospheres, and Chandrasekhar's solution; discrete ordinates; n-stream representations; exponential sums; Monte Carlo techniques and three-dimensional problems; computational laboratory. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

Upper Atmosphere and Space Physics

250A. Solar System Magnetohydrodynamics. (4) 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

250B. Solar System Microscopic Plasma Processes. (4) Lecture, three hours. Requisite: course C205A. Adiabatic charged particle dynamics; incoherent radiation processes; collective effects in a plasma; propagation characteristics of electrostatic and electromagnetic waves; introduction to resonant interaction between charged particles and plasma waves. S/U grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

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.

Special Studies

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.

M272A-M272B-M272C. Seminars: Climate Dynamics (2 to 4 each). (Same as Earth and Space Sciences M270A-M270B-M270C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout the 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.

273. Seminar: Atmospheric Physics. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

274. Seminar: Atmospheric Chemistry. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

M275A-M275B-M275C. Seminars: Space Physics. (2 each) (Same as Earth and Space Sciences M288A-M288B-M288C.) Seminar, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U or letter 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.

281. Special Topics in Dynamic Meteorology. (2 to 4) Individual meetings with instructor to be arranged. Content varies from year to year. S/U or letter grading.

283. Special Topics in Atmospheric Physics. (2 to 4) 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) 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) Individual meetings with instructor to be arranged. Selected topics of current research interest in solar wind, magnetospheric, or ionospheric physics.

296A-296K. Advanced Topics in Atmospheric Sciences. (2 each) 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 or letter grading.

296A. Numerical Modeling of the Atmosphere.

296B. Synoptic and Mesoscale Meteorology.

296C. Numerical Mesoscale Modeling.

296D. Climate Dynamics.

296E. Numerical Modeling of the Atmosphere and Ocean.

296F. Hierarchical Modeling of Ocean/Atmosphere System.

296G. Upper Atmosphere and Space Physics.

296H. Recent Advances in Atmospheric Chemistry.

296I. Upper Atmospheric Dynamics.

296J. Experimental Mesoscale Meteorology.

296K. Tropical Meteorology.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U or letter grading.

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

597. Preparation for Comprehensive Examinations. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

598. Research and Preparation of M.S. Thesis. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

Related Courses

Astronomy

81. Astrophysics I: Stars and Nebulae

82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology

180. Astrophysics Laboratory

Biomathematics

202. Fourier Analysis in Biology

Chemical Engineering

102. Chemical Engineering Thermodynamics

108A. Process Economics and Analysis

C240. Fundamentals of Aerosol Technology

Chemistry and Biochemistry

103. Environmental Chemistry

110A. Physical Chemistry: Chemical Thermodynamics

110B. Physical Chemistry: Introduction to Statistical Mechanics and Kinetics

C123A-C123B. Classical and Statistical Thermodynamics

215D. Molecular Spectra, Diffraction, and Structure

223C. Statistical Mechanics

225. Chemical Kinetics

Civil and Environmental Engineering

163. Introduction to Atmospheric Chemistry and Air Pollution

Computer Science

10C. Introduction to Programming

Earth and Space Sciences

M140. Introduction to Fluid Dynamics

154. Solar Terrestrial Physics

202. Continuum Mechanics

204. Time-Series Analysis and Spectral Estimation

261. Topics in Magnetospheric Plasma Physics

265. Instrumentation, Data Processing, and Data Analysis in Space Physics

Electrical Engineering

103. Applied Numerical Computing

161. Electromagnetic Waves

162A. Wireless Communication Links and Antennas

M185. Introduction to Plasma Electronics

Mathematics

131A-131B. Analysis

132. Complex Analysis for Applications

135A-135B. Ordinary Differential Equations

136. Partial Differential Equations

142. Mathematical Modeling

146. Methods of Applied Mathematics

151A-151B. Applied Numerical Methods

M170A, 170B. Probability Theory

171. Stochastic Processes

250C. Advanced Topics in Ordinary Differential Equations

265A-265B. Real Analysis for Applications

266A. Applied Ordinary Differential Equations

266B-266C. Applied Partial Differential Equations

269A-269B-269C. Advanced Numerical Analysis

271A. Tensor Analysis

271B. Analytical Mechanics

271C. Introduction to Relativity

274A. Asymptotic Methods

274B. Perturbation Methods

Mechanical and Aerospace Engineering

103. Elementary Fluid Mechanics

131A. Intermediate Heat Transfer

150A. Intermediate Fluid Mechanics

150B. Aerodynamics

192A, 192B. Mathematics of Engineering

192C. Numerical Methods for Engineering Applications

250A. Foundations of Fluid Dynamics

250B. Viscous and Turbulent Flows

250C. Compressible Flows

251A. Stratified and Rotating Fluids

252A. Stability of Fluid Motion

252B. Statistical Theory of Turbulence

259A. Seminar: Advanced Topics in Fluid Mechanics

Physics

108. Optical Physics

110A, 110B. Electricity and Magnetism

112. Thermodynamics

115A, 115B. Elementary Quantum Mechanics

M122. Introduction to Plasma Electronics

131, 132. Mathematical Methods of Physics

210A, 210B. Electromagnetic Theory

215A. Statistical Physics

215B. Nonequilibrium Statistical Mechanics

222A-222B-222C. Plasma Physics

231A, 231B, 231C. Methods of Mathematical Physics

Statistics

M100A. Probability Theory

100B. Statistics

200A-200B. Statistical Theory

BIOLOGICAL CHEMISTRY

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Peter A. Edwards, Ph.D., *Vice Chair*

Dohn G. Glitz, Ph.D., *Vice Chair*

Professors

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Lutz Birnbaumer, Ph.D.

Edward M.F. De Robertis, M.D., Ph.D. (*Norman F.*

Sprague Professor of Molecular Oncology)

John Edmond, Ph.D.

Peter A. Edwards, Ph.D.

David S. Eisenberg, D.Phil.

Armand J. Fulco, Ph.D.

Judith C. Gasson, Ph.D.

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Michael Grunstein, Ph.D.

Harvey R. Herschman, Ph.D. (*Crump Professor of*

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 Samuel Eiduson, Ph.D.
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 John G. Pierce, Ph.D.
 Sidney Roberts, Ph.D.
 Emil L. Smith, Ph.D.
 Marian E. Swendseid, Ph.D.
 Irving Zabin, Ph.D.
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Associate Professors

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 John J. Colicelli, Ph.D.
 Gregory S. Payne, Ph.D.
 Geraldine A. Weinmaster, Ph.D.

Assistant Professors

Timothy F. Lane, Ph.D.
 Karen M. Lyons, Ph.D.
 Stanley Nelson, Ph.D.
 Ke Shuai, Ph.D.
 Alexander van der Blik, Ph.D.

Lecturer

Felice D. Kurtzman, M.P.H.

Academic Coordinator

Eryn Ujita Lee, Ph.D.

Scope and Objectives

The biological chemistry graduate program prepares students for careers as independent research scientists and scholars. Laboratory research is the central element. Biological chemistry has grown to include studies of cellular, molecular, and developmental biology, molecular genetics and genetic engineering, and many aspects of the health sciences. The research activities of the department include these areas as well as the "classic" topics of metabolism, enzymology, and biomolecular structure. Courses and seminar programs are designed to provide students with the necessary background and approach to encourage their continuing growth in these rapidly changing areas of science.

Interaction with other graduate programs provides access to scientists in a variety of related disciplines. Through its primary affiliation with the School of Medicine, the department is also involved in the basic education of students who will be physicians, dentists, and other health professionals. Many of these students become involved in laboratory research in the department. In part because of this breadth of experience students find careers in many aspects of basic and applied scientific research and education. The department emphasizes study for the Ph.D., but candidates for the M.S. degree may be accepted under special circumstances.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Biological Chemistry offers the Master of Science (M.S.) degree in Biological Chemistry.

Admission

The department only rarely and under special circumstances accepts students into the M.S. program.

Areas of Study

Consult the department.

Course Requirements

All graduate students must take the first-year UCLA ACCESS curriculum. See course requirements in the Doctoral Degree section below. In addition to the core course requirements, elective courses must be taken to complete the total of nine courses (36 units) required for the degree.

No more than two courses (eight units) in the 500 series may be applied toward the total course requirement, and only one (four units) of the two courses may be applied toward the minimum graduate course requirement (20 units) for the degree.

With the consent of the graduate adviser, Biological Chemistry 596, 597, and 598 may be taken if they are appropriate to the program. Course 596 may be graded on an S/U or letter basis; 597 and 598 are graded S/U only.

Comprehensive Examination Plan

In general, the department prefers students to enter directly into the Ph.D. program, but if they enter the master's program, the comprehensive examination plan is preferred. Only in exceptional situations are students approved for the thesis plan. In either plan students must pass a departmental written examination. Only course requirements and the written examination are needed to complete the comprehensive examination plan.

Thesis Plan

In addition to coursework, a written thesis is required. A thesis committee helps students plan the thesis research, determines the acceptability of the thesis, administers a final examination (if deemed appropriate), and recommends appropriate action on the granting of the degree. In the event of an unacceptable thesis or performance on the final examination (if one is given), the thesis committee determines if it is

appropriate for additional time to be granted to rewrite the thesis or to be reexamined.

Doctoral Degree

Admission

Students are admitted to the program leading to the Ph.D. degree in Biological Chemistry through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences. In addition, under special circumstances, the department may admit students directly to the program in the first year. Application materials may be obtained from the UCLA ACCESS Program Office, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

M.D./Ph.D. Program. Applicants may apply for the M.D./Ph.D. program by making simultaneous applications for graduate status in the Biological Chemistry Department and for admission to the School of Medicine. Acceptance by both of the concerned units is necessary. Certain changes in the requirements (e.g., fewer required courses) allow some savings in time compared to separate M.D. and Ph.D. degrees.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

Students are required to take four didactic courses: Biological Chemistry CM248, CM253, and Neurobiology M209A or Biological Chemistry CM267 or Microbiology and Immunology M229, and one additional four- to six-unit graduate-level course selected according to the student's preference. Three of these courses are taken in the first year as part of the ACCESS program, which also requires two three-unit seminar courses and Molecular, Cell, and Developmental Biology M201.

First-year students must arrange for at least three rotations in the laboratories of different faculty members to help in the selection of a research adviser through UCLA ACCESS.

After the first year, students spend most of their time on dissertation research. In addition to the general course requirements listed above, Ph.D. students are expected to complete Biological Chemistry 596, 597, and/or 599 during quarters in which research (596, 599) or study for written or oral examinations (597) is part of the program. Course 599 is for students who have passed their oral examinations; course 596 is for those who have not.

Written and Oral Qualifying Examinations

A satisfactory performance in rotations and the first-year courses as judged by the graduate student guidance committee and department faculty is required before students can select their doctoral committee.

The University Oral Qualifying Examination, which must be passed before students can be advanced to candidacy, is administered by a doctoral committee of four faculty members.

The purpose is to evaluate students' ability to formulate and defend two short research proposals. The proposals are submitted in a written form and defended orally. One proposal is an original research proposal that is not directly related to the dissertation research. This also fulfills the requirements for the written examination. The other proposal should discuss the proposed dissertation research. The doctoral committee determines whether students pass the examination and whether reexamination is allowed in case of failure. The examination may be repeated only once. The University Oral Qualifying Examination should be completed before the beginning of the third year of graduate work.

Biological Chemistry

Upper Division Courses

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

M140. Cell Biology: Cell Cycle. (5) (Same as Molecular, Cell, and Developmental Biology M140.) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A and 14B/14BL, or 20 series, Life Sciences 3, 4. Not open for credit to students with credit for Molecular, Cell, and Developmental Biology 100 or C139. Satisfies premedical requirements. Eukaryotic cellular structures and biogenesis at a molecular level. Biochemical and genetic analysis of cell cycle, signal transduction, and their involvement in development and cancer. Protein sorting and transport across cell membranes. Cytoskeletal components and cell-adhesion.

CM153G. Macromolecular Structure. (6) (Same as Chemistry CM153G and Human Genetics CM153G.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM253. Letter grading.

CM159A. Mechanisms in Regulation of Transcription I. (2) (Same as Chemistry CM159A.) First five weeks. Lecture, four hours; outside study, two hours. Requisites: Chemistry 153B, 154. Not open to graduate students. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course CM259A. P/NP or letter grading.

CM159B. Mechanisms in Regulation of Transcription II. (2) (Same as Chemistry CM159B.) Second five weeks. Lecture, four hours; outside study, two hours. Requisite: course CM159A. Not open to graduate students. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course CM259B. P/NP or letter grading.

CM169. Cell Structure, Signaling, and Differentiation. (6) (Same as Human Genetics CM169 and Molecular, Cell, and Developmental Biology CM169.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM267. Letter grading.

CM178. Molecular Genetics. (6) (Same as Human Genetics CM178 and Molecular, Cell, and Developmental Biology CM178.) Lecture, five hours. Requisites: Chemistry 153A, 153B, Life Sciences 3, 4, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM248. Letter grading.

195. Current Research in Biological Chemistry. (2) Limited to juniors/seniors. Personal interview required. Readings, discussion of current research results, and presentation of recent literature on topics under investigation within a research group in biological chemistry. P/NP or letter grading.

199. Directed Individual Research Studies in Biological Chemistry. (2 to 8) Laboratory, four to 20 hours. Preparation: submission of written research proposal and consultation with instructor. Limited to juniors/seniors. Individual research projects carried out under direction of a faculty member. P/NP or letter grading.

Graduate Courses

201A-201B. Biological Chemistry (5 each). 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 and S/U 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.

220A-220B-220C. Research Laboratory Rotations (2 to 8 each). Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in a research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates an informed decision on their part in selection of thesis/research adviser. S/U grading.

M221. Cellular and Molecular Neurochemistry. (4) (Same as Neurobiology M221, Neuroscience M240, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

M223. Membrane Molecular Biology. (4) (Same as Physiology M223.) Lecture, two hours; discussion, two hours. Requisite: course CM253. Advanced course in molecular aspects of membrane physiology and biochemistry covering lipids and physical chemistry of biological membranes; membrane biogenesis and targeting of proteins to membranes; pumps, carriers, and channels; receptors and transmembrane signaling. S/U or letter grading.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

M234. Genetic Control of Development. (4) (Same as Molecular, Cell, and Developmental Biology M234.) 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.

M237. Molecular and Cellular Foundations of Disease. (4) (Same as Pathology M237.) Lecture, two hours; discussion, 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. S/U or letter grading.

CM248. Molecular Genetics. (6) (Same as Human Genetics CM248, Microbiology M248, and Molecular, Cell, and Developmental Biology CM248.) Lecture, five hours. Requisite: course CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM178. Letter grading.

251A-251B-251C. Seminars: Transcriptional Regulation. (2 each) Advanced courses on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U grading.

CM253. Macromolecular Structure. (6) (Same as Chemistry CM253 and Human Genetics CM253.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM153G. Letter grading.

M255. Biological Catalysis. (4) (Same as Chemistry CM255, Molecular, Cell, and Developmental Biology CM252, and Pharmacology M255.) Requisites: Chemistry 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level.

M257. Physical Chemistry of Biological Macromolecules. (2) (Same as Chemistry M257.) Requisites: Chemistry 110A, 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules.

CM259A. Mechanisms in Regulation of Transcription I. (2) (Same as Chemistry CM259A.) First five weeks. Lecture, four hours; outside study, two hours. Requisite: course CM253 or CM267. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course CM159A. S/U or letter grading.

CM259B. Mechanisms in Regulation of Transcription II. (2) (Same as Chemistry CM259B.) Second five weeks. Lecture, four hours; outside study, two hours. Requisite: course CM259A. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course CM159B. S/U or letter grading.

M263. Metabolism and Its Regulation. (4) (Same as Chemistry M263.) Lecture, three hours. Requisites: courses 201A-201B, or Chemistry 153B, 153C, or 156, and 110A. Thermodynamic and kinetic aspects of metabolism; regulatory properties of enzymes; metabolic regulation; consideration of comparative aspects of metabolism in relation to physiological function.

M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics. (2 each) (Same as Chemistry M264A-M264B-M264C and Microbiology M264A-M264B-M264C.) Biochemistry, morphology, and physiology of atherosclerosis. Emphasis on chemistry of lipoproteins and role of plasma lipoproteins in regulation of tissue lipid metabolism and development of atherosclerosis. Each course may be taken independently for credit.

M266A-M266B-M266C. Seminars: Molecular Embryology. (2 each) (Same as Molecular, Cell, and Developmental Biology M266A-M266B-M266C.) Advanced course in developmental genetics and biochemistry, with emphasis on early development. Intended mostly for students actively working or highly interested in embryology. S/U grading.

CM267. Cell Structure, Signaling, and Differentiation. (6) (Same as Chemistry M267, Human Genetics CM267, and Molecular, Cell, and Developmental Biology CM223.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM169. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596. Directed Individual Study and Research. (2 to 12) Hours to be arranged. S/U grading.

597. Preparation for Examinations. (2 to 4) Individual study for Ph.D. qualifying examinations or M.S. comprehensive examination. S/U grading.

598. Preparation of M.S. Thesis. (4) Preparation of research data and writing of M.S. thesis. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Preparation of research data and writing of Ph.D. dissertation. S/U grading.

BIOLOGY

See Organismic Biology, Ecology, and Evolution

BIOMATHEMATICS

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Lecturer

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Adjunct Associate Professors

Eli Engel, M.D., Ph.D.

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Adjunct Assistant Professor

Timothy D. Johnson, Ph.D.

Scope and Objectives

As biology advances rapidly in quantitative research methods, both the need for and possibility of closely associated theoretical research increases. On numerous medical and medical science frontiers — such as genetics, molecular biology, oncology, pharmacology, neurosciences, and physiology — biomathematics is contributing both in its basic research and the development of specialized computer software to support investigation and health care. UCLA has one of the few departments in this relatively new, rapidly evolving field.

The Department of Biomathematics welcomes both undergraduate and graduate students in other majors to its courses in biomedical computing, modeling, and statistics. Premedical majors with mathematical/computer interests can receive early guidance toward an M.D./Ph.D. program in Biomathematics. The department is responsible for statistical and biomathematical training in the medical curriculum.

The department's orientation is away from abstract modeling and toward theoretical research vital to the advancement of current biomedical research frontiers. The doctoral program reflects this in requirements for advanced training in a biomedical research specialty and for the mathematical and computing skills required to contend realistically with complex phenomena encountered in biology and medicine. The art of biomathematical research is developed individually from the first year on. The master's program adapts to the various needs of researchers desiring supplemental biomathematical training, people preparing to provide methodological support to researchers in biology or medicine, or students pursuing a stepwise approach to graduate training in biomathematics.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Biomathematics offers the Master of Science (M.S.) degree in Biomathematics.

Admission

High academic achievement in one scientific or mathematical field is required for admission to the M.S. program. It is not necessary to be proficient in both mathematics and biology, though some prior preparation in both fields is desirable. Both the General and Subject Tests of the Graduate Record Examination (GRE) are recommended. At least three letters of recommendation are required from faculty competent to evaluate qualifications for pursuing graduate study and a creative research career; additional letters are welcomed and may be requested.

In addition to completing the *Application for Graduate Admission*, applicants are required to complete a departmental application form, which should be sent directly to the department. All communications with the department, including requests for brochures and for the departmental forms, should be sent to Chair, Graduate Admissions Committee, Department of Biomathematics.

Admission to the M.S. program follows admission to the Graduate Division and approval by the departmental graduate admissions committee.

Areas of Study

Consult the department.

Course Requirements

Master's candidates must complete five graduate-level courses in biomathematics, three of which must be chosen from Biomathematics 201, 202, 203, and 204. If any of the five courses were completed as an undergraduate, students may petition the department to count them in fulfillment of this requirement; however, in accord with Academic Senate regulations, they cannot be applied toward the minimum requirements stated below for the master's degree.

Master's candidates must complete the University minimum requirement of nine (36 units) of graduate and upper division courses taken in graduate standing, five (20 units) of which must be graduate courses. No more than two 596 courses may be applied toward the required nine courses, and none may be applied toward the graduate course requirement.

Comprehensive Examination Plan

A written comprehensive examination administered by a committee consisting of at least three faculty members appointed by the chair, with approval of the advising committee chair, covers material presented in the coursework. This is usually given during the summer.

Thesis Plan

Generally, students are required to follow the comprehensive examination plan. Permission to undertake a thesis plan must be given by the departmental advising committee, which must approve the thesis committee, as well as plans for the thesis.

Doctoral Degree

Admission

High academic achievement in one scientific or mathematical field is required for admission to the program leading to the Ph.D. degree in Biomathematics. It is not necessary to be proficient in both mathematics and biology, though some prior preparation in both fields is desirable. Both the General and Subject Tests of the Graduate Record Examination (GRE) should be taken. At least three letters of recommendation are required from faculty competent to evaluate qualifications for pursuing graduate study and a creative research career; additional letters are welcomed and may be requested.

In addition to completing the *Application for Graduate Admission*, applicants are required to complete a departmental application form, which should be sent directly to the department. All communications with the department, including requests for brochures and for the departmental forms, should be sent to Chair, Graduate Admissions Committee, Department of Biomathematics.

Admission to the doctoral program follows admission to the Graduate Division and approval by the departmental graduate admissions committee.

Major Fields or Subdisciplines

Students must complete the requirements for a field of special emphasis in biology. Presently approved fields of special emphasis for which courses of study have been developed include genetics, immunology, molecular biology, neurosciences, pharmacology, and physiology. Others may be added in response to requests from students.

Course Requirements

The following courses are required: Biomathematics 201, 202, 203, 204, and eight units from 205, 206, M207B, 208A, 220, M230.

Applied Mathematics. Five graduate courses with a grade-point average of 3.6 or better from an approved list, with two substitutions possible if especially appropriate to the student's research field. The courses should be approved in advance by the graduate advising committee. Consent may be given by the advising committee to count prior graduate courses for full or partial completion of this requirement. Pluses attached to a letter grade add .3 and minuses subtract .3. Students who take more than the minimum five courses are allowed to average their best five grades to meet the standard. At the discretion of the departmental advising committee, the grade-point standard can be relaxed if there is evidence of superior attainments in all other aspects of a student's training.

Biology. No formal requirement beyond preparation for the field of major biological emphasis.

Independent Research. Students are encouraged to take at least four units of Biomathe-

tics 596 with a member of the Biomathematics Department each year prior to taking the written comprehensive examination. As students progress, there is an increasing emphasis on research and encouragement to publish. Failure to advance in capacity for independent, creative research is a primary indication for recommended withdrawal from the program.

The following courses are recommended:

Mathematics. By individual study or coursework, students should have strength at the upper division level in linear algebra, differential equations, probability and statistics, and real and complex analysis. Offerings in the Department of Mathematics are especially recommended.

Statistics. Additional training in biostatistics is highly recommended.

Computer Methods. Students must be facile programmers and acquainted with numerical methods needed for their area of research. The numerical analysis sequence in the Department of Mathematics or supervised independent study is suggested.

Biology and Biological Chemistry. A broad background is expected, from molecular to organ-system levels. This probably is provided in requirements for the field of major biological emphasis; supplemental coursework is advised, if needed.

Written and Oral Qualifying Examinations

In the summer, the department offers a written comprehensive examination to test competence in biomathematics. Full-time students must take this by the end of two academic years of study and part-time students by the end of three. (The brochure, *Policies for the Written Comprehensive Examinations for the Doctorate in Biomathematics*, is available from the department.)

The qualifying examination in the field of major biological emphasis usually is the regular comprehensive examination for doctoral students in the field and is taken prior to the examination that advances them to candidacy. Students entering with a Ph.D. in a biological field are exempt from the above requirements. Students with an M.D. are exempt from the required coursework; exemption from the examination may be granted by the advising committee.

If a medical school's basic sciences curriculum is approved by the advising committee, a student who has completed the first two years of that curriculum at a level of academic performance acceptable for continuation to clinical training and who has passed Part I of the National Board Examinations is deemed to have met the biological sciences requirements for the doctoral degree in biomathematics.

The University Oral Qualifying Examination, administered by the doctoral committee appointed by the dean of the Graduate Division, critically probes the quality, scope, and feasibility

ity of the student's proposed dissertation work. It also explores the strength and integration of the student's biomathematical, mathematical, and biological research knowledge in the intended area of research. Advancement to candidacy follows, after passing this examination.

Biomathematics

Upper Division Courses

106. Introduction to Cellular Modeling. (4) Lecture, four hours; computer laboratory, two hours. Preparation: some computer programming. Requirement: Mathematics 32A. Designed for upper division science majors and biomedical graduate students. Introduction to modeling cells and cell systems, including intracellular biochemical networks, applications to cancer research. How to develop one's own computer models using IMSL mathematics subroutines.

108. Introduction to Modeling in Neurobiology. (4) Lecture, four hours; computer laboratory, two hours. Preparation: some computer programming. Requirement: Mathematics 32A. Designed for upper division science majors and biomedical graduate students. Survey of wide variety of topics in neurobiological modeling, current neuronal modeling systems. Development of skills to formulate and program one's own studies using IMSL mathematics subroutines. P/NP or letter grading.

C108C. Introduction to Neural Networks: Modeling and Applications. (4) Lecture, three hours. Preparation: calculus. Introduction to theory of neural networks and their applications. Survey of current neural-network models of cognitive functions. Concurrently scheduled with course CM208C. P/NP or letter grading.

110. Elements of Biomathematics. (4) Lecture, three hours; laboratory, three hours. Preparation: calculus. Analysis of deterministic models. Conditions under which deterministic and probabilistic descriptions of biological phenomena are appropriate. Both approaches are applied to selected examples in physiology and biology.

M153A-M153B. Regression Analysis (4-4). (Same as Biostatistics M153A-M153B and Statistics M120A-M120B.) Lecture, three hours; discussion, one hour. Requirements: Mathematics 115A, Statistics 100B. Linear and nonlinear regression analysis using package programs. Emphasis on relation between statistical theory, numerical results, and analysis of data. P/NP or letter grading. **M153A.** BMDP, SAS, and SPSS regression programs; general linear model theory; linear regression analysis; transforming and weighting; regression diagnostics; model building. **M153B.** Analysis of variance and covariance; nonlinear regression programs, analysis, and applications; maximum likelihood analysis; robust regression.

160. Introductory Biomathematics for Medical and Biological Research. (4) Lecture, four hours; discussion, 90 minutes. Elementary statistics course that focuses on statistical concepts and critiques the literature, with emphasis on clinical research. Output from statistical computer packages discussed in class, but students do not use the computer themselves. Topics include descriptive statistics, t-tests, confidence intervals, linear regression and correlation, analysis of variance, nonparametric statistics, basic experimental design, sample size determination, article interpretation.

170A. Computer-Based Introductory Biomathematics for Medical and Biological Experimenters. (4)

Lecture, four hours; discussion, 90 minutes. Intensive elementary statistics course emphasizing design of experiments and analysis of data using statistical packages. Statistical topics similar to course 160 — descriptive statistics, t-tests, confidence intervals, linear regression and correlation, analysis of variance, nonparametric statistics, basic experimental design, sample size determination — but students also shown how to use the computer and run statistical software packages. Practical aspects of data collection and cleaning.

170B. Statistical and Mathematical Modeling in Medical and Biological Research. (4) Lecture, four hours; discussion, 90 minutes. Second course in biomathematical methods. Topics include randomization methods, intermediate experimental design, contingency table analysis, analysis of variance, multiple linear regression, nonlinear regression, methods of classification, model checking, basic mathematical models including compartment models, and statistical computer software. Students have opportunity to design their own experiments and analyze them on the computer, and to analyze previously collected data.

172. Clinical Trials. (4) Lecture, three hours; discussion, two hours. Requirement: Biostatistics 100C or Statistics 100B. Topics include steps in bringing a possible therapy to clinical use; design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, stratification, and points; ethics of human experimentation; informed consent; three phases of human studies; indications for various types of controls, prognostic factors, survivorship studies, design of prognostic studies; organization of a clinical trial — administration, comparability, protocols, nursing and clinical standards, data collection and management. P/NP or letter grading.

190HA-190HB. Honors Research in Biomathematics. (4-4) 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 a total of at least eight units. Thesis required.

199. Special Studies in Biomathematics. (2 to 8) Limited to juniors/seniors. Special studies in biomathematics, including either reading assignments or laboratory work or both, designed for proper training of students.

Graduate Courses

200. Research Frontiers in Biomathematics. (2) Series of presentations by faculty members on research frontiers in biomathematics. S/U grading.

201. Deterministic Models in Biology. (4) 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.

202. Fourier Analysis in Biology. (4) Preparation: knowledge of calculus, linear algebra, probability. Introduction to theory of Fourier transforms and Fourier series from point of view of generalized functions. Elementary applications to differential equations, quantum mechanics, image reconstruction, X-ray crystallography, branching processes, and time series. Brief review of computational techniques based on fast Fourier transform.

M203. Stochastic Models in Biology. (4) (Formerly numbered 203.) (Same as Human Genetics M203.) Lecture, four hours. Requirement: Mathematics M170A 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 a variety of other biological and medical disciplines. S/U or letter grading.

204. Biomedical Data Analysis. (4) Quantity and quality of observations have been greatly affected by present-day extensive use of computers. Problem-oriented study of latest methods in statistical data analysis and use of such arising in laboratory and clinical research.

205. Electric Potential Problems in Membranes, Cells, and Tissues. (4) Preparation: knowledge of differential equations and electrostatics. Review of electrostatics; potential problems in rectangular, spherical, and cylindrical coordinates; modeling sub-threshold electrical properties of cells; microelectrode measurements of intracellular potentials; boundary conditions for current flow across membranes; eigenfunction expansions and singular perturbation analysis of intracellular and extracellular potential distribution in spherical and cylindrical cells and syncytia; computation of potential barriers for ions traversing a membrane pore.

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 immuno-therapeutic agents applied to carcinogenesis, therapy, emergence of resistance to therapy. Simulation, optimization methods introduced. Current literature review. S/U or letter grading.

M207A. Theoretical Genetic Modeling. (4) (Formerly numbered 207.) (Same as Biostatistics M237A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Mathematics 115A, 131A. 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.

M207B. Applied Genetic Modeling. (4) (Same as Biostatistics M237B and Human Genetics M207B.) Lecture, two hours; laboratory, two hours. Preparation: coursework equivalent to Biostatistics 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. 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.

208A. Modeling in Neurobiology for Mathematicians. (4) Lecture, four hours; laboratory, two hours. Preparation: introductory ordinary partial differential equations, programming experience. Introduction to electrochemical bases for nerve function and mathematical and computational methods for studying this, appropriate for physicists, engineers, and mathematicians. Survey of current leading research areas and software systems. S/U or letter grading.

208B. Modeling in Neurobiology for Biologists. (4) Lecture, four hours; laboratory, two hours. Preparation: lower division calculus, some elementary programming experience. Introduction to neuronal modeling, including how to formulate models and study them with existing computer software (e.g., NODUS) or one's own simple programs that use IMSL subroutines. Survey of current leading research areas. S/U or letter grading.

CM208C. Introduction to Neural Networks: Modeling and Applications. (4) (Same as Psychiatry M209.) Lecture, three hours. Preparation: calculus. Introduction to theory of neural networks and their applications. Survey of current neural-network models of cognitive functions. Concurrently scheduled with course C108C. S/U or letter grading.

211. Tissue and Cell Dynamics. (4) Lecture, three hours; discussion, one hour. Preparation: knowledge of differential equations to level of course 201, some mathematical modeling, computer programming. In-depth mathematical modeling of problems in tissue and cell dynamics to level of research literature. Analytical and numerical techniques for solving partial differential equations. S/U or letter grading.

220. Kinetic and Steady State Models in Pharmacology and Physiology. (4) Recommended preparation: knowledge of linear algebra, differential equations, statistics. Designed for biologists and theoreticians. Modeling and data analysis in pharmacokinetics, enzyme kinetics, and endocrinology. Topics include compartmental and noncompartmental approaches, steady state analysis of transport and binding processes, and optimal experiment design.

M230. Computed Tomography: Theory and Applications. (4) (Same as Biomedical Physics M230.) Computed tomography is a three-dimensional imaging technique being widely used in radiology and is becoming an active research area in biomedicine. Basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications.

M231. Statistical Methods for Categorical Data. (4) (Same as Biostatistics M210.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 100B or 110B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

M232. Statistical Analysis of Incomplete Data. (4) (Same as Biostatistics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading.

M234. Applied Bayesian Inference. (4) (Same as Biostatistics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: Biostatistics 115 or Statistics 100C, 200A. 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.

M260A-M260B. Methodology in Clinical Research I, II (6-6). (Same as Medicine M260A-M260B.) Lecture, three hours; discussion, two hours. Recommended preparation: M.D., Ph.D., 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.

M270. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Computer Science M296B and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: Computer Science M296A. Estimation methodology and model parameter estimation algorithms for quantifying (fitting) dynamic system models to real-world data. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on data sampling schedule design. Exploration in PC laboratory of applications software for model building and optimal experiment design. S/U or letter grading.

273. Stochastic Modeling in Molecular Cellular Biophysics. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics M170A or equivalent experience in probability, lower division physics, or physical chemistry. Most molecular systems are large collections of molecules; behavior of such a system is stochastic. Mathematical descriptions of biochemical reactions with and without energy dissipation, molecular structures, and biophysical techniques which measure various biological processes. S/U or letter grading.

M280. 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.

M281. Survival Analysis. (4) (Same as Biostatistics M215.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 110B, Statistics 100B. Statistical methods for analysis of survival data. S/U or letter grading.

M282. Analysis of Repeated Measures Designs. (4) (Same as Biostatistics M236.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 200A, 200B. Presentation of classical and modern theories for analysis of repeated measures designs, with focus on computation and robustness. S/U or letter grading.

596. Directed Individual Study or Research in Biomathematics. (2 to 12) Individual study on topics not yet covered by offerings of department. May be repeated for credit with topic change.

597. Preparation for M.S. or Ph.D. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Individual study. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) S/U grading.

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Yoram Cohen, Ph.D. (*Chemical Engineering*)
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Joseph L. Demer, M.D., Ph.D. (*Ophthalmology, Neurology*)
Vijay K. Dhir, Ph.D. (*Mechanical and Aerospace Engineering*)
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Gerald A.M. Finerman, M.D. (*Orthopaedic Surgery*)
C. Fred Fox, Ph.D. (*Microbiology and Molecular Genetics*)
C.R. Gallistel, Ph.D. (*Psychology*)
Bruce R. Gerratt, Ph.D. (*Head and Neck Surgery*)
Robert P. Gunsalus, Ph.D. (*Microbiology and Molecular Genetics*)

Vijay Gupta, Ph.D. (*Mechanical and Aerospace Engineering*)
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Jiann-Wen Ju, Ph.D. (*Civil and Environmental Engineering*)
J. Michael Kabo, Ph.D. (*Orthopaedic Surgery*)
William J. Kaiser, Ph.D. (*Electrical Engineering*)
Patricia A. Keating, Ph.D. (*Linguistics*)
J. John Kim, Ph.D. (*Mechanical and Aerospace Engineering*)
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Istvan Mody, Ph.D. (*Neurology, Physiology*)
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Peter M. Narins, Ph.D. (*Physiological Science*)
Yahya Rahmat-Samii, Ph.D. (*Electrical Engineering*)
Vwani Roychowdhury, Ph.D. (*Electrical Engineering*)
James G. Tidball, Ph.D. (*Physiological Science*)
Allan J. Tobin, Ph.D. (*Neurology, Physiological Science*)
John D. Villaseñor, Ph.D. (*Electrical Engineering*)
Jenn-Ming Yang, Ph.D. (*Materials Science and Engineering*)
Kung Yao, Ph.D. (*Electrical Engineering*)

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Walter J. Karplus, Ph.D. (*Computer Science*)
Allen Klinger, Ph.D. (*Computer Science*)
Jacques J. Vidal, Ph.D. (*Computer Science*)

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Gang Chen, Ph.D. (*Mechanical and Aerospace Engineering*)
Simon R. Cherry, Ph.D. (*Molecular and Medical Pharmacology*)
Linda Demer, M.D., Ph.D. (*Cardiology, Physiology*)
Robin L. Garrell, Ph.D. (*Chemistry and Biochemistry*)
Bahram Jalali, Ph.D. (*Electrical Engineering*)
Chang-Jin (C-J) Kim, Ph.D. (*Mechanical and Aerospace Engineering*)
Nir Kosssovsky, M.D. (*Pathology and Laboratory Medicine*)
Andrew F. Leuchter, M.D. (*Psychiatry and Biobehavioral Sciences*)
Harold G. Monbouquette, Ph.D. (*Chemical Engineering*)
Helen R. Na, Ph.D. (*Electrical Engineering*)
Ichiro Nishimura, D.D.S., D.M.Sc., D.M.D. (*Dentistry*)

Assistant Professors

Marvin Bergsneider, M.D. (*Neurosurgery*)
Susan Y. Bookheimer, Ph.D. (*Psychiatry and Biobehavioral Sciences*)
Ian A. Cook, M.D. (*Psychiatry and Biobehavioral Sciences*)
Michael W. Deem, Ph.D. (*Chemical Engineering*)
Alan Garfinkel, Ph.D. (*Physiological Science, Cardiology*)
George Huang, D.Sc., D.D.S. (*Dentistry*)
Jack Judy, Ph.D. (*Electrical Engineering*)
David C. Myles, Ph.D. (*Chemistry and Biochemistry*)
Valeriy I. Nenov, Ph.D. (*Neurosurgery*)
Sheila Nirenberg, Ph.D. (*Neurology*)
Daniel J. Valentino, Ph.D. (*Radiological Sciences*)

Adjunct Professors

Nassar A. Farahbakhsh, Ph.D. (*Physiological Science*)

John J. Gilman, Ph.D. (*Materials Science and Engineering*)

Boris Kogan, Ph.D. (*Computer Science*)

Adjunct Assistant Professors

Robert J. Greenberg, M.D., Ph.D. (*Electrical Engineering*)

Imke Schroeder, Ph.D. (*Microbiology and Molecular Genetics*)

Timothy B. Staats, Ed.D., C.P. (*Orthopaedic Surgery*)

Visiting Assistant Professor

Ching-Hwa Kiang, Ph.D. (*Chemical Engineering*)

Scope and Objectives

The Biomedical Engineering Interdepartmental Program is designed to train engineers and scientists who are specially qualified to work on engineering applications in either medicine or biotechnology.

Graduates are able to apply engineering principles to current needs and contribute to future advances in the fields of medicine and biotechnology. Fostering careers in industry or academia, the program offers students the choice of an M.S. or Ph.D. degree in seven distinct fields of biomedical engineering. In addition to selected advanced engineering courses, students are required to take specially designed biomedical engineering courses to ensure a minimal knowledge of the appropriate biological sciences. Students receive practical training via an M.S. or Ph.D. research thesis in biomedical engineering. Faculty members have principal appointments in departments across campus and have well-equipped laboratories for graduate student research projects.

New courses are currently being developed. In the interim, biomedical engineering students take selected courses in other departments. Students should contact the program office for the latest details.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Biomedical Engineering Program offers the Master of Science (M.S.) degree in Biomedical Engineering.

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program in Biomedical Engineering are required to take the General Test of the Graduate Record Examination (GRE).

All applicants need to submit a statement of purpose relating their reasons for seeking admission, in addition to three letters of recommendation detailing their academic preparation, industrial or research laboratory training, and potential for future professional development. To apply for the M.S. degree, applicants should have a B.S. degree in engineering, life sciences, or physical science, with a grade-point average (GPA) of not less than 3.0 in the last two years of undergraduate study.

Meeting the above minimum requirements does not guarantee admission; the actual standard for admission is set by the current pool of applicants and is generally much higher.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.biomedengr.ucla.edu>, or by writing to the Biomedical Engineering IDP, School of Engineering and Applied Science, UCLA, 7523 Boelter Hall, Box 951600, Los Angeles, CA 90095-1600, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Areas of Study

Bioacoustics, speech, and hearing; biochemical engineering; biocybernetics; biomaterials and tissue engineering; biomechanics; biomedical instrumentation; biomedical signal and image processing.

Course Requirements

At least nine courses are required, of which at least five must be graduate courses. For the thesis plan, seven of the nine must be formal courses, including at least four from the 200 series. The remaining two may be 598 courses involving work on the thesis. In the comprehensive examination plan, no units of 500-series courses may be applied toward the minimum course requirement. Lower division courses may not be applied toward a graduate degree.

Comprehensive Examination Plan

The comprehensive examination plan requires a passing grade on the first part (four hours) of the written comprehensive preliminary examination for the Ph.D.

Thesis Plan

A research thesis, completed through enrollment in eight units of Biomedical Engineering 598, is to be written on a biomedical engineering topic approved by the field committee, which consists of the student's thesis supervisor and two other UCLA faculty; the thesis supervisor and at least one other member are selected from a current list of designated members for the interdepartmental program that is approved by the Graduate Division.

Doctoral Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. degree in Biomedical Engineering are required to take the General Test of the Graduate Record Examination (GRE).

All applicants need to submit a statement of purpose relating their reasons for seeking admission, in addition to three letters of recommendation detailing their academic preparation, industrial or research laboratory training, and potential for future professional development. To apply for the Ph.D. degree, applicants should meet the requirements for the M.S. and hold an M.S. degree in engineering, life science, physical science, or the equivalent, with a grade-point average (GPA) of not less than 3.25.

Meeting the above minimum requirements does not guarantee admission; the actual standard for admission is set by the current pool of applicants and is generally much higher.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.biomedengr.ucla.edu> or by writing to the Biomedical Engineering IDP, School of Engineering and Applied Science, UCLA, 7523 Boelter Hall, 951600, Los Angeles, CA 90095-1600, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Major fields or Subdisciplines

Bioacoustics, speech, and hearing; biochemical engineering; biocybernetics; biomaterials and tissue engineering; biomechanics; biomedical instrumentation; biomedical signal and image processing.

Course Requirements

To complete the Ph.D., all students must fulfill minimum University requirements. Students must pass a written preliminary examination, an oral qualifying examination, and complete the coursework for two minor fields of study. At least one minor field of study should be one of the other major fields in the Biomedical Engineering Program. Each minor field requirement consists of three four-unit courses, at least two of which are graduate (200-level) courses. Students must maintain a grade-point average of 3.25 or better for all courses. For the written preliminary examination in the major field, Ph.D. students are responsible for the material covered in required courses specified by the field committee. The examination is given at a time and date to be decided by the field committee but no later than two academic years after the student has been formally admitted to the Ph.D. program.

Written and Oral Qualifying Examinations

The written qualifying examination is known as the Ph.D. preliminary examination in the School of Engineering and Applied Science. After mastering the body of knowledge defined in the major field, students take a preliminary examination in the major field. The examination typically consists of both a written part and an oral part, and students pass the entire examination and not in parts. The oral part does not exceed two hours, and in some major fields need not be required at all. Students who fail the examination may repeat it once only, subject to the approval of the major field committee. This major field examination, together with the three courses in each of the two minor fields, should be completed within six quarters after admission to the Ph.D. program.

After passing the written qualifying examination described above, students are ready to take the University Oral Qualifying Examination, which should occur within three quarters after completing the written examination. The nature and content of the examination are at the discretion of the doctoral committee, but ordinarily include a broad inquiry into the student's preparation for research. The doctoral committee also reviews the prospectus of the dissertation at the oral qualifying examination

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are selected from a current list of designated "inside" members for the interdepartmental program that is approved by the Graduate Division. The "outside" member must be a UCLA faculty member who does not appear on the "inside" list.

Biomedical Engineering

Upper Division Courses

M101. Introduction to Biomedical Engineering (4) Lecture, three hours; outside study, nine hours. Designed for physical sciences, life sciences, and engineering students. Introduction to wide scope of biomedical engineering via treatment of selected important individual topics by small team of specialists. Letter grading.

M102. Human Anatomy for Biomedical Engineers. (4) (Same as Physiological Science M102.) Lecture, three hours; laboratory, two hours. Not open for credit to physiological science majors. Designed to provide foundation in human gross and microscopic anatomy for graduate biomedical engineering students. Broad overview of structural organization of human body and detailed examination of specific systems pertinent to biomedical research. Letter grading.

M103. Human Physiology for Biomedical Engineers. (4) (Same as Physiological Science M103.) Lecture, three hours; laboratory, two hours. Not open for credit to physiological science majors. Designed to provide foundation in human physiology for graduate biomedical engineering students. Systematic approach to examination of major systems function, with emphasis on regulatory mechanisms controlling normal function. Detailed examination of specific systems pertinent to major areas of biomedical research. Letter grading.

M140. Introduction to Biomechanics. (4) (Same as Mechanical and Aerospace Engineering M140.) Lecture, four hours; outside study, eight hours. Requisites: Mechanical and Aerospace Engineering 131A, 156A. 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. Letter grading.

M180. Introduction to Biomaterials. (4) (Same as Materials Science M180.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: Materials Science 14. 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. Letter grading.

Graduate Courses

M217. Biomedical Imaging. (4) (Same as Electrical Engineering M217.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: Electrical Engineering 114 or 211A. Mathematical principles of medical imaging modalities: X-ray, computed tomography, positron emission tomography, single photon emission computed tomography, magnetic resonance imaging. Topics include basic principles of each imaging system, image reconstruction algorithms, system configurations and their effects on reconstruction algorithms, specialized imaging techniques for specific applications such as flow imaging. Letter grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Petition forms to request enrollment may be obtained from program office. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate biomedical engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

BIOMEDICAL PHYSICS

*Interdepartmental Program
School of Medicine*

UCLA
1V-365 Center for the Health Sciences
Box 951428
Los Angeles, CA 90095-1428
(310) 825-7811
<http://www.rad.ucla.edu/bmp/>

Edward J. Hoffman, Ph.D., *Director*

Professors

Zoran L. Barbaric, M.D.
Jorge R. Barrio, Ph.D.
Edward J. Hoffman, Ph.D.
Sung-Cheng (Henry) Huang, D.Sc.
Hooshang Kangarloo, M.D.
Robert B. Luffkin, M.D.
John C. Mazziotta, M.D., Ph.D.
William H. McBride, D.Sc.
Michael E. Phelps, Ph.D. (*Jennifer Jones Simon
Professor of Radiation Oncology*)
Nagichettiar Satyamurthy, Ph.D., *in Residence*
Heinrich R. Schelbert, M.D., Ph.D.
James B. Smathers, Ph.D.
Carolyn Kimme-Smith, Ph.D., *in Residence*
Richard J. Steckel, M.D. (*Leo G. Rigler Professor of
Radiological Sciences*)
H. Rodney Withers, M.D., D.Sc.

Professors Emeriti

Moses A. Greenfield, Ph.D., FACR
F. Eugene Holly, Ph.D.
Amos Norman, Ph.D.

Associate Professors

Jeffrey R. Alger, Ph.D., *in Residence*
Simon R. Cherry, Ph.D.
Mark S. Cohen, Ph.D., *in Residence*
Magnus Dahlbom, Ph.D., *in Residence*
Graeme J. Dougherty, Ph.D.
Andre J. Duerinckx, M.D., Ph.D., *in Residence*
David A. Hovda, Ph.D.
Shantanu Sinha, Ph.D., *in Residence*

Assistant Professors

Keyvan Farahani, Ph.D., *in Residence*
Judith M. Ford, M.D. Ph.D., *in Residence*
Sanjiv Gambhir, M.D., Ph.D.
Jonathan G. Goldin, MbChB, Ph.D., FRCR, *in
Residence*
Michael McNitt-Gray, Ph.D., *in Residence*
William P. Melega, Ph.D., *in Residence*
Maribeth A. Raines, Ph.D., *in Residence*
Timothy D. Solberg, Ph.D., *in Residence*
Phoebe L. Stewart, Ph.D.
M. Albert Thomas, Ph.D., *in Residence*

Associate Clinical Professor

Carl K. Hoh, M.D.
Robert E. Wallace, Ph.D.

Assistant Clinical Professors

Shona T. Dougherty, M.D., Ph.D.
Usha Sinha, Ph.D.
Daniel J. Valentino, Ph.D.

Lecturers

Lan H. Kobe, M.S.
Marilyn C. Wexler, M.S.

Adjunct Professors

L. Stephen Graham, Ph.D.
James W. Sayre, Dr.P.H.
Lawrence E. Williams, Ph.D.

Adjunct Associate Professors

Guido Germano, Ph.D.
Martin W. Herman, Ph.D.
James S. Whiting, Ph.D.

Adjunct Assistant Professors

Robert Close, Ph.D.
Jeffrey H. Kleck, Ph.D.
Min-Yuan Leu, Ph.D.
Hazel L. Lewis, Ph.D.
James C. Liu, Ph.D.
David Metcalf, Ph.D.
Craig Morioka, Ph.D.
James A. Roseboro, Ph.D.
Peter J. Rosemark, Ph.D.

Scope and Objectives

The Biomedical Physics M.S./Ph.D. Program is an AAPM-accredited interdepartmental graduate program supported by the Depart-

ments of Molecular and Medical Pharmacology, Radiation Oncology, and Radiological Sciences. It offers training in four specialties: biophysics, medical imaging, medical physics, and radiation biology. Specialized facilities for training and research are available in the departmental clinical laboratories, the UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, the Image Processing Laboratory, and a number of associated hospitals. Highly specialized equipment includes two biomedical cyclotrons, the radiation oncology cyclotron, the picture archiving and communication system (PACS), four positron emission tomography (PET) scanners, the stereotactic gamma irradiator, and many VAX and SUN computers with image processor systems. In addition, clinical equipment is available to supervised students for practicums and research purposes. The program prepares students for careers as independent researchers or professional medical physicists, and graduates are qualified to work in a clinical environment and to pursue board certification as medical physicists or to apply for a clinical medical physics residency.

Graduates in biomedical physics can expect to engage in any combination of research, teaching, clinical service, and consultation. Biomedical physicists are usually employed in hospitals frequently associated with a medical school, where they are members of the academic staff. They are also in demand in high-technology private industry engaging in research and development of diagnostic equipment. In government agencies, biomedical physicists are involved in the formulation and enforcement of regulations applied to the use of radiation in health care delivery.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Biomedical Physics Program offers the Master of Science (M.S.) degree in Biomedical Physics.

Admission

In addition to the University's minimum requirements, applicants to the M.S. program are required to hold a bachelor's degree with a major in a science or engineering program. Also, it is expected that applicants have completed (1) one year of college physics (calculus-based); (2) two years of college mathematics through differential equations, including calculus equivalent to Mathematics 31A, 31B, 32A, 32B,

33A, 33B; (3) one year of college chemistry; and (4) at least one course in computer science. Deficiencies in the above courses must be removed prior to advancement to candidacy.

In addition, applicants to the specialty fields of biophysics, medical imaging, and therapeutic medical physics must have a strong foundation in basic physics or a degree in engineering, mathematics, or other sciences with physics training equivalent to a minor in physics (upper division courses in electricity and magnetism, quantum mechanics, atomic structure, statistical mechanics, and mechanics). Applicants may be accepted with some deficiencies in entrance requirements which must be removed prior to advancement to candidacy.

Scores on the Graduate Record Examination (GRE) General Test, taken in the last three years, should be sent to the department. Three letters of recommendation are required. If applicants already have a master's degree, one of the letters should be from their thesis adviser.

A brochure describing the program in biomedical physics may be obtained from the department.

Areas of Study

Therapeutic medical physics; medical imaging; biophysics; and radiation biology and experimental radiation therapy.

Course Requirements

The courses required for the M.S. degree are nine common core courses (Biomedical Physics 200A, 204, 205, 216, 217, 218, 260A-260B-260C) and the following nine courses, along with any special direction by the graduate adviser: Biomedical Physics 200B, 202A-202B-202C, 203, 208A, 208B, 209, 221.

For students with a medical physics background or a career objective other than a practicing medical physicist, a more sharply focused curriculum may be advised.

Biomedical Physics 596 and 598 may be applied toward the degree. Eight units of 500-series courses may be applied toward the total course requirements, four units toward the minimum graduate course requirement.

Comprehensive Examination Plan

Students may pass a comprehensive examination (Plan II) that consists of the materials from the common core courses. The examination is offered at least once a year, and students have two chances to pass the examination.

Students who plan to continue on the Ph.D. study track may request approval from their faculty adviser for the Ph.D. written specialty examination to be used to satisfy the requirement for the M.S. comprehensive examination (Plan II). Students could then receive the M.S. in addition to the Ph.D.

Thesis Plan

Students satisfy the requirement by writing a thesis (Plan I) based on a research project. Af-

ter students complete the course requirements, they must choose a faculty member to guide their research and chair the thesis committee.

Doctoral Degree

Admission

Admission to the program leading to the Ph.D. degree in Biomedical Physics requires a bachelor's degree with a major in a science or engineering program and (1) selecting a specialty, (2) passing either all of the core courses with grades of B or better or the M.S. comprehensive examination, and (3) passing a written specialty qualifying examination which may be repeated once. Biomedical Physics 221 is required of all students. Completion of a master's program is not required.

Major Fields or Subdisciplines

Therapeutic medical physics; medical imaging; biophysics; and radiation biology and experimental radiation therapy.

Course Requirements

After selecting a specialty, students acquire sufficient knowledge by taking courses recommended for the specialty; these include the common core courses. The courses form a basis for the Ph.D. written specialty examination. Students must pass all core courses with grades of B (a B- or lower is not acceptable) or better or pass the entire M.S. comprehensive examination.

Transfer students can either take the core courses or pass an M.S. comprehensive examination.

The following specialties are offered:

Biophysics. Minimum course requirements of 60 hours. The biophysics specialty includes the core courses within the department, graduate courses from physics, engineering, chemistry/biochemistry, biological chemistry, pharmacology, and biomathematics, and research study and seminar courses.

Medical Imaging. Minimum course requirements of 60 hours. The courses for the medical imaging specialty include the nine common core courses (Biomedical Physics 200A, 204, 205, 216, 217, 218, 260A-260B-260C), as well as the medical imaging specialty core courses (Biomedical Physics 209, 210, 219). A minimum of four elective courses are required from the following two lists: (a) two to four elective courses (Biomedical Physics 208A, 211, 214, 215, 222, M230) and (b) zero to two electives from the following courses outside the program:

Computer Science (School of Engineering and Applied Science) 112, 118, 141, 161, 171, 171L, 174, 212A, 212B, 214, 215, 241A, 241B, 267A, 268, 270A, 276A, 276B.

Electrical Engineering (School of Engineering and Applied Science) 113, 113L, 115A, 115B, 115C, 212A, 213A, 215A, 230D.

Mathematics (College of Letters and Science) 142, 149, 151A, 151B, 270A, 270F.

Appropriate elective courses are selected by the student and the adviser. Students wishing to pursue a hospital-based career should prepare to be board certified after graduation by taking additional clinical courses: Biomedical Physics 200B, 202A-202B-202C, 203, 208A, 208B.

Therapeutic Medical Physics. Students must demonstrate competence in the subject matter covered in the core courses. In addition, students are required to take the three clinical rotations (Biomedical Physics 202A-202B-202C), 201, 203, 208B, 210, M230, and some advanced mathematics courses. Additional coursework is recommended by faculty in accordance with students' specific needs.

Radiation Biology and Experimental Radiation Therapy. Students must demonstrate competence in the subject matter covered in the core courses. Because of the breadth of radiation biology and experimental radiation oncology, it is not feasible to design a single curriculum for all students. Instead, additional coursework is recommended by faculty in accordance with specific needs.

Written and Oral Qualifying Examinations

Each specialty structures its own examination, which is written and graded by more than two faculty members.

Each specialty can request that its own students pass a major topic(s) from other specialties. Students must demonstrate competence in the common core courses and pass the Ph.D. written specialty examination before they can proceed to the Ph.D. This demonstration of competence must be reviewed and approved by faculty-at-large. Students are permitted two opportunities to pass the Ph.D. written specialty examination which is given at least once a year.

Biophysics. A written specialty examination is given on areas covered by courses students have taken, with emphasis on questions based on course topics but directed at determining the personal ability of students for scholarship rather than factual knowledge per se.

Medical Imaging. A written specialty examination is directed at determining the personal ability of students for scholarship rather than factual knowledge per se. While the material covered may be related to courses taken, it need not be limited to material covered in the courses. The questions are based on both knowledge of the topics and the ability to think creatively in medical imaging.

Therapeutic Medical Physics. Students must demonstrate knowledge both of the material presented in the coursework and of current research in the field by passing a written specialty examination.

Radiation Biology and Experimental Radiation Therapy. Students must demonstrate knowl-

edge both of the material presented in the basic radiation biology course and of current research in the field by passing a written specialty examination.

Oral Qualifying Examination. The written specialty examination for admission to the Ph.D. program should be taken by the end of the sixth quarter in residence. Once this examination is passed and students have chosen a research area for the dissertation, they should, within a reasonable time frame agreed on with the dissertation adviser, form a doctoral committee and schedule the University Oral Qualifying Examination. This examination is based on a proposed dissertation topic. Passing the examination is a requirement for continuance in the doctoral program. The format of the oral qualifying examination is consistent with University requirements. A final oral dissertation defense is required.

Biomedical Physics

Lower Division Course

88. Lower Division Seminar: Special Topics in Biomedical Physics. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in biomedical physics approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biological Chemistry CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

199. Directed Individual Studies or Research for Undergraduate Students. (2 to 4) Preparation: submission of written proposal outlining course of study or research. Directed individual studies in biomedical physics for undergraduate students to be structured by faculty member and student at time of initial enrollment.

Graduate Courses

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.

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.

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.

202A-202B-202C. Applications of Medical Physics to Clinical Problems. (4-4-4) Selected studies in clinical use of radioisotopes:

202A. Nuclear Medicine. Requisite: course 200B.

202B. Diagnostic Radiology. Requisites: courses 200A, 205.

202C. Radiation Therapy. Requisites: courses 203, 204, 208B, 221.

203. Physics of Radiation Therapy. (4) Lecture, three hours; discussion, one hour. Requisites: courses 216, 221. Radiation quantities and units. Radiation dosimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. Calibration of radiation therapy equipment.

204. Introductory Radiation Biology. (4) Effect of ionizing radiation on chemical and biological systems.

205. Physics of Diagnostic Radiology. (4) Lecture, three hours; discussion, 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.

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.

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.

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.

209. Digital Techniques in Radiological Sciences. (4) Lecture, three hours; discussion, one hour. Preparation: one course in C or another computer language. Basic principles of digital technology used in radiological sciences. Concepts and experience necessary to undertake radiological research in a diverse computing environment. Discussion of relationship between computers and diagnostic equipment with regard to data acquisition, equipment interfacing, and data analysis. C language programming taught.

210. Principles of Medical Imaging. (4) Lecture, three hours; discussion, one hour. Requisite: course 209. Study of image representation, computational structures for imaging, linear systems theory, image enhancement and restoration, image compression, segmentation, and morphology. Special topics include visualization techniques, three-dimensional modeling, computer graphics, and neural net applications. Laboratory projects apply concepts developed in class.

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, biohazards of ultrasound, ultrasound phantom design, and ultrasound tissue characterization techniques. Laboratory included.

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.

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.

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).

215. Breast Imaging Physics and Instrumentation. (4) Lecture, three hours; laboratory, two hours. Requisite: course 205. Special requirements of mammography, design of dedicated mammography X-ray units from generators and tubes through screen/film cassettes. Stereotactic biopsy units, cost/benefit controversy of screening mammography, digital mammography, computer-aided diagnosis, telemammography, breast MRI, and breast ultrasound.

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.

217. Statistics and Data Analysis in Biomedical Physics. (4) Lecture, three hours; laboratory, two 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 the radiological sciences.

218. Radiologic Functional Anatomy. (4) Lecture, three hours; discussion, two hours. Introduction to human anatomy as visualized through radiological and nuclear medicine imaging modalities such as X ray, CT, MRI, sonogram, PET, and SPECT.

219. Principles and Applications of Magnetic Resonance Imaging. (4) Lecture, three hours; laboratory, one hour. Basic principles of magnetic resonance (MR), imaging physics, and contrast mechanisms. Emphasis on hardware, Fourier transform imaging methods, structure of pulse sequences, various scanning parameters and reduction of artifacts. Introduction to MR spectroscopy, MR angiography, and fast imaging techniques.

220A-220D. Laboratory Rotations in Biomedical Physics. (2 each) Laboratory projects to provide students with introduction to the field. One oral and one written presentation required. S/U grading. **220A.** Biophysics; **220B.** Medical Imaging; **220C.** Therapeutic Medical Physics; **220D.** Radiation Biology and Experimental Radiation Therapy.

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.

222. Advances in Medical Magnetic Resonance: Clinical MR Spectroscopy and Fast MRI Techniques. (4) Lecture, three hours; laboratory, one hour. Requisites: course 219, Physics 8E. Basic principles of NMR spectroscopy, localized spectroscopic sequences on a 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.

223. Seminar: Radiation Biology. (1) Requisite or corequisite: course 204. Topics of current interest in radiation biology presented by faculty members, post-doctoral fellows, and graduate students from various departments and other universities. Discussion of ongoing research, as well as relevant journal articles. Topics vary from term to term. One student oral presentation required. S/U grading.

M230. Computed Tomography: Theory and Applications. (4) (Same as Biomathematics M230.) Computed tomography is a three-dimensional imaging technique being widely used in radiology and is becoming an active research area in biomedicine. Basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biological Chemistry CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

M248. Introduction to Biological Imaging. (4) (Same as Pharmacology M248.) Lecture, three hours; laboratory, one hour. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for a range of modalities. Practical experience provided through a series of imaging laboratories.

260A-260B-260C. Seminars: Biomedical Physics (1-1-1). 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 (260A, 260B) and letter (260C) grading.

M266. Advanced Magnetic Resonance Imaging. (4) (Same as Neuroscience M267 and Psychiatry M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

268. Radiopharmaceutical Chemistry. (4) Lecture, two hours; discussion, two hours. Current concepts in radioactive pharmaceutical agents in clinical use, including promising investigational agents. Utilization of short-lived, cyclotron-produced isotopes in radiopharmaceuticals. Rational design of radiodiagnostic agents.

269. Seminar: Medical Imaging. (1) Continuous registration required of students in medical imaging specialty. Topics of current interest in medical imaging, with lecturers from the department, other universities, and private industry.

M285. Functional Neuroimaging: Techniques and Applications. (4) (Same as Psychiatry M285.) In-depth examination of activation imaging, including PET and MRI 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 a functional MRI experiment. S/U or letter grading.

M424. Functional Magnetic Resonance Imaging Journal Club. (1) (Same as Psychiatry M424.) Discussion, 90 minutes. Directed reading and discussion of current topics and developments in functional magnetic resonance imaging. 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 a faculty member. S/U grading.

596. Research in Biomedical Physics. (4 to 12) Directed individual study or research. Only one 596 course may be applied toward M.S. degree requirements. May be repeated for credit.

597. Preparation for Ph.D. Qualifying Examinations. (4) May not be applied toward M.S. degree requirements. May not be repeated. S/U grading.

598. Research for and Preparation of M.S. Thesis. (4 to 12) Two 598 courses (or 598 and 596 combined) may be applied toward M.S. degree requirements. May be repeated. S/U grading.

599. Research for Ph.D. Dissertation. (4 to 12) Preparation: successful completion of screening examinations. Research for and preparation of Ph.D. dissertation. May be repeated. S/U grading.

BIOSTATISTICS

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Professors

Abdelmonem A. Affi, Ph.D., *Dean*
William G. Cumberland, Ph.D.
Dorota M. Dabrowska, Ph.D.
Robert M. Elashoff, Ph.D.
Jeremy M.G. Taylor, Ph.D., *in Residence*

Professors Emeriti

Potter C. Chang, Ph.D.
Virginia A. Clark, Ph.D.
Wilfrid J. Dixon, Ph.D.
Olive Jean Dunn, Ph.D.
Donald Guthrie, Ph.D., *in Residence*
Robert I. Jennrich, Ph.D.
Raymond J. Jessen, Ph.D.

Associate Professors

Virginia F. Flack, Ph.D.
Nathaniel Schenker, Ph.D.
Robert E. Weiss, Ph.D.
Weng Kee Wong, Ph.D.

Assistant Professors

Thomas R. Belin, Ph.D., *in Residence*
Gang Li, Ph.D.
Janet Sinsheimer, Ph.D., *in Residence*

Lecturers

Jeffrey Gornbein, Dr.P.H.
Jean L. Mickey, Ph.D., *Emerita*

Adjunct Professor

Frederick J. Dorey, Ph.D.
James W. Sayre, Dr.P.H.

Adjunct and Visiting Associate Professors

Nancy G. Berman, Ph.D., *Adjunct*
Karim F. Hirji, D.Sc., *Adjunct*
Martin L. Lee, Ph.D., *Visiting*
David W. Gjerston, Ph.D., *Adjunct*

Adjunct Assistant Professors

Cheryl L. Faucett, Ph.D.
Stella Grosser, Ph.D.

Scope and Objectives

In recent years biostatistics has become one of the most stimulating areas of applied statistics. The field encompasses the methodology and theory of statistics as applied to problems in the life and health sciences. Biostatisticians are trained in the skilled application of statistical methods to the solution of problems encountered in public health and medicine. They collaborate with scientists in nearly every area related to health and have made major contributions to our understanding of AIDS, cancer, and immunology, as well as other areas. Further, biostatisticians spend a considerable amount of time developing and evaluating the statistical methodology used in those projects. The Department of Biostatistics offers M.S. and Ph.D. degrees in Biostatistics and, through the School of Public Health, the M.P.H. and Dr.P.H. degrees with a specialization in biostatistics (see Public Health Schoolwide Programs). All students receive a balanced education, blending theory and practice.

A degree in biostatistics prepares students for work in a wide variety of challenging positions in government, industry, and education. Graduates have found careers involving teaching, research, and consulting in such fields as medicine, public health, life sciences, survey research, and computer science. There has always been a strong demand for well-trained biostatisticians; graduates have had little difficulty finding employment well suited to their particular interests.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Biostatistics offers the Master of Science (M.S.) degree in Biostatistics. For information on the Master of Public Health (M.P.H.) degree, see Public Health Schoolwide Programs.

Admission

Applicants to the M.S. program must have completed a bachelor's degree. Majors in mathematics, computer science, or a field of application in biostatistics are preferred. Undergraduate preparation for the program should include Mathematics 31A, 31B, 32A, 32B, 33A, 33B (second-year calculus), or equivalent.

Additional admission requirements for the M.S. in Biostatistics are the same as for the M.P.H. See the M.P.H. admission section under Public Health Schoolwide Programs.

Areas of Study

Consult the graduate adviser for the areas of specialization. Typical course plans are listed below.

Course Requirements

The M.S. degree requires a minimum of nine graduate and upper division courses, of which at least five must be graduate courses (200 and 500 series). The five required graduate courses must be in biostatistics or mathematical statistics, including at least three courses in biostatistics.

Unless previously taken, the following courses must be included in the degree program: Biostatistics 110A, 110B, 115, 200A, 200B-200C, M215, 240, 402A, 402B, 596; Statistics M100A, 100B; and 12 units of special topics courses from Biostatistics M210 through M237B (except M215), M250A through 285, 403A, or 404 through 419 (except 406). At least four of the 12 units must be in the 200 series.

For exceptional students who have had a year course in probability and theoretical statistics plus one or more courses in applied statistics, it may be possible to complete the degree in one year.

Other courses in biostatistics or mathematical statistics, or in related areas such as biology, physiology, public health, management, or mathematics, are selected with the adviser's consent and approved by the chair.

A written report and written comprehensive examination covering the above course material must be passed. A failed examination can be repeated only once.

Comprehensive Examination Plan

The written comprehensive examination which covers the content of the required courses must be passed. No more than one reexamination after failure is allowed. Students who do not take the reexamination at the time specified by the department forfeit their right to reexamination.

Thesis Plan

None.

Doctoral Degree**Admission**

Qualifications for admission to the program leading to the Ph.D. degree in Biostatistics are those currently specified by the Graduate Division.

Consult the department for further information.

Major Fields or Subdisciplines

Consult the graduate adviser.

Course Requirements

Students must complete the following courses, unless previously taken: Biostatistics M250A-M250B, 251, 255; Statistics 200A-200B; and at least three special topics courses from the Biostatistics 230, 270, and 280 series. Some substitution is accepted from courses in statistics and biomathematics. For students who have not completed a master's degree or equivalent in mathematics, computer science, or a field of application in biostatistics, the following additional courses must be included in the degree program, unless previously taken: Biostatistics 200A, 200B-200C, M215. In addition, the student's full program of study must be approved by the department and must include, at the graduate level, three areas of knowledge: biostatistics, mathematical statistics, and a third field such as AIDS, biology, epidemiology, infectious diseases, medicine, microbiology, pharmacology, physiology, psychology, zoology, or public health. Students are required to participate in Biostatistics 402B (consulting laboratory) for one quarter each year and in course 245 (the advanced seminar) every quarter.

After advancement to candidacy, students are no longer required to enroll in Biostatistics 402B.

Written and Oral Qualifying Examinations

Before advancement to candidacy, students must pass two written examinations and the University Oral Qualifying Examination. A failed examination may only be repeated once.

The written mathematical statistics examination is taken in the spring of the first year in residence; if failed, it must be retaken the following Spring Quarter. The written qualifying examination is taken in Fall Quarter of the second year.

The University Oral Qualifying Examination is taken before advancement to candidacy and after successful completion of the written examinations. Administered by the doctoral committee, it is usually a defense of the dissertation proposal.

The timing of reexaminations is specified by the department in the case of written examinations or by the student's committee in the case of the oral examination. Students who do not take the reexaminations at the specified time forfeit their right to reexamination.

Biostatistics

Upper Division Courses

100A. Introduction to Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: one biological or physical sciences course. Designed for juniors/seniors. Students who have completed courses in statistics may enroll only with consent of instructor. Not open for credit to students with credit for course 110A. 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.

100B. Introduction to Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 100A. Not open for credit to students with credit for course 110B. Introduction to analysis of variance, linear regression, and correlation analysis. P/NP or letter grading.

110A. Basic Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: Mathematics 31B. Not open for credit to students with credit for course 100A. Basic concepts of statistical analysis applied to biological sciences. Topics include random variables, sampling distributions, parameter estimates, statistical inference. P/NP or letter grading.

110B. Basic Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 110A. Not open for credit to students with credit for course 100B. Topics include elementary analysis of variance, simple linear regression; topics related to analysis of variance and experimental designs. P/NP or letter grading.

115. Topics in Estimation. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics M100A, 100B. Small and large sample properties of common estimation techniques arising in biostatistical application. Letter grading.

M153A-M153B. Regression Analysis (4-4-4). (Same as Biomathematics M153A-M153B and Statistics M120A-M120B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, Statistics 100B. Linear and nonlinear regression analysis using package programs. Emphasis on relation between statistical theory, numerical results, and analysis of data. P/NP or letter grading. **M153A.** BMDP, SAS, and SPSS regression programs; general linear model theory; linear regression analysis; transforming and weighting; regression diagnostics; model building. **M153B.** Analysis of variance and covariance; nonlinear regression programs, analysis, and applications; maximum likelihood analysis; robust regression.

199. Special Studies. (2 to 4) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only four units may be taken each term. P/NP or letter grading.

Graduate Courses

200A. Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 100A and 100B, or 110A and 110B. Topics in methodology of applied statistics, such as design, analysis of variance, regression. S/U or letter grading.

200B-200C. Biostatistics (4-4). Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses M153A, 200A. S/U or letter grading. **200B.** Multiple linear regression, including model validation, influence of observations, regression diagnostics; discriminant analysis; principal components; factor analysis and clinical trials. **200C.** Measures of association and analysis of categorical data, theory of generalized linear models.

201. Topics in Applied Regression. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 200A. Further studies in multiple linear regression, including model assessment principle components and errors in variables. Additional topics include estimation hypothesis testing in K4 matching for propensity score and introduction to logistic regression and its usefulness in propensity methodology. Letter grading.

M206A-M206B-M206C. Statistics in Psychiatric and Biobehavioral Research. (2-2-2) (Same as Psychiatry M286A-M286B-M286C.) Seminar, 90 minutes. Requisite: course 100B. Designed for graduate students. Examples from psychiatric literature used to illustrate statistical ideas and analysis strategies. Topics include experimental designs, sample size calculations, parametric versus nonparametric tests, regression, ANOVA, factor analysis, defining composite variables, causal inference. Computer used to illustrate basic data analysis. S/U or letter grading.

M209. Statistical Modeling in Epidemiology. (4) (Same as Epidemiology M212.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: Epidemiology 204 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.

M210. Statistical Methods for Categorical Data. (4) (Same as Biomathematics M231.) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

M211. Statistics for Epidemiology. (4) (Same as Epidemiology M211.) Lecture, four hours. Preparation: two terms of statistics (such as courses 100A, 100B). Requisites: Epidemiology 201A-201B. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 201A-201B and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

212. Distribution Free Methods. (4) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Theory and application of distribution free methods in biostatistics. S/U or letter grading.

213. Statistical Simulation Techniques. (4) Lecture, three hours; discussion, one hour. Requisites: course 110B, Statistics 100B. Techniques for simulating important statistical distributions, with applications in biostatistics. S/U or letter grading.

214. Finite Population Sampling. (4) Lecture, three hours. Requisites: course 110B, Statistics 100B. Theory and methods for sampling finite populations and estimating population characteristics. S/U or letter grading.

M215. Survival Analysis. (4) (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Requisites: course 110B, Statistics 100B. Statistical methods for analysis of survival data. S/U or letter grading.

216. Introduction to Statistical Methods for Biological Assays. (4) Lecture, three hours. Requisite: course 110B. Topics include standard statistical procedures for estimation of relative potency, density of microorganisms, and density of radioactivity, models used for these procedures, and statistical considerations for designing such assays. S/U or letter grading.

219. Special Topics: Supplemental Topics. (4) Lecture, three hours; discussion, one hour. Requisite: course 115. Topics in biostatistics not covered in other courses. Letter grading.

M220. Experimental Statistics. (4) (Same as Physiological Science CM200.) Lecture, four hours; outside study, eight hours. 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.

230. Statistical Graphics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 110A, 110B. 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. Simultaneous Statistical Inference. (4) Lecture, three hours; discussion, one hour. Requisites: course 200C, Statistics 100B. Methods and theory of simultaneous statistical inference. Letter grading.

M232. Statistical Analysis of Incomplete Data. (4) (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading.

233. Statistical Methods in AIDS. (2) Lecture, two hours. Requisites: courses 110A, 110B, M215. Coverage of methods necessary to address statistical problems in AIDS research, including projection methods for the size of AIDS epidemic and methods for estimating incubation distribution. S/U or letter grading.

M234. Applied Bayesian Inference. (4) (Same as Biomathematics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 115 or Statistics 100C, 200A. 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.

M235. Causal Inference. (4) (Formerly numbered 235.) (Same as Psychiatry M232.) Lecture, three hours; discussion, one hour. Requisite: course 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading.

M236. Analysis of Repeated Measures Designs. (4) (Same as Biomathematics M282.) Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B. Presentation of classical and modern theories for analysis of repeated measures designs, with focus on computation and robustness. S/U or letter grading.

M237A. Theoretical Genetic Modeling. (4) (Same as Biomathematics M207A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Mathematics 115A, 131A. 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.

M237B. Applied Genetic Modeling. (4) (Same as Biomathematics M207B and Human Genetics M207B.) Lecture, two hours; laboratory, two hours. Preparation: coursework equivalent to courses 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M237A; students may take either and are encouraged to take both. S/U or letter grading.

240. Master's Seminar and Research Resources for Graduating Biostatistics M.S. Students. (4) (Formerly numbered 240A, 240B.) 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. Requisite: course 200C. Current research in biostatistics. May be repeated for credit. S/U grading.

M250A-M250B. Linear Statistical Models (4-4). (Same as Statistics M215A-M215B.) Lecture, three hours; discussion, one hour. Preparation: one upper division three-term theoretical statistics course. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, Gauss/Markov theorem, fixed and random component models, balanced and unbalanced designs. Letter grading.

251. Multivariate Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course M250A. Multivariate analysis as used in biological and medical situations. Topics from multivariate distributions, component analysis, factor analysis, discriminant analysis, MANOVA, MANCOVA, longitudinal models with random coefficients. S/U or letter grading.

255. Advanced Topics and Probability in Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A-200B. Topics include conditioning, modes of convergence, basic limit results for empirical processes, von-Mises calculus, and notions of efficiency in statistics. Applications cover M-L-R estimation in two-sample and regression models, goodness of fit methods, smoothing techniques, and bootstrap. S/U or letter grading.

270. Stochastic Processes. (4) Lecture, three hours. Preparation: upper division mathematics (including statistics and probability). Stochastic processes applicable to medical and biological research. Letter grading.

271. Mathematical Epidemiology. (4) Lecture, three hours. Preparation: upper division mathematics (including statistics and probability). Mathematical theory of epidemiology with deterministic and stochastic models and problems involved in applying the theory. Letter grading.

272. Statistical Genetics. (4) Lecture, three hours; discussion, one hour. Preparation: upper division probability and statistics; knowledge of basic genetics principles helpful but not required. Introduction to statistical analysis of genetic data from experimental crosses, populations, and human pedigrees. Topics include segregation analysis, recombination and linkage, genetic mapping, inbreeding systems, population genetics, pedigree analysis, quantitative trait analysis, and molecular phylogeny. Letter grading.

275. Advanced Survival Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: course 255, Statistics 200A-200B. Recommended: course M215. Censoring and truncation, single sample problems, K-sample comparisons, Cox regression model, hazard rate and density estimation, estimation in Markov chains and Markov renewal processes, multivariate models, competing risks. S/U or letter grading.

276. Inferential Techniques that Use Simulation. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A-200B. Recommended: Biostatistics 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.

M280. 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.

288. Seminar: Statistics in AIDS. (2) Seminar: two hours. Requisite: course 200C. Designed for doctoral students. Recent statistical developments in analysis of AIDS data. Participants or outside speakers present their own research or discuss articles from the literature. S/U grading.

295. Application of Statistical Theories in Biomedical Research. (4) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Review of statistical theories essential to biostatistics. Illustration of applications by examples. Topics include delta method, order statistics, asymptotic properties of MLEs, iterative algorithms for MLEs, generalized likelihood ratio tests for categorical data, and transformations. Letter grading.

296. Seminar: Research Topics in Biostatistics. (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. (2 or 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 M.S. minimum course requirement; four units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

402A. Principles of Biostatistical Consulting. (2 units) Lecture, one hour; discussion, one hour. Requisite: course 100B or 110B. 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.

403A-403B. Computer Management of Health Data (4-4). (Formerly numbered 403.) Lecture, three hours; laboratory, two hours. Preparation: at least one statistics course, two research methodology courses. Requisite: Program in Computing 1. Concepts of health data management, design and maintenance of large databases on tapes or disks; computing tools and techniques facilitating data entry transmission, data retrieval for statistical analysis, tabulation and report generation useful to biostatisticians, health planners, and other health professionals. Letter grading.

404. Principles of Sampling. (4) Lecture, three hours; discussion, one hour. Requisites: course 100B, Epidemiology 100. Statistical aspects of design and implementation of a sample survey. Techniques for analysis of data, including estimates and standard errors. Avoiding improper use of survey data. Letter grading.

405. Demographic Materials and Methods. (4) Lecture, three hours; laboratory, two hours. Requisite: course 100A or 110A. Sources of demographic information; description of human populations; calculation and interpretation of statistics used to measure and describe population growth, structure, geographic distribution, mortality, natality, and migration. 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 grading optional for nondivision majors.

409. Doctoral Statistical Consulting Seminar. (2) (Formerly numbered 289.) 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 the study with lead investigators. S/U grading.

410. Statistical Methods in Clinical Trials. (4) Lecture, three hours; discussion, two hours. Requisite: course 200A. 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 grading optional for nonmajors.

411. Statistical Methods for Longitudinal Data. (4) Lecture, three hours. Requisite: course 200A. Design and analysis of longitudinal or panel studies. Letter grading (S/U grading optional for nonmajors).

412. Statistical Methods for Case-Control Studies. (4) Lecture, three hours. Requisite: course 200A. Statistical designs, sampling statistics, and analytic models of case-control studies. Special topics such as exploratory analyses, multiplicity of analyses, cross-validation, small sample performances of variance estimators, measurement error in the covariates, and incomplete data. S/U or letter grading.

419. Special Topics: Applied Statistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 100C. Special topics in applied statistics not covered in other courses in professional series. S/U or letter grading.

420. Database Management Systems. (4) Lecture, three hours; laboratory, two hours. Requisite: course 403. Database and database models applied to medical and public health studies; design of databases for efficient data retrieval and statistical analysis using package database management and statistical package programs. S/U or 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.

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 eight 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 four units may be applied toward M.P.H. and M.S. minimum total course requirement. May be repeated for credit. 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.

599. Doctoral Dissertation Research. (2 to 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

BUSINESS AND ADMINISTRATION

College of Letters and Science

UCLA
A316 Murphy Hall
Box 951430
Los Angeles, CA 90095-1430
(310) 825-3382

Faculty Advisory Committee

Joel D. Aberback, Ph.D. (*Political Science*)
Michael R. Darby, Ph.D. (*Management*)
Harold Demsetz, Ph.D. (*Economics*), *Emeritus*
Benjamin Klein, Ph.D. (*Economics*), *Chair*
Mary A. Yeager (*History*)
Lynne Goodman Zucker, Ph.D. (*Sociology*)

Scope and Objectives

The Business and Administration specialization is not a major, but a sequence of supplemental courses designed to prepare students for the complexities of a career in business and administration. Students complete one of the many majors in the College of Letters and Science or the School of the Arts and Architecture, as well as a sequence of courses.

For example, students interested in international business might major in a foreign language to become familiar with the literature and culture of other countries, and then add this program to gain basic understanding of economics, accounting, and statistics. Other students interested in working for a governmental agency or nonprofit corporation might add this program to a social sciences major. Students with an interest in a liberal arts area, who are not planning to go to graduate school, may want to complete this program to prepare for a job in business while pursuing a major of their choice. (Note: This program may **not** be taken with any economics major.)

Completion of this program in addition to a Letters and Science or Arts and Architecture major gives students the basic skills and knowledge most employers seek. Courses used to satisfy either the major or general education requirements may also be applied toward the requirements of this program.

Undergraduate Study

Business and Administration Specialization

Note: Admission to the Business and Administration specialization is suspended effective December 30, 1999. Students applying from July 1, 1999 through December 30, 1999 must have completed Economics 1, 2, and Management 1A-1B with grades of C– or better by December 30, 1999.

A minimum grade of C– is necessary to apply courses to this program, with an overall C average in the specialization. All courses must be taken for a letter grade; the P/NP option is not acceptable. Students may satisfy one of the field studies course requirements by completing an independent studies course (199), taken in an appropriate department with prior consent of the program faculty adviser. Students also are required to seek guidance from a field studies coordinator in choosing and researching their topic.

To enter the specialization, students must file a petition with the College Counseling Service in the College of Letters and Science or the Student Services Office in the School of the Arts and Architecture. Students who do not complete the program prior to graduation must petition out of the program to be eligible to graduate. (Such petitions are automatically granted; there is no penalty for not completing the program.) All degree requirements, including the specific requirements for this specialization, must be fulfilled within 228 units. A statement of completion is noted on the transcript and diploma when students have successfully completed the requirements for this specialization and for graduation.

For further information and help in assessing the appropriateness of this program and how it relates to career/education goals, contact the College Counseling Service in the College of Letters and Science.

Core Courses

Required: Economics 1 and 2; Management 1A-1B; one statistics course; one mathematics course (except Mathematics 1, 38A, 38B, 104); two courses from English 4, English Composition 100, 110W, 129A through 129D, 131A through 131D, 132A through 132D, 136A, 136B, 136C (136A and 136B are In Progress courses; credit is given only on completion of both courses).

Analytical Skills

Required: Three courses from one of the following areas: (1) *quantitative methods and for-*

mal reasoning: Anthropology 180, 186, Computer Science 141, Economics 147A, 147B, Geography 171, Mathematics 61, 113, 164, 167, M170A, 170B, Philosophy 9, 31, 32, Political Science 102, Program in Computing 10A, 10B, 10C, Psychology 142H, 144, 150, 151, Sociology 104, 112, 113, Statistics M100A, 100B, 110A, 110B; (2) *administration:* Political Science M105, 142C, 143A, 143B, 145D, 146B, 146C, 146D, 167B.

Field Studies

Required: Any three courses listed below, preferably from within **one** of the 10 fields (courses marked with an asterisk may **not** be applied toward this area if taken as part of the core):

(1) *Communications:* Communication Studies 100, 101, Sociology CM124A, CM124B, 135

(2) *Urban and Regional Development Studies:* Geography 148, M149, 150, 155, 157

(3) *Applied Psychology:* Linguistics 1 or 20, 10, Psychology 110, 111, 120, 121, 136A, 137A, 187A

(4) *Economy and Society:* Anthropology 150, 167, History 149A, 149B, Political Science M141D, 142B, 143A, 143B, Psychology 175, Sociology 158, 168, 173

(5) *Economic Systems:* Economics 110, 180, 190, Political Science 124, 129, 130, Sociology 173

(6) *Professional Writing:* English Composition *100, *131A through *131D, *136A, *136B

(7) *Accounting:* Management 120A, 120B, 122, 123, 124, 127A, 128

(8) *Artificial Intelligence:* Economics 142, 148, Mathematics 142, 149, 172A, 172B

(9) *Operations Research:* Mathematics 115A, 115B, 151A, 151B

(10) *Labor Studies:* History 155A, 155B, Political Science 142C, Psychology M137E, Sociology 171

CÉSAR E. CHÁVEZ CENTER FOR CHICANA AND CHICANO STUDIES

*Center for Interdisciplinary Instruction
College of Letters and Science*

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Reynaldo F. Macías, Ph.D., *Chair*

Core Faculty

Professors

Judith F. Baca, M.A.
Reynaldo F. Macías, Ph.D.

Assistant Professors

Eric Avila, Ph.D.
 Alicia Gaspar de Alba, Ph.D.
 María Cristina Pons, Ph.D.
 Otto Santa Ana, Ph.D.
 Abel Valenzuela Jr., Ph.D.

* * *

Affiliated Faculty**Professors**

Rosina M. Becerra, Ph.D. (*Social Welfare*)
 Juan Gómez-Quiñones, Ph.D. (*History*)
 David Hayes-Bautista, Ph.D. (*Medicine*)
 José B. Monleón, Ph.D. (*Spanish and Portuguese*)
 Fernando M. Torres-Gil, Ph.D. (*Social Welfare*)
 José Luis Valenzuela, B.A. (*Theater*)
 James Diego Vigil, Ph.D. (*Anthropology*)

Associate Professors

Héctor Calderón, Ph.D. (*Spanish and Portuguese*)
 Leobardo Estrada, Ph.D. (*Urban Planning*)
 Guillermo Hernández, Ph.D. (*Spanish and Portuguese*)
 Steven J. Loza, Ph.D. (*Ethnomusicology*)
 Chon A. Noriega, Ph.D. (*Film and Television*)
 Vilma Ortiz, Ph.D. (*Sociology*)
 Raymond A. Paredes Ph.D. (*English*)
 Sonia Saldivar-Hull, Ph.D. (*English*)
 Daniel G. Solórzano, Jr. Ph.D. (*Education*)
 Edward E. Telles, Ph.D. (*Sociology*)
 Edit Villarreal, M.F.A. (*Theater*)

Assistant Professors

Raul A. Hinojosa-Ojeda, Ph.D. (*Urban Planning*)

Lecturers

Rafael Alarcón, Ph.D.
 Max Benavidez, B.A.
 Adolfo Bermeo, Ph.D.
 Amalia Cabezas, Ph.D.
 Fernando Gapasín, Ph.D.

Scope and Objectives

The strength of the undergraduate major in Chicana and Chicano Studies is the cross-disciplinary approach to teaching and the critical skills approach to learning. Interdisciplinarity is the mainstay of the Chávez Center's academic objectives, achieved through the strengths and expertise of a core faculty that represents the fields of art, cultural studies, history, Latin American literature, sociolinguistics, and urban planning, and an associated faculty from a variety of disciplines. The center's location in Los Angeles, home to the largest community of Mexican origin in the nation as well as to several other Latino groups, places it in a unique position to draw from this large and diverse population — social experiences, historical realities, cultural practices, linguistic attributes, and literary and artistic productions.

The interdisciplinary program is an effective environment for teaching fundamental academic skills such as critical thinking and writing, as well as for exposing students to the wide range of theories, methodologies, technologies, and pedagogies that intersect the discipline. The major prepares students for graduate education in professional and academic fields and for a variety of positions that involve community and social service in the U.S. and abroad. To that end, the bilingual curriculum is learner-centered, writing-intensive, and academically rigorous.

The Chávez Center is committed to the practice of different forms of scholarship and pedagogy and to the promotion of critical thinking about such issues as gender, sexuality, social action, language, race, ethnicity, class, assimilation/acculturation paradigms, and indigenous traditions. The literary and visual arts often function as vehicles for social change and creative empowerment, and so they constitute one major focus of the center's curriculum. The center, in its teaching, research, and service, aims to strike a balance among the social sciences, humanities, and the arts.

Undergraduate Study**Chicana and Chicano Studies B.A.**

The B.A. program in Chicana and Chicano Studies is designed to provide systematic instruction for students who wish concentrated study of the Chicana/Chicano experience. Viewed as developmental, the program subjects the Chicana/Chicano reality to critical investigation, including social, economic, educational, historical, and political analysis. The major is recommended for students preparing for graduate study as well as for public service careers.

Preparation for the Major

Required: Chicana and Chicano Studies 10A, 10B, Spanish 5 or equivalent.

The Major

Required: A total of 15 upper division courses, including Chicana and Chicano Studies 101, nine courses from the approved list of Chicana and Chicano Studies courses (available in the program office each term), one term of field studies, and three related study courses and one advanced seminar from the approved list of courses or by petition to the program director or undergraduate counselor. Related study includes courses with some Chicana/Chicano content, such as those on Mexico, Latin America, and the experiences of people of color in the U.S.

Recommended: English Composition 110W; Information Studies 111C; the introductory course in two of the following: anthropology, economics, history, political science, sociology; one or more courses in Chicana/Chicano history, literature, feminism, social science.

Optional Multidisciplinary Senior Thesis

Chicana and Chicano Studies majors have the option during their senior year to enroll in two 199 courses in their major concentration area, with the intention of producing an undergraduate thesis related to the major concentration. Enrollment in the two 199 courses is with the advice and consent of a faculty member. The first term includes thesis conceptualization and formulation, along with preliminary data collection for the thesis. The second term entails completion of the data collection, analysis of the data, and writing of the thesis.

Course Limitations

No more than two 199 courses may be applied toward the major concentration; 199 courses applied toward the multidisciplinary senior thesis option may not also be applied toward the major concentration area. Registration in 199 courses must be approved in writing by the program director. No more than two CED courses may be applied toward the major concentration.

Chicana and Chicano Studies Specialization

The Chicana and Chicano Studies specialization complements study in a traditional field. Students participating in this specialization are required to complete both a departmental major and the Chicana and Chicano Studies specialization. Students must take Chicana and Chicano Studies 10A, 10B, 101, and four courses from the approved list of Chicana and Chicano Studies courses (available in the program office each term).

Chicana and Chicano Studies**Lower Division Courses**

10A. Introduction to Chicano Life and Culture. (4) Lecture, three hours; discussion, one hour. Enrollment priority to Chicana and Chicano Studies majors. Introduction to central concepts and historical experiences which define Chicano culture, from exploring indigenous roots to examining current trends. Emphasis on diversity of the Chicano experience, gender as a central cultural variable, and particular socioeconomic conditions which have shaped cultural response.

10B. Chicanos in American Society. (4) Lecture, three hours; discussion, one hour. Enrollment priority to Chicana and Chicano Studies majors. Examination of conditions of Chicanos in the U.S., with particular attention to socioeconomic aspects of their experience. Additional emphasis on examination of role of women in both a family context and the workplace.

Upper Division Courses

101. Theoretical Concepts in Chicana and Chicano Studies. (4) Lecture, three hours. Enrollment priority to Chicana and Chicano Studies majors and students in the specialization. Examination of following theoretical concepts and practical concerns: self-definition, relationship between educational institutions and the Chicana/Chicano community, nature of critical Chicana/Chicano specific research, basic issues in Chicana/Chicano culture, and current problems facing the Chicano/Latino community.

M102. The Mexican American and the Schools. (4) (Same as Education M102.) Review of research and teaching strategies. Analysis of school policies and practices and their effect on development of Mexican American and Chicano youth and communities.

M103C. Origins and Evolution of Chicano Theater. (4) (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).

- M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (4)** (Same as Theater M103D and World Arts and Cultures M103D.) Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions which led to emergence of Chicano theater.
- M103H. Contemporary Chicano Theater: Chicano Theater since 1980. (4)** (Same as Theater M103H and World Arts and Cultures M103H.) Requisite: course M103D. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art.
- M105A. Early Chicana/Chicano Literature. (4)** (Formerly numbered M105.) (Same as English M105A.) Preparation: satisfaction of Subject A requirement. Survey of Chicana/Chicano literature from the 16th century through Zoot Suit Riots (1943), including both oral and written forms of literary expression (corridos, folktales, essays, memoirs, novels, and poetry) by such authors as Cabeza de Vaca, Juan Seguin, Americo Paredes, and Maria Ruiz Amparo Burton. P/NP or letter grading.
- M105B. Recent Chicana/Chicano Literature. (4)** (Formerly numbered M105.) (Same as English M105B.) Preparation: satisfaction of Subject A requirement. Survey of Chicana/Chicano literature since 1943, beginning with reactions to Zoot Suit Riots and continuing through Chicana/Chicano Movimiento to contemporary literature. Drama, novels, memoirs, essays, and poetry by such authors as Luis Valdez, Cherrie Moraga, Sandra Cisneros, Rodolfo Anaya, Rolando Hinojosa, Oscar Zeta Acosta, and Ana Castillo. P/NP or letter grading.
- M108A. Music of Latin America: Mexico, Central America, and the Caribbean Isles. (4)** (Same as Ethnomusicology M108A.) Lecture, four hours; discussion, one hour. Survey of traditional and contemporary musical culture.
- 109. Chicana/Chicano Folklore. (4)** Lecture, four hours. Examination of roots of Chicana/Chicano folklore in Mexican oral tradition in the mid-19th century and development of Chicana/Chicano folklore to the present day. P/NP or letter grading.
- M110. Chicana Feminism. (4)** (Same as Women's Studies M132A.) Lecture, three hours. Requisite: Women's 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 the Chicana/Chicano community and the dominant society. Attention to Anglo-European and Third World women.
- M114. Chicanos in Film/Video. (6)** (Same as Film and Television M117.) Lectures/screenings, eight hours; discussion, one hour. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres — silent "greaser" films, social problem films, the Western, and the gang films — which 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*, *The Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques the Hollywood image of Chicanos.
- M115. Musical Aesthetics in Los Angeles. (4)** (Same as Ethnomusicology M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on a cross-cultural basis of diverse musical contexts within the vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of the Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and the commercial music industry.
- M116. Chicano/Latino Music in the U.S. (4)** (Same as Ethnomusicology M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples that have inhabited present geographical boundaries of the U.S.
- 120. Immigration and the Chicano Community. (4)** Lecture, three hours. Discussion on relationship between international immigration and development of the Chicana/Chicano community. Examination of U.S. immigration policy and relationship between Mexican-origin population and other Latin American immigrants.
- 121. Issues in Latina/Latino Poverty. (4)** Lecture, three hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in the U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on the underclass.
- 122. Planning Issues in Latina/Latino Communities. (4)** Lecture, three hours. Exploration of socio-economic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity.
- 123. Applied Research Methods in Latino Communities. (4)** 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.
- 125. U.S./Mexico Relations. (4)** Lecture, three hours. Examination of complex dynamics in relationship between Mexico and the U.S., using a political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries.
- 131. Barrio Popular Culture. (4)** Lecture, three hours. Construction of a model by which to organize study of Chicano/Chicana popular culture by focusing on the barrio as a metaphor for community. Examination of beliefs, myths, and values of Chicano/Chicana culture and representations in icons, heroes, legends, stereotypes, and popular art forms through literature, film, video, music, mass media, and oral history.
- 132. Border Consciousness. (4)** Lecture, three hours. Investigation through history, popular culture, and mass media of bilingual and bicultural identities produced by geographical and cultural space between Mexico and the U.S. Special attention to border consciousness as site of conflict and resistance.
- M133. Chicana Lesbian Literature. (4)** (Formerly numbered 133.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M133 and Women's Studies M133.) Lecture, three 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.
- 134. Exhibiting Cultures. (4)** Lecture, three hours. Analysis, through a cultural studies perspective, of exhibitions of Chicana/Chicano and Latina/Latino art that have occupied space in mainstream museums across the U.S. since the mid-1980s. Examination of how these shows both serve and subvert a multicultural agenda in the art world and how political identities are packaged and produced in process of exhibition-making. Field trips to local museums.
- M145A-M145B. Introduction to Chicano Literature. (4-4)** (Same as Spanish M145A-M145B.) Lecture, three hours. Requisite: Spanish 25 or 25A. Introduction to texts representative of the Chicano literary heritage. Sampling of genres, as well as historical and geographical settings and points of view characteristic of work written by Chicanos during the 20th century. Most required reading is in Spanish. Bilingual and English works are included and discussed. Reading and analysis of a number of important scholarly and critical statements pertaining to characteristics and development of the Chicano literary corpus. **M145A.** Literature to 1960; **M145B.** Literature after 1960.
- M146. Chicano Narrative. (4)** (Same as Spanish M146.) Lecture, three hours. Introduction to major narrative genres in Chicana/Chicano literary tradition — Corrido, Semblanza, chronicle, autobiography, novel, romance, and satire. Emphasis on way in which narrative forms are formed by and address specific social/historical problems.
- M147A. Ethnic Politics: Chicano/Latino Politics. (4)** (Same as Political Science M144A.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Introduction to political economy of racial domination in the U.S., concentrating on study of Mexican origin communities. Emphasis on identifying and explaining the historically changing relationship between class, race, and power by studying the interaction between state policies and practices, class and racial stratification systems, and cultural codes and modes of ideological discourse in each historical period.
- M154. Contemporary Issues among Chicanas. (4)** (Same as Women's Studies M132B.) Requisite: Women's Studies 10. Overview of conditions facing Chicanas in the U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas.
- M155. Latinos in the U.S. (4)** (Same as Sociology M155.) Lecture, three hours; discussion, one hour. Requisite: Sociology 1. 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 the larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.
- M159A. History of the Chicano Peoples. (4)** (Same as History M159A.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of the Rio through the 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical forces affecting the 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of a paper.
- M159B. History of the Chicano Peoples. (4)** (Same as History M159B.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent in the U.S. through the 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical and policy issues affecting the community. Within a 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of a paper.
- 160. Introduction to Chicana/Chicano Speech in American Society. (4)** 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.

161. Chicano Sociolinguistics. (4) Lecture, three hours. Requisite: course 160. Exploration of various theories of sociolinguistics, social/cultural change, ethnicity, and power to develop a cohesive model of Chicano sociolinguistics. Topics include histories and typology of Chicano language varieties, language change and maintenance/loss, language attitude studies, and American social institutional (media, educational, legal) responses to Chicano presence.

162. Language Research in the Barrio. (4) Lecture/practicum, three hours. Requisite: course 160. Group-oriented practicum to gather, record, and analyze languages spoken in the Chicano community, using scientific methods. Development of research agenda and research instrument, gathering of actual speech and its analysis, and writing of final report under guidance of instructor. Student-selected research topics have included language use in the barrio, media portrayals of Latinos, and societal and educational attitudes toward language use of Latinos. Introduction to oral history, sociolinguistic interviewing, and social science methodology.

165. Language in Education. (4) Lecture, three hours. Examination of language issues pertinent to educational systems, including language inequity, literacy, testing, and socialization, as well as institutional ideologies.

168. Representations of Latinos in Print Media. (4) Lecture/research, three hours. Examination of systemic (mis)representations of Latinos by a 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.

M172V. Culture Change and the Mexican People. (4) (Same as Anthropology M172V.) Lecture, three hours. Requisite: course 10A or 10B or Anthropology 9. 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 the 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.

180. City and Community: History of Chicana/Chicano Los Angeles, 1848 to 1945. (4) Lecture, three hours. Examination of history of Los Angeles from 1848 to 1945, with emphasis on formation of disparate and adverse communities within larger urban region of Southern California.

181. City and Community: History of Chicana/Chicano Los Angeles, 20th Century. (4) Lecture, three hours. History of Mexican American people in 20th-century Los Angeles. Readings and lectures emphasize formation of a regional identity among Mexican Americans in Los Angeles and their significance to emergence of a multicultural metropolis.

182. Understanding Whiteness in American History and Culture. (4) Seminar, three hours. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of a "white" identity and explore its significance to historical construction of race class in American history.

M186A. Beyond the Mexican Mural: Beginning Muralism and Community Development. (4) (Formerly numbered M166.) (Same as Art M186A and World Arts and Cultures M166A.) Studio/lecture, six hours. Corequisite: course M186AL. Investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a community. Students research, design, and work with community participants. P/NP or letter grading.

M186AL-M186BL-M186CL. Beyond the Mexican Mural: Muralism and Community Laboratory. (2-2-2) (Same as Art M186AL-M186BL-M186CL and World Arts and Cultures M166AL-M166BL-M166CL.) Laboratory, two hours. Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is an art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in a 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 a community setting. P/NP or letter grading. **M186AL.** Beginning; **M186BL.** Intermediate; **M186CL.** Advanced.

M186B. Beyond the Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Art M186B and World Arts and Cultures M166B.) Studio/lecture, six hours. Requisites: courses M186A/M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

M186C. Beyond the Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Art M186C and World Arts and Cultures M166C.) Studio/lecture, six hours. Requisites: courses M186B/M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

M188. Whose Monument Where: Course on Public Art. (4) (Formerly numbered M167.) (Same as Art M188 and World Arts and Cultures M167.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in the U.S. as a basis for cultural insight and critique of American values from perspective of an artist. Use of urban Los Angeles as textbook in urban space issues such as who is the "public," what is "public space" at the end of the 20th century, what defines a neighborhood, and do different ethnic populations use public space differently. P/NP or letter grading.

197A-197Z. Special Topics in Chicana and Chicano Studies. (4) Lecture, three hours. Some sections may require prior coursework. Lecture or seminar format on selected topics in Chicana and Chicano studies. May be repeated for credit.

M197B. Topics in Chicana/Chicano Literature. (Same as English M197B.) Preparation: satisfaction of Subject A requirement. Variable specialized studies course in Chicana/Chicano 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. P/NP or letter grading.

199. Independent Studies. (2 to 4) Requisites: courses 10A, 10B. Limited to juniors/seniors. Intensive directed research program. May be repeated for a maximum of eight units.

Related Courses

Related study includes courses with some Chicana/Chicano content, such as those on Mexico, Latin America, and the experiences of people of color in the U.S.

Anthropology

- 113Q. Prehistory and Ethnography of California
- 113R. Southwestern Archaeology
- 114P. Ancient Civilizations of Western Middle America (Nahautl Sphere)
- 114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)
- M154P. Gender Systems: North American
- M154Q. Gender Systems: Global
- 172R. Cultures of the Pueblo Southwest

Art History

- C117A. Pre-Columbian Art of Mexico
- C117B. Pre-Columbian Art of the Maya

English

- M102A. Asian American Literature to 1980
- M104A. Early Afro-American Literature
- 106. Native American Literary Studies

Ethnomusicology

- 106A-106B-106C. Music of the American Indians
- 108B. Music of Latin America: Latin South America
- M110A-M110B. African American Musical Heritage

Film and Television

- 112. Film and Social Change

Folklore and Mythology

- 130. North American Indian Folklore and Mythology Studies
- M149. Folk Literature of the Hispanic World

Geography

- 144. Ethnicity in the American City
- 156. Metropolitan Los Angeles
- 181. Mexico, Central America, Caribbean

History

- 157A-157B. North American Indian History
- M158B. Introduction to Afro-American History
- 161. Asians in American History
- 162. American West
- 163. History of California
- 164. History of Los Angeles
- 165A. Early Latin America
- 165C. Indians of Colonial Mexico
- 166. Latin America in the 19th Century
- 168. History of Latin American International Relations
- 169. Latin American Elitology
- 170A. Latin American Cultural History
- 171. Mexican Revolution since 1910

Political Science

- 130. Politics of Latin American Economic Development
- 131. Latin American International Relations
- M144B. Ethnic Politics: African American Politics

Sociology

- 107. Urban Poverty and Public Policy in the U.S. (Field Component)
- 144. Urban Poverty and Public Policy in the U.S.
- 156. Ethnic and Status Groups
- 160. Intergroup Conflict and Prejudice
- M161. Comparative American Indian Societies
- 186. Latin American Societies
- M196A-19M6B. Contemporary Issues in Urban Poverty Research

Spanish (Spanish and Portuguese)

- 107. The Spanish of Southern California
- 144. Mexican Literature
- M149. Folk Literature of the Hispanic World

World Arts and Cultures

- 150. Viewing Native American Culture
- M152. Asian American Aesthetics

CHEMICAL ENGINEERING

*School of Engineering and Applied
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Professor of Chemical Engineering*)
Robert F. Hicks, Ph.D.
James C. Liao, Ph.D.
Vasilios Manousiouthakis, Ph.D.
Ken Nobe, Ph.D.
Selim M. Senkan, Ph.D.
A.R. Frank Wazzan, Ph.D., *Dean*

Professors Emeriti

Eldon L. Knuth, Ph.D.
Lawrence B. Robinson, Ph.D.
William D. Van Vorst, Ph.D.

Associate Professor

Harold G. Monbouquette, Ph.D.

Assistant Professors

Jane Chang, Ph.D.
Panagiotis Christofides, Ph.D.
Michael W. Deem, Ph.D.

Scope and Objectives

The Department of Chemical Engineering conducts undergraduate and graduate programs of teaching and research in the areas of thermodynamics, statistical mechanics, mass transfer, catalysis, semiconductor materials processing, plasma processing, electrochemistry and corrosion, high-temperature chemical kinetics, reaction engineering, combustion science, environmental reaction engineering, cryogenics and low-temperature processes, biochemical engineering, process systems engineering, process integration, computer-aided process design and control, particle technology, pollution control, pollution prevention, and polymer engineering. Students are trained in the fundamental principles of these fields while learning a sensitivity to society's needs — a crucial combination in addressing the question of how industry can grow and innovate in an era of economic, environmental, and energy constraints.

The undergraduate curriculum leads to a B.S. in Chemical Engineering, is accredited by ABET and AIChE, and includes bioengineering, biomedical engineering, and environmental options. The department also offers graduate courses and research leading to M.S. and Ph.D. degrees. Both graduate and undergraduate programs closely relate teaching and research to important industrial problems.

Undergraduate Study

Chemical Engineering B.S.

The goal of the ABET-accredited chemical engineering curriculum is to provide a high quality, professionally oriented education in modern chemical engineering. The bioengineering, biomedical engineering, and environmental options exist as subsets of courses within the accredited curriculum. Balance is sought between science and engineering practice.

The Major

Course requirements are as follows (194 minimum units required):

(1) Three general engineering courses: Chemical Engineering M105A, Civil and Environmental Engineering 108, Electrical Engineering 100.

(2) Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30, 113A, 130A/130AL, 171.

(3) Two elective courses from Chemical Engineering 110, C111, 112, 113, C114, C115, C116, C118, 119, C125, C140, CM165, and three upper division chemistry elective courses (except Chemistry and Biochemistry 110A). An upper division life or physical sciences course may be substituted for one chemistry elective with the approval of the faculty adviser.

(4) Chemistry and Biochemistry 20A, 20B, 20L, 30L; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Bioengineering Option

Course requirements are as follows (200 minimum units required):

(1) Three general engineering courses: Chemical Engineering M105A, Civil and Environmental Engineering 108, Electrical Engineering 100.

(2) Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30, 130A/130AL, 153A, 156; Life Sciences 4 or Microbiology and Molecular Genetics 101.

(3) Two elective courses from Chemical Engineering C115, C125, CM165 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser); one upper division microbiology or molecular, cell, and developmental biology elective that requires one year of chemistry as a requisite.

(4) Chemistry and Biochemistry 20A, 20B, 20L, 30L; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Life Sciences 2, 3; Mathematics 31A, 31B,

32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Biomedical Engineering Option

Course requirements are as follows (198 minimum units required):

(1) One general engineering course: Chemical Engineering M105A.

(2) Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30, 130A/130AL, 153A, 156; Life Sciences 4 or Microbiology and Molecular Genetics 101.

(3) Two elective courses from Chemical Engineering C115, C125, CM165 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser); one upper division microbiology or molecular, cell, and developmental biology elective that requires one year of chemistry as a requisite and contains a laboratory component (laboratory component may be taken from a separate course).

(4) Chemistry and Biochemistry 20A, 20B, 20L, 30L; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Life Sciences 1, 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Environmental Option

Course requirements are as follows (199 minimum units required):

(1) Three general engineering courses: Chemical Engineering M105A, Civil and Environmental Engineering 108, Electrical Engineering 100.

(2) Chemical Engineering 100, 101A, 101B, 101C, 102, 103, 104A, 104B, 106, 107, 108A, 108B, 109; Chemistry and Biochemistry 30, 113A, 130A/130AL, 171.

(3) Two elective courses from Chemical Engineering 113, C118, 119, C140, CM165 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser) and three advanced chemistry electives in the environmental field from Atmospheric Sciences M203A, Chemistry and Biochemistry 103, 110B, Environmental Health Sciences 240, 241, 261, Organismic Biology, Ecology, and Evolution M127 (other advanced chemistry courses may be selected in consultation with the faculty adviser).

(4) Atmospheric Sciences 2A; Chemistry and Biochemistry 20A, 20B, 20L, 30L; Civil and Environmental Engineering 15 or Mechanical and Aerospace Engineering 20; Mathematics 31A,

31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Chemical Engineering offers the Master of Science (M.S.) degree in Chemical Engineering.

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE).

Applicants not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which would not be applicable toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any deficiencies.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.chemeng.ucla.edu>. In addition, the forms may be obtained by writing to the Chemical Engineering Department, UCLA, 5531 Boelter Hall, Box 951592, Los Angeles, CA 90095-1592, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Areas of Study

Consult the department.

Course Requirements

The requirements for a M.S. degree are a thesis, nine courses (36 units), and a 3.0 grade-point average in the graduate courses. Chemical Engineering 200, 210, and 220 are required for all master's degree candidates. Two courses must be taken from offerings in the Chemical Engineering Department, while two Chemical Engineering 598 courses involving work on the thesis may also be selected. The remaining two courses may be taken from

those offered by the department or any other field in life sciences, physical sciences, mathematics, or engineering. At least 24 units must be in letter-graded 200-level courses.

All master's degree candidates are required to enroll in the seminar, Chemical Engineering 299, during each quarter of residence.

A program of study which encompasses these requirements must be submitted to the departmental Student Affairs Office for approval before the end of the student's second quarter of residence.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Comprehensive Examination Plan

None.

Thesis Plan

Consult the graduate adviser.

Doctoral Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the program leading to the Ph.D. degree in Chemical Engineering are required to take the General Test of the Graduate Record Examination (GRE).

Applicants not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework that would not be applicable toward the degree. On arrival at UCLA, an adviser helps the student plan a program that can remedy any deficiencies.

Application forms, including a departmental supplement to the application, may be obtained online at <http://www.chemeng.ucla.edu>. In addition, the forms may be obtained by writing to the Chemical Engineering Department, 5531 Boelter Hall, Box 951592, Los Angeles, CA 90095-1592, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

All Ph.D. students are required to take six courses (24 units). Three of these are Chemical Engineering 200, 210, and 220. Two additional courses must be taken from those of-

fered by the Chemical Engineering Department. The third course can be selected from offerings in life sciences, physical sciences, mathematics, or engineering. All of these units must be in letter-graded 200-level courses. Students are encouraged to take more courses in their field of specialization. These minor field courses should be selected in consultation with their research adviser. A 3.33 grade-point average in graduate courses is required. A program of study to fulfill the course requirements must be submitted for approval to the departmental Student Affairs Office no later than one quarter after successful completion of the preliminary oral examination.

All Ph.D. students are required to enroll in the Chemical Engineering Department's graduate seminar during each quarter of residence.

For information on completing the Engineer degree, see Engineering Schoolwide Programs.

Written and Oral Qualifying Examinations

All Ph.D. students are required to take a preliminary oral examination that tests their understanding of chemical engineering fundamentals in the areas of thermodynamics, transport phenomena, chemical kinetics and reactor design. Students are provided problems in writing, and are then asked to solve them orally in front of a faculty committee. Students are required to take Chemical Engineering 200, 210, and 220 in preparation for the examination. Students whose first degree is in chemical engineering take the examination at the end of the second quarter in residence. Students whose first degree is not in chemical engineering (for example, chemistry) may petition to postpone the examination to the following year. Any student failing the Ph.D. preliminary examination may petition to reenter the Ph.D. program after successfully completing the master's thesis. If the petition is granted, then the student takes the preliminary examination concurrently with the master's thesis defense.

After successfully completing the required courses and the preliminary oral examination, students must pass the written and oral qualifying examinations. The examinations focus on the dissertation research and are conducted by a doctoral committee consisting of at least four faculty members nominated by the Department of Chemical Engineering, in accordance with University regulations.

The written qualifying examination consists of a dissertation research proposal that provides a clear description of the problem considered, a literature review of the current state of the art, and a detailed explanation of the approach to be followed to solve the problem. Students first present their ideas for the dissertation research at a precandidacy seminar administered by departmental faculty members of the doctoral committee. The seminar is held during the early part of the Winter Quarter of the second year of residency. Following the seminar,

students submit the dissertation research proposal to the doctoral committee. The written examination is due in the seventh week of the Winter Quarter.

The University Oral Qualifying Examination consists of an oral defense of the dissertation research proposal and is administered by the doctoral committee. The oral examination is held within two weeks of submitting the written examination.

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are "inside" members and must hold appointments at UCLA in the student's major department in the School of Engineering and Applied Science. The "outside" member must be a UCLA faculty member outside the student's major department.

Chemical Engineering

Lower Division Course

2. Technology and the 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 (CO₂ 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 life-cycle methods for evaluating environmental impact of processes and products. P/NP or letter grading.

Upper Division Courses

100. Introduction to Chemical Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 11C/11CL, Mathematics 32B (may be taken concurrently), Physics 8B. Introduction to analysis and design of industrial chemical processes. Material and energy balances. Letter grading.

101A. Momentum Transfer. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: course M105A, Mathematics 33A, 33B. Corequisite: course 109. Introduction to analysis of fluid flow in systems of interest to chemical engineering practice. Fundamentals of momentum transport, Newton law of viscosity, Navier/Stokes equations, interphase momentum transport and friction factors, flows in conduits and around submerged objects. Letter grading.

101B. Heat Transfer. (4) Lecture, four hours; discussion, one hour. Requisite: course 101A. Introduction to analysis of heat transfer in systems of interest to chemical engineering practice. Fundamentals of thermal energy transport, Fourier law of heat conduction, forced and free convection, radiation, interphase heat transfer, heat exchanger analysis. Letter grading.

101C. Mass Transfer. (4) Lecture, four hours; discussion, one hour. Requisites: courses 100, 101B, 102. 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.

102. Chemical Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 100, M105A. Thermodynamic properties of pure substances and solutions. Phase equilibrium. Chemical reaction equilibrium. Letter grading.

103. Separation Processes. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 100, 101B, 102. 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 Engineering Laboratory I. (6) Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. Requisites: courses 100, 101B, 102. Measurements of temperature, pressure, flow rate, viscosity, and fluid composition in chemical processes. Methods of data acquisition, equipment selection and fabrication, and laboratory safety. Development of written and oral communication skills. Letter grading.

104B. Chemical Engineering Laboratory II. (6) Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. 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.

M105A. Introduction to Engineering Thermodynamics. (4) (Same as Mechanical and Aerospace Engineering M105A.) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: Mathematics 32B, Physics 1B. 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.

106. Chemical Reaction Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 100, 101C, 102. 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; outside study, eight hours. Requisites: courses 101C, 103, 106. 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; outside study, eight hours. Requisites: courses 103, 104B, 106. 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. Chemical Process Computer-Aided Design and Analysis. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 103, 106, 108A, Computer Science 10F. Introduction to application of some mathematical and computing methods to chemical engineering design problems; use of simulation programs as an automated method of performing steady state material and energy balance calculations. Letter grading.

109. Mathematical Methods in Chemical Engineering. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Preparation: working knowledge of FORTRAN programming. Discussion of theory and applications of mathematics to chemical engineering problems, with focus on numerical and analytical techniques encompassing linear and nonlinear algebraic equations, finite difference methods, and ordinary and partial differential equations. Letter grading.

110. Intermediate Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102. 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; nonequilibrium thermodynamics and coupled transport processes. Letter grading.

C111. Cryogenics and Low-Temperature Processes. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. 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.

112. Polymer Processes. (4) Lecture, four hours; outside study, eight hours. Requisites: course 101A, Chemistry 30. Formation of polymers, criteria for selecting a reaction scheme, polymerization techniques. Polymer characterization. Mechanical properties. Rheology of macromolecules, modeling and experimental methods to characterize non-Newtonian fluids. Polymer process engineering. Letter grading.

113. Air Pollution Engineering. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Requisites: courses 101C, 102. 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.

C114. Electrochemical Processes and Corrosion. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes and metallic corrosion. Primary emphasis on fundamental approach to analysis of electrochemical and corrosion processes. Specific topics include corrosion of metals and semiconductors, electrochemical metal and semiconductor surface finishing, passivity, electrodeposition, electroless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C214. Letter grading.

C115. Biochemical Reaction Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 106, or Chemistry 156. 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 C215. Letter grading.

C116. Surface and Interface Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: Chemistry 113A. Introduction to engineering materials, particularly thin films used to make microelectronic devices. Topics include classification of crystals and surfaces, structures adopted by crystalline materials, analysis of structure and composition of crystals and their surfaces, and processing of thin films for microelectronic devices. May be concurrently scheduled with course C216. Letter grading.

C118. Multimedia Environmental Assessment. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Requisites: courses 101C, 102. 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.

119. Pollution Prevention for Chemical Processes. (4) Lecture, four hours; recitation, one hour; preparation/outside study, seven hours. Requisite: course 108A. Waste audits and emission inventories, process design and process flowsheeting for waste minimization, economic analysis of environmental projects, life-cycle analyses. Letter grading.

C125. Bioseparations and Bioprocess Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 103, or Chemistry 156. 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 C225. Letter grading.

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemistry CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

C140. Fundamentals of Aerosol Technology. (4) Lecture, four hours; outside study, eight hours. 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.

CM165. Bioprocess Technology. (4) (Same as Microbiology CM165.) Lecture, two hours; laboratory, eight hours; outside study, two hours. Requisites: course C115, Chemistry 156, Microbiology 101. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM265. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

Graduate Courses

200. Advanced Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102. 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. S/U or 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. S/U or letter grading.

C211. Cryogenics and Low-Temperature Processes. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. 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.

C214. Electrochemical Processes and Corrosion. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102 (or Materials Science 130), M105A. Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes and metallic corrosion. Primary emphasis on fundamental approach to analysis of electrochemical and corrosion processes. Specific topics include corrosion of metals and semiconductors, electrochemical metal and semiconductor surface finishing, passivity, electrodeposition, electroless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C114. S/U or letter grading.

C215. Biochemical Reaction Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 106, or Chemistry 156. 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; outside study, eight hours. Requisite: Chemistry 113A. Introduction to engineering materials, particularly thin films used to make microelectronic devices. Topics include classification of crystals and surfaces, structures adopted by crystalline materials, analysis of structure and composition of crystals and their surfaces, and processing of thin films for microelectronic devices. 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. S/U or letter grading.

C218. Multimedia Environmental Assessment. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Requisites: courses 101C, 102. 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.

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. 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; life-cycle inventories; life-cycle impact assessment; design for energy efficiency; design for waste minimization, computer-aided design tools, materials selection methods. Letter grading.

C225. Bioseparations and Bioprocess Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101C and 103, or Chemistry 156. 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.

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. S/U or 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 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. S/U or letter grading.

232. Combustion Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 106, 200, or Mechanical and Aerospace Engineering 132A. 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. S/U or letter grading.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemistry CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. 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.

C240. Fundamentals of Aerosol Technology. (4) Lecture, four hours; outside study, eight hours. 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 C140. 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. S/U or letter grading.

260. Non-Newtonian Fluid Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course M105A. 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. S/U or letter grading.

CM265. Bioprocess Technology. (4) (Same as Microbiology CM265.) Lecture, two hours; laboratory, eight hours; outside study, two hours. Requisites: course C115, Chemistry 156, Microbiology 101. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM165. Letter grading.

M280A. Linear Dynamic Systems. (4) (Same as Electrical Engineering M240A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical 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.

M280C. Optimal Control. (4) (Same as Electrical Engineering M240C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical 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.

M282A. Nonlinear Dynamic Systems. (4) (Same as Electrical Engineering M242A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M280A or Electrical 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. Liapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

290A-290Z. Special Topics. (2 to 4 each) 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. S/U or letter grading.

M290U. Toxics Reduction: Science, Engineering, and Policy Issues. (4) (Same as Environmental Health Sciences M249 and Urban Planning M262A.) Lecture, three hours. Requisites: Urban Planning 260A, 260B. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. S/U or letter grading.

298A-298Z. Research Seminars. (2 to 4 each) 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 the discipline. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. 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.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Seminar, to be arranged. Limited to graduate chemical engineering students. S/U grading.

597C. Preparation for Ph.D. 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 M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate chemical engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. 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

College of Letters and Science

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Emil Reisler, Ph.D., *Chair*

Professors

Mario E. Baur, Ph.D. (*Physical Chemistry*)
Emily A. Carter, Ph.D. (*Theoretical Chemistry*)
Orville L. Chapman, Ph.D. (*Organic Chemistry*)
Steven G. Clarke, Ph.D. (*Biochemistry*)
Richard E. Dickerson, Ph.D. (*Biochemistry, Molecular Biology*)
David S. Eisenberg, D.Phil. (*Physical Chemistry, Molecular Biology*)
Julie F. Feigon, Ph.D. (*Biochemistry*)
Peter M. Felker, Ph.D. (*Chemical Physics*)
Christopher S. Foote, Ph.D. (*Organic Chemistry and Biochemistry*)
William M. Gelbart, Ph.D. (*Physical Chemistry*)
Jay D. Gralla, Ph.D. (*Biochemistry*)
M. Frederick Hawthorne, Ph.D. (*Inorganic and Organometallic Chemistry*)
James R. Heath, Ph.D. (*Physical Chemistry*)
Kendall N. Houk, Ph.D. (*Organic and Theoretical Chemistry*)
Wayne L. Hubbell, Ph.D. (*Biochemistry, Jules Stein Professor of Ophthalmology*)
Michael E. Jung, Ph.D. (*Organic Chemistry and Biochemistry*)

Herbert D. Kesz, Ph.D. (*Inorganic and Organometallic Chemistry*)
Richard B. Kaner, Ph.D. (*Inorganic and Solid-State Chemistry*)
Daniel Kivelson, Ph.D. (*Physical Chemistry*)
Charles M. Knobler, Ph.D. (*Physical Chemistry*)
Raphael D. Levine, Ph.D. (*Physical Chemistry*)
Harold G. Martinson, Ph.D. (*Biochemistry, Molecular Biology*)
Sabeha Merchant, Ph.D. (*Biochemistry, Molecular Biology*)
Malcolm F. Nicol, Ph.D. (*Physical Chemistry*)
C. Kumar N. Patel, Ph.D.
Emil Reisler, Ph.D. (*Biochemistry, Molecular Biology*)
David S. Sigman, Ph.D. (*Organic and Biological Chemistry*)
J. Fraser Stoddart, Ph.D. (*Organic Chemistry; Saul Winstein Professor of Organic Chemistry*)
Joan S. Valentine, Ph.D. (*Inorganic Chemistry and Biochemistry*)
John T. Wasson, Ph.D. (*Geochemistry, Chemistry*)
Richard L. Weiss, Ph.D. (*Biochemistry*)
Fred Wudl, Ph.D. (*Organic and Polymer/Materials Chemistry; Courtauld Professor of Chemistry*)
Todd O. Yeates, Ph.D. (*Biochemistry*)
Jeffrey I. Zink, Ph.D. (*Inorganic and Physical Chemistry*)

Professors Emeriti

Frank A.L. Anet, Ph.D.
Daniel E. Atkinson, Ph.D.
Kyle D. Bayes, Ph.D.
Paul D. Boyer, Ph.D.
Donald J. Cram, Ph.D. (*Saul Winstein Professor Emeritus of Organic Chemistry, University Professor Emeritus*)
Mostafa A. El-Sayed, Ph.D.
Paul S. Farrington, Ph.D.
Clifford S. Garner, Ph.D., D.Sc.
E. Russell Hardwick, Ph.D.
William G. McMillan, Jr., Ph.D.
Howard Reiss, Ph.D.
Verne N. Schumaker, Ph.D.
Robert L. Scott, Ph.D.
Roberts A. Smith, Ph.D.
Charles E. Strouse, Ph.D.
Charles A. West, Ph.D.

Associate Professors

Delroy A. Baugh, Ph.D. (*Physical Chemistry*)
Albert J. Courey, Ph.D. (*Biochemistry*)
Miguel Garcia-Garibay, Ph.D. (*Organic Chemistry*)
Robin L. Garrell, Ph.D. (*Analytical, Organic, and Inorganic Chemistry*)
James W. Gober, Ph.D. (*Biochemistry*)
Craig A. Merlic, Ph.D. (*Organic and Organometallic Chemistry*)
Daniel Neuhauser, Ph.D. (*Physical Chemistry*)
Yves Rubin, Ph.D. (*Organic and Bioorganic Chemistry*)

Assistant Professors

Mahdi M. Abu-Omar, Ph.D. (*Inorganic Chemistry*)
James U. Bowie, Ph.D. (*Biochemistry*)
Guillaume F. Chanfreau, Ph.D. (*Biochemistry*)
Catherine F. Clarke, Ph.D. (*Biochemistry*)
Robert T. Clubb, Ph.D. (*Biochemistry*)
Carla M. Koehler, Ph.D. (*Biochemistry*)
Christopher J. Lee (*Biochemistry*)
Andrea J. Liu, Ph.D. (*Physical Chemistry*)
Suzanne E. Paulson, Ph.D. (*Atmospheric Chemistry*)
Benjamin J. Schwartz, Ph.D. (*Physical Chemistry*)
Sarah H. Tolbert, Ph.D. (*Physical Chemistry*)

Lecturers

Marjorie A. Bates, Ph.D. (*Biochemistry*)
Max Kopelevich, Ph.D. (*Chemistry*)
Betty A. Luceigh, Ph.D. (*Chemistry*)
John K.M. Mouser, Ph.D. (*Chemistry*)
Arlene A. Russell, Ph.D. (*Chemistry*)

Adjunct Professor

R. Stanley Williams, Ph.D. (*Physical Chemistry*)

Adjunct Associate Professor

Robert W. Armstrong, Ph.D. (*Organic and Bioorganic Chemistry*)

Scope and Objectives

Chemistry is concerned with the composition, structure, and properties of substances, the transformations of these substances into others by reactions, and the kinds of energy changes that accompany these reactions. The department is organized in four interrelated and overlapping subdisciplines that deal primarily with the chemistry of inorganic substances (inorganic chemistry), the chemistry of carbon compounds (organic chemistry), the chemistry of living systems (biochemistry), and the physical behavior of substances in relation to their structures and chemical properties (physical chemistry).

Undergraduate Study

Admission

Students entering UCLA directly from high school who declare a Chemistry or Biochemistry major at the time of application are automatically admitted to that major.

UCLA students who wish to enter one of the majors must have a minimum grade of C– in each of the preparation for the major courses completed **and** a combined grade-point average of at least 2.0 in those courses. Grades in any completed courses for the major must also average at least 2.0.

Transfer students with more than 105 quarter units are accepted into the departmental majors only if they have completed one year of general chemistry with laboratory, one year of calculus, and either one year of calculus-based physics or one year of organic chemistry with laboratory. *Biochemistry* majors also should have completed courses equivalent to Life Sciences 2 and 3; *Chemistry* majors should have completed the equivalent of Mathematics 32B.

Entering transfer students who have successfully completed a year course (including laboratory) in general college chemistry intended for science and engineering students should enter course 30. Transfer students should consult the department's Undergraduate Advising Office in 4009 Young Hall for assistance with the articulation of transfer coursework.

Chemistry Diagnostic Examination for First-Term General Chemistry

Students planning to enroll in Chemistry and Biochemistry 14A or 20A are required to pass the Chemistry Diagnostic Examination, which is administered at all first-year sessions of the summer Orientation Program and prior to the beginning of each term. For the dates and times of future examinations and a list of topics, refer to <http://www.chem.ucla.edu/dept/Ugrad/chemexam.html>. Scores are valid for two academic years only.

Students who do not pass the examination may enroll in Chemistry 17, offered only during Fall Quarter on a Passed/Not Passed basis. Chemistry 17 carries no graduation credit but does displace four units on the UCLA Study

List. Students who pass this course are not required to retake the Chemistry Diagnostic Examination.

Advanced Placement in Chemistry

Students who have taken the Advanced Placement (AP) Chemistry Test and obtained a score of 4 or 5 receive eight units of chemistry credit and may petition for chemistry and biochemistry equivalency, or may take course 20A at UCLA. Everyone planning to take Chemistry and Biochemistry 14A or 20A **must** take the Chemistry Diagnostic Examination. If students received a score of 3 on the AP Chemistry Test, they receive eight units of chemistry credit but no course equivalency.

Credit Limitations

Students may not take or repeat a chemistry or biochemistry course for credit if it is a requisite for a more advanced course for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Chemistry and Biochemistry 20A, they must do so before completing course 20B).

Undergraduate Majors

The department offers three majors: Chemistry (with concentrations in chemistry and physical chemistry), Biochemistry, and General Chemistry. The Chemistry and Biochemistry majors are designed to prepare students for graduate studies in each field, for entry into professional schools in the health sciences, and for careers in industries and businesses that depend on chemically and biochemically based technology. The General Chemistry major is intended for students who wish to acquire considerable chemical background in preparation for careers outside chemistry.

Courses used to fulfill any of the requirements for any of the departmental majors must be taken for a letter grade. Seminar courses, individual study courses, and research courses (e.g., 190, 199) may not be applied toward the requirements for the majors.

Requirements for the majors are outlined below. For additional information, contact the Undergraduate Advising Office in 4009 Young Hall.

Chemistry B.S.

The B.S. degree program is for students who intend to pursue a career in chemistry.

Chemistry Concentration

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30L; Mathematics 31A, 31B, 32A, 32B, 33A; Physics 1A, 1B, and 1C (or 2AH, 2BH, and 17), 4BL.

The Major

Required: Chemistry and Biochemistry 30, 110A, either 110B or 113B, 113A, 114 (or 114H), 130A/130AL, 130B/130BL, either 136 or 144, 153A, 153L, 171, 172, and two other upper division or graduate courses in the de-

partment, including at least one additional laboratory course from 136, 144, 154, 174, 184.

Physical Chemistry Concentration

The physical chemistry concentration is designed primarily for students who are interested in attending graduate school in physical chemistry/physics.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, and 1C (or 2AH, 2BH, and 17), 4BL. To be admitted, students must complete the preparation courses with a grade-point average of 3.0 or better and file a petition with the Undergraduate Advising Office.

The Major

Required: Chemistry and Biochemistry 30, 110A, 110B, 113A, 113B, 114 (or 114H), 130A/130AL, 153A, 171, 172; one additional upper division chemistry, electrical engineering, or physics laboratory course; and three additional elective courses selected from upper division or graduate courses in biophysical chemistry, electrical engineering, mathematics, physical chemistry, physical inorganic chemistry, physical organic chemistry, or physics and approved by the physical chemistry adviser. Refer to the Undergraduate Advising Office website at <http://www.chem.ucla.edu/dept/Ugrad/> for a list of approved electives.

By the junior year, students are strongly encouraged to join a research group within the physical chemistry division to obtain firsthand experience with state-of-the-art physical chemistry research.

Biochemistry B.S.

The B.S. degree program is for students preparing for careers in biochemistry or other fields requiring extensive preparation in both chemistry and biology.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30L; Life Sciences 2, 3, 4; Mathematics 31A, 31B, 32A (33A strongly recommended); Physics 1A, 1B, and 1C (or 2AH, 2BH, and 17) and 4BL, or 6A, 6B, and 6C.

The Major

Required: Chemistry and Biochemistry 30, 110A, 130A/130AL, 130B/130BL, 153A, 153B, 153C, 153L, 154, 156, 171; one additional upper division or graduate course in chemistry and biochemistry; four elective upper division or graduate courses (16 units) approved by the undergraduate adviser (Microbiology and Molecular Genetics 101 and 101L highly recommended). Refer to the Undergraduate Advising Office website at <http://www.chem.ucla.edu/dept/Ugrad/> for a list of approved electives.

General Chemistry B.S.

The B.S. degree program is for students who wish to acquire considerable chemical back-

ground in preparation for careers outside chemistry. The requirements are accordingly quite flexible. The major may be appropriate for some students who plan to enter professional schools, such as those of pharmacy, dentistry, or public health. This major cannot be taken as part of a double major. Students must declare the major before reaching 135 units.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30L; Mathematics 31A, 31B, 32A, 33A; Physics 1A, 1B, and 1C (or 2AH, 2BH, and 17), 4BL.

Students must complete the preparation courses with at least a 2.0 grade-point average.

The Major

Required: Chemistry and Biochemistry 30, 110A, 130A/130AL, 130B/130BL, 153A, 153L, 171; three additional upper division courses in the department (at least one must be a laboratory course); six additional upper division courses. A 2.0 grade-point average is required in all upper division courses in the department. Acceptance into the major is based on an original written proposal that is coherent in terms of student interests and objectives. The proposal should specify which courses students plan to apply toward the major and requires the approval of the faculty adviser.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Chemistry and Biochemistry offers Master of Science (M.S.) degrees in Chemistry and in Biochemistry and in Molecular Biology.

Admission

Applicants planning to work toward the Ph.D. degree should not seek an M.S. degree first but should apply directly to the Ph.D. program.

Application materials for the M.S. programs in Chemistry and in Biochemistry and Molecular Biology may be obtained by contacting the department directly.

Areas of Study

Biochemistry and molecular biology; inorganic, organic, and physical chemistry.

Course Requirements

Chemistry. At least nine quarter courses (36 units) are required, of which at least five (20 units) must be graduate courses and the re-

mainder upper division courses. Students must take a minimum of two courses in their major area and one course in an outside area. Choices may be made from the following:

Inorganic: Chemistry and Biochemistry 174, 207, 271A through 271Z, C275, C276A, 276B, 277, 279, C280, C281.

Organic: Chemistry and Biochemistry 207, 232, 236, 241A through 241Z, 242, C243A, C243B, 244A, 244B, 245, C281.

Physical: Chemistry and Biochemistry C215A, C215B, 215C, 215D, C223A, C223B, 223C, 225.

Substitutions may be made with consent of the area adviser. With the consent of the graduate adviser, courses of directed individual study, but not research courses, may replace any of the courses listed above.

Up to 24 units of Chemistry and Biochemistry 596 or 598 may be applied toward the total course requirement; up to 20 units may be applied toward the minimum graduate course requirement.

Biochemistry and Molecular Biology. Thirty-six units of coursework are required. At least 20 of the 36 units must be at the graduate level (courses numbered 200 and above), while the remaining units may be upper division undergraduate courses (courses numbered from 100 to 199). Required courses include Chemistry and Biochemistry CM253 (six units) and at least six additional units of graduate level lecture courses chosen from a list of approved graduate courses available from the graduate adviser. Up to 24 units of Chemistry and Biochemistry 596 or 598 may be applied toward the total course requirement; up to eight units may be applied toward the graduate course requirement. Up to six units of graduate-level seminar courses may be applied to the graduate course requirement.

Comprehensive Examination Plan

Chemistry. In exceptional cases, the comprehensive examination plan is used in lieu of a thesis. Under this plan, students may apply an additional six units of Chemistry and Biochemistry 597 and six units of Chemistry and Biochemistry 228, 248, or 278 toward the graduate course requirement and the total course requirement. The comprehensive examination plan requires the satisfactory completion of three cumulative examinations.

Biochemistry and Molecular Biology. In exceptional cases, a comprehensive examination is administered in lieu of a thesis. The written examination is administered and graded by a faculty committee selected by the graduate adviser and is graded pass or fail. For students who fail, recommendation for or against a second examination is made by the graduate adviser.

Thesis Plan

Chemistry. The thesis plan is the preferred method of attaining the M.S. in Chemistry.

Biochemistry and Molecular Biology. The thesis plan is the preferred method of attaining the M.S. in Biochemistry and Molecular Biology. By the sixth week of the first quarter in residence, a master's committee is appointed for each student consisting of the faculty research adviser and two additional faculty members chosen by the graduate adviser. The committee has the responsibility for approving or disapproving the master's thesis. By the end of the first quarter, the student is required to submit a brief written research proposal for approval by the master's committee. Students have five academic quarters after the submission of the proposal to complete the degree.

Doctoral Degrees

Admission

In addition to the University minimum requirements, an excellent undergraduate record is required of all applicants to the programs leading to the Ph. D. degrees in Chemistry and in Biochemistry and Molecular Biology. Graduate Record Examination (GRE) General and Subject Tests are recommended. The GRE and the Test of English as a Foreign Language (TOEFL) are required for international students.

Each student admitted to graduate standing in chemistry is given orientation examinations at the beginning of the first quarter. This is designed to help the student and the adviser plan a course program. The examinations include material covered in upper division courses in physical, organic, and inorganic chemistry. All courses suggested because of deficiencies in undergraduate preparation are normally to be completed by the end of the first year.

There are no orientation examinations in biochemistry and molecular biology; the student plans a course program in consultation with the biochemistry graduate adviser. Preference in admission is given to those students who have already identified a faculty research adviser under whose direction the thesis research is conducted.

Chemistry students are encouraged to become familiar with research activities of all faculty in their area of interest and to join a research group as soon as possible.

Biochemistry and molecular biology students rotate through three research groups during the Fall, Winter, and Spring Quarters, with a final selection made at the end of the Spring Quarter.

Application materials may be obtained by writing to the department. Students may also be admitted to the biochemistry and molecular biology program through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, Box 951570, UCLA, Los Angeles, CA 90095-1570, (310) 206-6051.

Major Fields or Subdisciplines

Biochemistry; inorganic, organic, and physical chemistry.

Course Requirements

Chemistry. Candidates in each area of specialization should normally complete as a minimum the coursework indicated below. Some of these requirements can be met on the basis of orientation examinations and courses taken prior to entry into the graduate program. If the projected research falls in an area which differs appreciably from that anticipated by the field requirements listed below, students may be permitted appropriate modifications.

Inorganic Chemistry: (1) Required background material: Chemistry and Biochemistry 172; (2) Chemistry and Biochemistry 174, C275, C276A, 276B; (3) two courses from Chemistry and Biochemistry 153C, 207, C213B, C215A, C215B, 215D, C223A, 232, 236, 241A through 241Z, 242, C243A, C243B, 244A, 244B, 245, 271A through 271Z, 279, C280, C281, or other graduate courses with the approval of the area adviser; (4) Chemistry and Biochemistry 278.

Organic Chemistry: (1) Required background material: Chemistry and Biochemistry 30, 130A, 130B, 136; (2) Chemistry and Biochemistry C243A, C243B, 244A, 244B; (3) four courses from Chemistry and Biochemistry 207, 232, 236, 241A through 241Z, 242, 245, C281, or outside areas with approval of the organic area adviser; (4) Chemistry and Biochemistry 248.

Physical Chemistry: (1) Required background material: Chemistry and Biochemistry 110A, 110B, 113A; (2) Chemistry and Biochemistry C215A-C215B, C223A-C223B, or equivalent; (3) Chemistry and Biochemistry 228 each term; (4) one term of Chemistry and Biochemistry 218 (for presentation of research).

Biochemistry and Molecular Biology. Candidates should normally complete as a minimum the coursework indicated below. Some of the requirements can be met on the basis of courses taken prior to entry into the graduate program with consent of the graduate adviser. Required coursework must be completed prior to advancement to candidacy.

(1) Required background material: one year of organic chemistry, one course in physical chemistry or biophysical chemistry, one year of biochemistry, some coursework in the life sciences, and some biochemistry laboratory experience. Deficiencies in background may be made up after admission.

(2) Chemistry and Biochemistry CM253 (six units), which should be taken in the first year.

(3) Fourteen units of additional upper division or graduate-level lecture courses, at least 10 of which should be completed in the first year. These courses are to be chosen from the following three categories: (a) cell biology and metabolism; (b) biophysical, bioorganic, and bioinorganic chemistry; (c) genetics and integrative biology. A list of available courses in these three categories is maintained by the graduate adviser. No more than 10 units from any one of the three categories may be applied.

(4) Chemistry and Biochemistry 258 during the first four quarters. Seminars offered in other departments may be substituted with permission of the graduate adviser.

(5) Chemistry and Biochemistry 268 during the first three quarters.

(6) Three laboratory rotations (Chemistry and Biochemistry 596) during the first year.

Written and Oral Qualifying Examinations

Chemistry. Rather than a single comprehensive examination, the department gives all chemistry Ph.D. candidates a series of written tests called cumulative examinations. These are designed to encourage and test the continued growth of professional competency through coursework, study of the literature, departmental seminars, and informal discussions with colleagues.

Three examinations are given per quarter at approximately monthly intervals. Students entering directly into the Ph.D. program who perform satisfactorily on the orientation examination in their special area may begin writing the examinations immediately. Students must begin by the start of their second quarter of residence and must continue until they have passed five. To remain in good standing, students should pass at least one of the first six examinations attempted and three out of nine. Fifteen attempts are normally the maximum. Students with a master's degree from an American university are required to pass three examinations out of nine attempts.

Biochemistry and Molecular Biology. The written examination requirement is coupled to the graduate student seminars (Chemistry and Biochemistry 258 or others). Seminars offered in other departments may be substituted with permission of the graduate adviser. Beginning with Winter Quarter of the first year, each quarter students are required to submit written reports based on the seminar course to the instructor and other designated faculty members.

(1) Winter Quarter: A presentation and written report based on the Fall Quarter rotation research experience or other designated topic is to be submitted to the instructor and rotation supervisor for grading.

(2) Spring Quarter: A written report which summarizes the current state of knowledge in a small, well-defined area and which identifies the general types of experiments needed for progress in that field is to be prepared for grading by the course instructors.

(3) Fall Quarter, Second Year: At the end of the preceding Spring Quarter, a research topic is selected from a list prepared by the division. An in-depth seminar of this topic which summarizes the current state of knowledge in a field and which indicates likely future directions must be presented. The written report should go beyond the information presented in the

seminar and should propose specific experiments.

A failed report may be revised once. The written examination requirement for the biochemistry and molecular biology Ph.D. program is fulfilled after the student satisfactorily completes all three different types of reports.

Oral Qualifying Examination

The University Oral Qualifying Examination is based on the student's research proposal which should represent independent work and should offer the doctoral committee the opportunity to judge the student's ability to think creatively and to formulate significant ideas for research. The examination is to be attempted during the sixth quarter of residence by all biochemistry and molecular biology students and by chemistry students who completed the written qualifying examinations during the first year. All others must take the oral examination by the end of the seventh quarter. Failure to comply with this time schedule may result in disqualification from the Ph.D. program unless permission has been given by the area adviser. The committee's decision to advance students to candidacy, to allow them to repeat the oral, or to disqualify them is based on the quality of the written proposal, the adequacy of the oral presentation, the overall record at UCLA as reflected in coursework and examinations, and research ability and productivity.

Chemistry and Biochemistry

Lower Division Courses

2. Introductory Chemistry. (4) Lecture, two hours; discussion, two hours. Not open to students with credit for course 14A or 20A or former course 10A or 11A. Concept of submicroscopic world of chemistry, ranging from protons to proteins in subject matter. P/NP or letter grading.

9. Beginning a Career in Molecular Sciences. (1) Limited to 50 freshmen/sophomores. Recommended for students considering a career in chemical sciences. Introduction to and discussion of research and career opportunities in molecular sciences; establishment of a faculty/student mentorship for each student to help in preparing a paper on a student-selected research topic. May be repeated twice.

10C. Organic Chemistry for Life Sciences Majors. (2) Enforced requisite: former course 10B (C- or better) or one year of general chemistry. Introduction to organic compounds, functional groups, transition metal coordination chemistry, bioorganic and bioinorganic chemistry, isomerism, and stereochemistry. P/NP or letter grading.

10E. Intermediate Organic Chemistry. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: former course 10D (C- or better). Structural aspects of biologically and medically important organic molecules. Organic reactions involved in metabolism, biosynthesis, and pharmaceutical synthesis. Intermolecular forces involved in interactions of drugs with receptors and interactions of biological regulators with enzymes and nucleic acids. P/NP or letter grading.

14A. Chemical Structures and Equilibria. (4) (Formerly numbered 10A.) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one-half years of high school mathematics, successful completion of Chemistry Diagnostic Examination. Not open to students with credit for course 20A or former course 11A. Introduction to physical and general chemistry needed for the life sciences. Quantum chemistry, atoms, atomic properties, and chemical bonding in molecules, phase changes, equilibria, and acids and bases. P/NP or letter grading.

14B. Thermodynamics, Kinetics, Organic Structures, and Spectroscopy. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 14A or former course 10A (C- or better). Not open to students with credit for course 10C, 10E, 20B, or 30 or former course 10B or 10D. Introduction to physical and organic chemistry for life sciences students. First and second laws of thermodynamics, thermochemistry, free energy, electrochemistry, kinetics, mechanisms, and catalysis. General classes of organic molecules and functional groups, stereoisomers, spectroscopy. P/NP or letter grading.

14BL. General and Organic Chemistry Laboratory I. (2) (Formerly numbered 10BL.) Lecture, one hour; laboratory, three hours. Enforced requisites: courses 14A or former course 10A (C- or better), 14B (corequisite). 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. Organic Molecular Structures and Interactions. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 14B or former courses 10B and 10C (C- or better). Not open to students with credit for course 10E, 30, or 130A or former course 10D. NMR and mass spectrometry, conformational analysis, aromatics, oxygen- and nitrogen-containing organic molecules, transition metals and organometallics, supramolecular chemistry and molecular interactions. P/NP or letter grading.

14CL. General and Organic Chemistry Laboratory II. (3) (Formerly numbered 10DL.) Lecture, one hour; laboratory, six hours. Enforced requisites: courses 14B (or former courses 10B and 10C) and 14BL (or former course 10BL) (C- or better), 14C (corequisite). 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.

15. Survey of Organic Chemistry and Biochemistry. (4) Enforced requisite: former course 11A (C- or better). Not open to students with credit for former course 132A. Recommended for students in prenursing, prephysical therapy, and pre dental hygiene. Does not satisfy requirements for admission to medical and dental schools. Introduction to structures and reactions of organic compounds, particularly with respect to their roles and transformations in living systems.

15L. Laboratory in Elementary Organic Chemistry and Biochemistry. (1) Laboratory, four hours. Enforced corequisite: course 15 (C- or better). Does not satisfy requirements for admission to medical and dental schools. Introduction to quantitative work with aqueous solutions and to preparation, isolation, and characterization of organic compounds, particularly some of those important in living systems.

17. Chemical Principles (No credit). Lecture, four hours; laboratory, two hours. Chemistry 17 displaces four units on student's Study List but yields no credit toward a degree. 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.

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: high school physics. Enforced requisite: successful completion of Chemistry Diagnostic Examination. First term of general chemistry. Survey of chemical processes, quantum chemistry, atomic and molecular structure and bonding, molecular spectroscopy. P/NP or letter grading.

20B. Chemical Energetics and Change. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 20A (C- or better). Second term of general chemistry. Intermolecular forces and organization, phase behavior, chemical thermodynamics, solutions, equilibria, reaction rates and laws. P/NP or letter grading.

20L. General Chemistry Laboratory. (2) Lecture, one hour; laboratory, three hours. Enforced requisites: courses 20A (C- or better), 20B (corequisite). Use of the balance, volumetric techniques, volumetric and potentiometric analysis; Beer's law, applications for environmental analysis and materials science. P/NP or letter grading.

30. Chemical Dynamics and Reactivity: Introduction to Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 20B (C- or better). First term of organic chemistry. Mechanisms of organic and inorganic reactions, including redox, elimination, addition, substitution, and radical processes. P/NP or letter grading.

30L. General Chemistry Laboratory. (3) Lecture, one hour; laboratory, six hours. Enforced requisites: courses 20B and 20L (C- or better), 30 (corequisite). Qualitative and quantitative analysis of chemical reactions and compounds, kinetics, separations, and spectroscopy. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (2 each) Seminar, two hours; outside study, four hours. Limited to freshmen/sophomores. General introduction to frontiers of molecular sciences or intensive exploration of a particular theme or topic. Consult *Schedule of Classes* for topics and instructors. P/NP or letter grading.

88A. Serendipity in Science. Limited to 20 freshmen. Inquiry into unexpected discoveries in science that have had significant impact on society and analysis of circumstances which brought these about, beginning with discovery of helium in the sun by Janssen in 1868 (using the 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.

96. Special Courses in Chemistry. (1 to 4) To be arranged. May be repeated for a maximum of eight units.

Upper Division Courses

103. Environmental Chemistry. (4) Lecture, four hours; discussion, one hour. Requisites: courses 110A, 130A/130AL or former courses 132B/132BL, 153A, 153L. Chemical aspects of air and water pollution, solid waste disposal, energy resources, and pesticide effects. Chemical reactions in the environment and effect of chemical processes on the environment. P/NP or letter grading.

M104. Environmental Chemistry Laboratory. (4) (Same as Atmospheric Sciences M140.) Lecture, two hours; laboratory, three hours. Requisite: course 20B. Laboratory experience for students who wish to pursue a career in environmental science. Essential laboratory procedures to be performed in context of timely environmental issues involving smog formation, acid rain, and ozone depletion. Hands-on experience using scientific instruments and analytical techniques appropriate for environmental assessment. P/NP or letter grading.

110A. Physical Chemistry: Chemical Thermodynamics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 31A, 31B, 32A or 3C (for life sciences majors), Physics 1A, 1B, and 1C, or 2AH, 2BH, and 17, or 6A, 6B, and 6C. Fundamentals of thermodynamics, chemical and phase equilibria, thermodynamics of solutions, electrochemistry. P/NP or letter grading.

110B. Physical Chemistry: Introduction to Statistical Mechanics and Kinetics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: courses 110A, 113A, Mathematics 32B. Kinetic theory of gases, principles of statistical mechanics, statistical thermodynamics, equilibrium structure and free energy, relaxation and transport phenomena, macroscopic chemical kinetics, molecular-level reaction dynamics. P/NP or letter grading.

113A. Physical Chemistry: Introduction to Quantum Mechanics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 31A, 31B, 32A, 32B, 33A, Physics 1A, 1B, and 1C, or 2AH, 2BH, and 17, or 6A, 6B, and 6C. Departure from classical mechanics: Schrödinger vs. 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. Physical Chemistry: Introduction to Molecular Spectroscopy. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy, magnetic resonance spectroscopy. Concurrently scheduled with course C213B. P/NP or letter grading.

114. Physical Chemistry Laboratory. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 30L (or former course 11CL), 110A, 110B or 113B, 113A. 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). (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 30L (or former course 11CL), 110A, 110B or 113B, 113A, with grades of B or better. 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-C115B. Quantum Chemistry. (4) Lecture, four hours; discussion, one hour. Requisites: course 113A, Mathematics 31A, 31B, 32A, 32B, 33A. Recommended: knowledge of differential equations equivalent to Mathematics 135A or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C115A or Physics 115B is requisite to C115B. Students entering course C115A are normally expected to take course C115B the 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 courses C215A-C215B.

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.

C123A-C123B. Classical and Statistical Thermodynamics. (4-4) Lecture, four hours; discussion, one hour. Requisite: course 110B or 156. Recommended: course 113A. Rigorous presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and the 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, the imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C223A-C223B.

125. Computers in Chemistry. (4) Lecture, three hours. Preparation: working knowledge of FORTRAN IV or PL/I. Requisites: courses 110A, 110B, 113A. Discussion of computer techniques, including matrix manipulation, solution of differential equations, data acquisition, and instrumental control, and their applications to chemical problems in quantum mechanics, thermodynamics, and kinetics.

130A. Organic Chemistry: Reactivity and Synthesis, Part I. (4) Lecture, three hours; discussion, one hour. Requisite: course 30 with a grade of C- or better. Second term of organic chemistry. Synthesis, properties, and reactions of organic functional groups, including alcohols, alkenes, alkynes, aromatic compounds, aldehydes, ketones, carboxyl derivatives, and amines. P/NP or letter grading.

130AL. Organic Chemistry Laboratory. (2) (Formerly numbered 132BL.) Lecture, one hour; laboratory, four hours. Requisites: courses 30, 30L, with grades of C- or better. Corequisite: course 130A. Basic experimental techniques in organic synthesis (distillation, extraction, crystallization, and performing reactions) and organic analytical chemistry (melting and boiling point, refractive index, chromatography, IR, NMR, GC). Single and multistep synthesis of known organic molecules on microscale level. P/NP or letter grading.

130B. Organic Chemistry: Reactivity and Synthesis, Part II. (4) Lecture, three hours; discussion, one hour. Requisite: course 130A with a grade of C- or better. Third term of organic chemistry. Organic spectroscopy, including proton and carbon NMR, infrared mass and UV/Vis; pericyclic reactions and molecular orbital theory; dicarbonyl compounds; polyfunctional aromatic chemistry; heterocyclic compounds; and carbohydrates. P/NP or letter grading.

130BL. Organic Chemistry Laboratory. (2) (Formerly numbered 132CL.) Lecture, one hour; laboratory, four hours. Requisites: courses 130A/130AL with grades of C- or better. Corequisite: course 130B. Modern techniques in synthetic organic and analytical organic chemistry. Micro-preparative and semi-preparative scale multistep synthesis of known organic molecules. One- and two-dimensional multi-nuclear NMR techniques. Written reports and proposals. P/NP or letter grading.

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Microbiology CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

136. Organic Structural Methods. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 130B/130BL or former courses 132C/132CL with grades of C- or better. Laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques. P/NP or letter grading.

140. Organic Reactions, Pharmaceutical Structures, and Activities. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 14C (C- or better). Not open to students with credit for course 10E or former course 10D. 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.

C143A. Structure and Mechanism in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 110B, 113A, and 130B/130BL or former courses 132C/132CL (may be taken concurrently), 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 a grade of C- or better. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C243B.

144. Practical and Theoretical Introductory Organic Synthesis. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 130B/130BL or former courses 132C/132CL 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.

153A. Biochemistry: Introduction to Structure, Enzymes, and Metabolism. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Enforced requisite: course 130A or 140 (or former course 10D or 132B) with a grade of C- or better. Recommended: Life Sciences 2, 3. 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 130A or former course 10D or 132B with a grade of C- or better. Recommended: Life Sciences 2, 3. 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. Requisites: course 153A, Life Sciences 2, 3. 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. Requisites: course 153A, Life Sciences 2, 3. 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. Requisite: course 153A. Metabolism of carbohydrates, fatty acids, amino acids, and lipids; photosynthetic metabolism and assimilation of inorganic nutrients; regulation of these processes.

153CH. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation (Honors). (4) Lecture, three hours; discussion, two hours. Requisite: course 153A. Honors course parallel to course 153C.

CM153G. Macromolecular Structure. (6) (Same as Biological Chemistry CM153G and Human Genetics CM153G.) Lecture, five hours. Requisites: courses 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM253. Letter grading.

153L. Biochemical Methods I. (4) Lecture, one hour; discussion, one hour; laboratory, four hours; outside study, seven hours. Enforced requisites: courses 14CL/140 or 130A/130AL (or former courses 10D/10DL or 132B/132BL), 153A (may be taken concurrently), with grades of C- or better. Integrated term-long project involving characterization of an enzyme purified from meat obtained at local butcher. Techniques include ammonium sulfate fractionation, affinity chromatography, protein and enzyme assays, polyacrylamide gel electrophoresis, gel exclusion chromatography, and enzyme kinetic analysis. P/NP or letter grading.

154. Biochemical Methods II. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 153A, 153B, 153L. 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.

CM155. Biological Catalysis. (4) (Same as Molecular, Cell, and Developmental Biology CM160.) Requisites: courses 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM255.

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.

CM159A. Mechanisms in Regulation of Transcription I. (2) (Same as Biological Chemistry CM159A.) First five weeks. Lecture, four hours; outside study, two hours. Requisites: courses 153B, 154. Not open to graduate students. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course CM259A. P/NP or letter grading.

CM159B. Mechanisms in Regulation of Transcription II. (2) (Same as Biological Chemistry CM159B.) Second five weeks. Lecture, four hours; outside study, two hours. Requisite: course CM159A. Not open to graduate students. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course CM259B. P/NP or letter grading.

C161A. Plant Biochemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course 153C. Introduction to distinctive features of plant biochemistry. Topics include photosynthesis, nitrogen metabolism, plant cell wall metabolism, and secondary metabolism in relation to stress. Concurrently scheduled with course C261A.

C165. Metabolic Control by Protein Modification. (2) First five weeks. 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.

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; outside study, four to seven hours. Requisites: courses 153A and 153B, or Life Sciences 3, 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 130A with a grade of C- or better. Chemical bonding; structure and bonding in the solid state; main group, transition metal, lanthanide and actinide compounds and reactions; catalysis, spectroscopy, special topics. P/NP or letter grading.

172. Advanced Inorganic Chemistry. (4) (Formerly numbered 173.) Lecture, three hours; discussion, one hour. Requisite: course 171 with a grade of C- or better. Structure and bonding of inorganic molecules and solids, electronic spectra of complexes, reaction mechanisms of metal complexes, d- and f-block organometallic compounds, bioinorganic chemistry. P/NP or letter grading.

174. Inorganic and Metalorganic Laboratory Methods. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 130A/130AL or former courses 132B/132BL, and 172 or former course 173. Synthesis of inorganic compounds, including air-sensitive materials; dry-box, vacuum line, and high-pressure techniques; Schlenk methods; chromatographic and ion exchange separations. P/NP or letter grading.

C175. Inorganic Reaction Mechanisms. (4) Lecture, three hours. Requisites: courses 110A, 110B, 113A, and 172 or former course 173. 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. Lecture, three hours; discussion, one hour. Requisites: courses 113A, and 172 or former course 173. 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.

C180. Solid-State Chemistry. (4) Lecture, three hours. Requisite: course 172 or former course 173. 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 a 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 110A, and 130A or former course 132B. 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 C281. P/NP or letter grading.

184. Chemical Instrumentation. (4) Lecture/quiz, two hours; laboratory, eight hours. Requisite: course 110A. 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.

190. Undergraduate Thesis Research. (4) Requisites: two terms of course 199 on related material. Final term of integrated one-year research project. May consist of experimental and/or theoretical research or, in some cases, comprehensive review of a given area. Thesis embodying totality of year's work to be submitted and oral presentation made. Course suggested, but not required, for those seeking departmental honors at graduation.

191. Advanced Undergraduate Research. (1) Requisite: course 199B (four units). To be arranged with faculty member who directs the research. Additional information may be obtained from undergraduate office. May be repeated for a maximum of four units.

196A-196F. Special Courses in Chemistry. (1 to 4 each) Hours to be arranged.

199A. Directed Individual Studies or Research for Undergraduate Students. (2 to 8) Designed for departmental juniors with at least 3.0 grade-point average in major and departmental seniors. To be arranged with faculty member who directs the research. Additional information on requirements, enrollment petitions, and written proposal deadlines may be obtained from undergraduate office. May be taken for a maximum of eight units. P/NP grading.

199B. Directed Individual Studies or Research for Undergraduate Students. (2 to 4) Requisite: course 199A (eight units). Designed for departmental juniors with at least 3.0 grade-point average in major and departmental seniors. To be arranged with faculty member who directs the research. Additional information on requirements, enrollment petitions, and written proposal deadlines may be obtained from undergraduate office. May be taken for a maximum of four units. P/NP or letter grading.

Graduate Courses

203. Research Ethics Seminar. (2) Seminar, 90 minutes. Limited to students supported by UCLA program in Cellular and Molecular Biology Predoctoral Training. Required of all first- and second-year students in program. Informal discussions on case histories for responsible conduct of research. May be repeated for credit. 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. Required of all third-year students. Research seminar presented by students in their third year of support in program. S/U grading.

205. Introduction to Chemistry of Biology. (4) Lecture, three hours. Overview of biochemistry, pharmacology, and physiology, with emphasis on chemical interactions at molecular level.

206. Chemistry of Biology Seminar. (2) Discussion, three hours; outside study, 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.

207. Organometallic Chemistry. (4) Lecture/discussion, three hours. Requisite or corequisite: course C243A. Survey of synthesis, structure, and reactivity (emphasizing a 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.

C213B. Physical Chemistry: Molecular Spectroscopy. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy, magnetic resonance spectroscopy. Concurrently scheduled with course C113B. Independent study project required of graduate students. S/U or letter grading.

C215A-C215B. Quantum Chemistry: Methods. (4-4) Lecture, four hours; discussion, one hour. Requisites: course 113A, Mathematics 31A, 31B, 32A, 32B, 33A. Recommended: knowledge of differential equations equivalent to Mathematics 135A or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C215A or Physics 115B is requisite to C215B. Students entering course C215A are normally expected to take course C215B the 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 courses C115A-C115B.

215C. Advanced Quantum Chemistry: Applications. (4) Lecture, three hours; discussion, one hour. Requisites: course C215B, Physics 131. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. S/U or letter grading.

215D. Molecular Spectra, Diffraction, and Structure. (4) Lecture, three hours; discussion, one hour. Requisites: course C215B, Physics 131. Selected topics from electronic spectra of atoms and molecules; vibrational, rotational, and Raman spectra; magnetic resonance spectra; X-ray, neutron, and electron diffraction; coherence effects. S/U or letter grading.

218. Physical Chemistry Student Seminar. (2) Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

219A-219Z. Seminars: Research in Physical Chemistry. (2each) Discussion, 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:

219B. Chemistry and Physics of Surfaces.

219C. Physical Chemistry of Complex Fluids.

219D. Computer Simulation in Chemistry.

219E. Dynamics of Molecule-Molecule and Molecule-Surface Reactions.

219F. Environmental Chemistry and Global Cycling.

219G. Gas Phase Kinetics and Photochemistry.

219H. Spectroscopy and Dynamics of Molecules, Clusters, and Biological Systems.

219I. Spectroscopy of Isolated Molecules, Complexes, and Clusters.

219J. Chemistry and Biophysics of Interfaces.

219K. Statistical Mechanics of Disordered Systems.

219L. Modern Methods for Molecular Reactions and Structure.

219M. Chemistry of Materials at High Pressures.

219N. Cosmochemistry.

219O. Chemistry and Physics of Nanostructures.

219P. Statistical Mechanics of Complex Fluids.

219Q. Ultrafast Studies of Chemical Reaction Dynamics in Condensed Phase.

219R. Kinetic, Thermodynamic, and Interfacial Effects in Materials.

221A-221Z. Advanced Topics in Physical Chemistry. (2 to 4 each) Each course encompasses a recognized specialty in physical chemistry, generally taught by a staff member whose research interests embrace that specialty. S/U or letter grading.

C223A-C223B. Classical and Statistical Thermodynamics. (4-4) Lecture, four hours; discussion, one hour. Requisite: course 110B or 156. Recommended: course 113A. Presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and the 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, the imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C123A-C123B.

223C. Statistical Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses C215B, C223B, Physics 131. Fundamentals of statistical mechanics; classical equations of state; Coulomb systems; phase transitions; quantum statistical mechanics; quantum corrections to the equation of state; density matrix; second quantization. S/U or letter grading.

225. Chemical Kinetics. (4) Lecture, three hours; discussion, one hour. Requisites: courses C215B, C223B. Classical experimental and theoretical approaches to study of rates and mechanisms of chemical reactions. Modern experimental techniques and molecular-level theory of reaction dynamics. Examples of well-studied elementary reactions. S/U or letter grading.

M227. Molecular Genetics of Bacteria and Phage. (4) (Same as Microbiology M227, Microbiology and Immunology M227, and Molecular, Cell, and Developmental Biology CM207.) Lecture, three hours; discussion, one hour. Requisite: course CM253 or Biological Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages.

228. Chemical Physics Seminar. (2) 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.

M230B. 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.

M230D. 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.

232. Stereochemistry and Conformational Analysis. (4) Lecture/discussion, three hours. Requisite or corequisite: course C143A. Molecular symmetry, chirality, prochirality, stereochemistry in vinyl polymers, atropisomerism, diastereomeric interactions in solution, conformations of acyclic and cyclic molecules.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Microbiology CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

235A-235Z. Seminars: Research in Organic Chemistry. (2 each) Discussion, 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.

235A. Synthesis of Natural Products and Biopolymers.

235B. Design, Preparation, and Characterization of New Organic Materials.

235C. Supramolecular Chemistry.

235D. Modern Photochemistry and Biooxidants.

235E. Theoretical and Physical Organic Chemistry.

235F. Synthetic Methods and Synthesis of Natural Products.

235G. Organometallic Chemistry and Organic Synthesis.

235H. Reaction Mechanisms in Molecular Biology.

235I. Fullerene Chemistry and Materials Science.

235J. Organic and Bioorganic Chemistry.

235K. Organic Chemistry in Organized and Restricted Media.

235L. Supramolecular and Macromolecular Chemistry.

235M. Organic Solid-State Chemistry.

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.

241A-241Z. Special Topics in Organic Chemistry. (2 to 4 each) Requisite or corequisite: course C243A. Each course encompasses a recognized specialty in organic chemistry, generally taught by a staff member whose research interests embrace that specialty.

242. Organic Photochemistry. (4) Lecture/discussion, three hours. Requisite or corequisite: course C243A. Interactions of light with organic molecules; mechanistic and preparative photochemistry.

C243A. Structure and Mechanism in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 110B, 113A, and 130B/130BL or former courses 132C/132CL (may be taken concurrently), 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.

244A. Organic Synthesis: Methodology and Stereochemistry. (4) Modern synthetic reactions and transformations involving organic substrates. Special emphasis on reagents useful in asymmetric induction and stereoselective synthesis of structurally complex target molecules.

244B. Strategy and Design in Organic Synthesis. (4) Lecture, three hours. Requisite or corequisite: course C243A. Theory behind the planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in the synthetic process. Reasoning and art involved in organic synthesis.

245. Applications of Electronic Theory in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisite or corequisite: course C243A. Review of molecular orbital theory; introduction to alternative theoretical methods; aromaticity and homoaromaticity; Hückel and Möbius conjugation; Woodward/Hoffmann theory of concerted pericyclic reactions; through-bond and through-space interactions; introduction to photoelectron spectroscopy; frontier molecular orbital theory; related special topics.

247. Organic Colloquium. (2) Seminars in organic chemistry and related areas presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

248. Organic Chemistry Student Seminar. (2) Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

249A. Problems in Advanced Organic Chemistry. (4) Designed primarily for first-year graduate students as preparation for cumulative examinations. Introduction to organic chemistry research. Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry. S/U grading.

249B. Problems in Advanced Organic Chemistry. (2) Designed primarily for first- and second-year graduate students as preparation for cumulative examinations. Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry, with emphasis on current literature. May be repeated for credit. S/U grading.

250. Topics in Biochemistry and Molecular Biology of Animal Cells. (4) Lecture, three hours. Preparation: courses in genetics and molecular biology. Requisites: courses 130B/130BL (or former courses 132C/132CL), 153A, 153B, 153C. Structure and organization of animal cells, cell-cell contact, motility of cell and mobility of cellular components, chromosome structure, interactions between cytoplasm and nucleus, genetic analysis in higher eukaryotic cells, biochemistry of tissue development and organization. S/U or letter grading.

251A-251Z. Advanced Topics in Biochemistry. (2 each) Each course encompasses a recognized specialty in biochemistry, generally taught by a staff member whose research interests embrace that specialty.

CM253. Macromolecular Structure. (6) (Same as Biological Chemistry CM253 and Human Genetics CM253.) Lecture, five hours. Requisites: courses 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM153G. Letter grading.

254. Advanced Biochemical Methods. (4) Lecture, two hours; laboratory, eight hours. Requisite: course 156. Recommended: courses 153B, 153C. Theoretical and practical basis of metabolic, chromatographic, kinetic, electrophoretic, ultracentrifugal, isotopic, and other techniques as applied to biochemical systems.

CM255. Biological Catalysis. (4) (Same as Biological Chemistry M255, Molecular, Cell, and Developmental Biology CM252, and Pharmacology M255.) Requisites: courses 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM155. Graduate students required to write research paper and present oral report on it.

256A-256Z. Seminars: Research in Biochemistry. (2 each) Discussion, 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:

256A. Biochemistry of Plasma Proteins.

256B. Biochemistry of Protein Function.

256C. Biochemistry and Molecular Genetics of Fungi.

256D. Transcriptional Control Mechanisms in *Drosophila* Embryogenesis.

256E. Secondary Metabolites in Higher Plants: Biosynthesis, Regulation, and Physiological Functions.

256F. Current Topics in Prokaryotic Development.

256G. Nucleic Acid Structure Determination by NMR.

256H. Basic Mechanisms of Promoter Activation.

256J. Contractile Proteins in Muscle Contraction and Cell Motility.

256K. Biochemistry and Molecular Biology of *Chlamydomonas*.

256L. Literature of Structural Biology.

256M. Mechanism and Regulation of Transcription Termination in Eukaryotic Organisms.

256N. Advanced Topics in Structural Biology.

256O. Membrane Biophysics.

256P. Analysis of Protein Structure.

256Q. Biochemistry and Function of Ubiquinone in Yeast and Higher Eukaryotes.

256R. Biomolecular Nuclear Magnetic Resonance Spectroscopy and Protein Structure.

256S. Proteome Bioinformatics.

M257. Physical Chemistry of Biological Macromolecules. (2) (Same as Biological Chemistry M257.) Requisites: courses 110A, 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules.

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.

CM259A. Mechanisms in Regulation of Transcription I. (2) (Same as Biological Chemistry CM259A.) First five weeks. Lecture, four hours; outside study, two hours. Requisite: course CM253 or M267. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course CM159A. S/U or letter grading.

CM259B. Mechanisms in Regulation of Transcription II. (2) (Same as Biological Chemistry CM259B.) Second five weeks. Lecture, four hours; outside study, two hours. Requisite: course CM259A. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course CM159B. S/U or letter grading.

C261A. Plant Biochemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course 153C. Introduction to distinctive features of plant biochemistry. Topics include photosynthesis, nitrogen metabolism, plant cell wall metabolism, and secondary metabolism in relation to stress. Concurrently scheduled with course C161A.

262. Biological Energy Transductions. (4) Lecture, three hours. Requisites: courses 153B, 153C. Molecular basis of energy-transducing processes, including oxidative and photosynthetic phosphorylation, other energy-linked oxidative functions, membrane active transport, muscle contraction, and special sensory functions.

M263. Metabolism and Its Regulation. (4) (Same as Biological Chemistry M263.) Lecture, three hours. Requisites: course 110A, one course from 153B, 153C, 156, or Biological Chemistry 201A-201B. Thermodynamic and kinetic aspects of metabolism; regulatory properties of enzymes; metabolic regulation; consideration of comparative aspects of metabolism in relation to physiological function.

M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics. (2-2-2) (Same as Biological Chemistry M264A-M264B-M264C and Microbiology M264A-M264B-M264C.) Biochemistry, morphology, and physiology of atherosclerosis. Emphasis on chemistry of lipoproteins and role of plasma lipoproteins in regulation of tissue lipid metabolism and development of atherosclerosis. Each course may be taken independently for credit.

C265. Metabolic Control by Protein Modification. (2) First five weeks. 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.

266. Seminar: Techniques for Study of Gene Regulation. (2) Requisites: courses CM259A, CM259B. Seminar to discuss specific experimental approaches being taken in study of gene regulation. Emphasis on specific biochemical techniques being used to study regulatory protein-DNA interactions in diverse biological model systems.

M267. Cell Structure, Signaling, and Differentiation. (6) (Same as Biological Chemistry CM267, Human Genetics CM267, and Molecular, Cell, and Developmental Biology CM223.) Lecture, five hours. Requisites: courses 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Letter grading.

268. Biochemistry Research Seminar. (2) 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.

C270. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) Lecture, two to three hours; discussion, zero to two hours; outside study, four to seven hours. Requisites: courses 153A and 153B, or Life Sciences 3, 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.

271A-271Z. Advanced Topics in Inorganic Chemistry. (2 to 4 each) Each course encompasses a recognized specialty in inorganic chemistry, generally taught by a staff member whose research interests embrace that specialty.

272A-272Z. Seminars: Research in Inorganic Chemistry. (2 each) Discussion, 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:

272A. Chemistry of Materials.

272B. Metalorganic, Inorganic Biometalorganic Chemistry.

272C. Inorganic Spectroscopy.

272D. Bioinorganic Chemistry and Biology of Transition Metals and Oxygen.

272E. Organometallic Synthesis and Chemical Vapor Deposition.

272F. Porphyrin-Based Lattice Clathrates.

272G. Issues in Chemical Education.

272H. Catalysis and Small Molecule-Activation Mediated by Transition-Metal Complexes.

C275. Inorganic Reaction Mechanisms. (4) Lecture, three hours. Requisites: courses 110A, 110B, 113A, and 172 or former course 173. 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 or former course 173. 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 for Characterization of Inorganic Compounds. (4) Lecture, three hours. Requisite: course C276A. Applications of spectroscopic techniques, including IR, Raman, visible, UV, NMR, ESR, and NQR, to elucidation of structure and bonding in inorganic and organometallic compounds.

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) Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

279. Bioinorganic Chemistry. (4) Lecture, three hours. Requisites: courses 110A, and 156 or 172 or former course 173. Role of metal ions in biology; introduction to metalloenzymes and metalloproteins; metal ion interactions with nucleic acids; metal ion metabolism. S/U or letter grading.

C280. Solid-State Chemistry. (4) Lecture, three hours. Requisite: course 172 or former course 173. 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 a 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 110A, and 130A or former course 132B. 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.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

400. Safety in Chemical and Biochemical Research. (2) 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) To be arranged with faculty member who directs the study or research. May be repeated for credit. S/U grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 4) S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 16) Each faculty member supervises research of M.S. students and holds research group meetings, seminars, and discussions with the students.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Each faculty member supervises research of Ph.D. students and holds research group meetings, seminars, and discussions with the students.

CHEMISTRY/ MATERIALS SCIENCE

*Interdepartmental Program
College of Letters and Science*

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Bruce S. Dunn, Ph.D., *Chair*

Professors

Bruce S. Dunn, Ph.D. (*Materials Science and Engineering*)
M. Frederick Hawthorne, Ph.D. (*Chemistry and Biochemistry*)
Richard B. Kaner, Ph.D. (*Chemistry and Biochemistry*)
King-Ning Tu, Ph.D. (*Materials Science and Engineering*)
Fred Wudl, Ph.D. (*Chemistry and Biochemistry*)
Jeffrey I. Zink, Ph.D. (*Chemistry and Biochemistry*)

Associate Professors

Robin L. Garrell, Ph.D. (*Chemistry and Biochemistry*)
Mark S. Goorsky, Ph.D. (*Materials Science and Engineering*)
James R. Heath, Ph.D. (*Chemistry and Biochemistry*)
Yang Yang, Ph.D. (*Materials Science and Engineering*)

Assistant Professor

Sarah H. Tolbert, Ph.D. (*Chemistry and Biochemistry*)

Scope and Objectives

The undergraduate major is designed for students who are interested in solid-state chemistry, the preparation of engineering materials such as semiconductors, glasses, ceramics, metals, and polymers, the reactivity of such materials in different environments, and how chemical compositions affect properties. It provides appropriate preparation for graduate studies in many fields emphasizing interdisciplinary research involving chemistry, engineering, and applied science.

Undergraduate Study

Chemistry/Materials Science B.S.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L, English Composition 3, Materials Science and Engineering 14, Mathematics 31A, 31B, 32A, 32B, 33A, Physics 1A, 1B, 1C, 4BL, Program in Computing 10A.

The Major

Required: Chemistry and Biochemistry 110A, 110B, 113A, C113B or C115A-C115B, 114, 132A, 171, 172, eight units from C123A, C123B, 130A/130AL, 130B/130BL, 174, C175, C176; Materials Science and Engineering 120, 131L or 161L, 131, 150, 160, eight units from 110, 111, 121, 122, 130, 132, 143A, 162.

For further information, contact Leslie Hinman, Materials Science and Engineering, 6531 Boelter Hall, (310) 825-8916.

CIVIL AND ENVIRONMENTAL ENGINEERING

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Michael K. Stenstrom, Ph.D., *Chair*
Keith D. Stolzenbach, Ph.D., *Vice Chair*
William W-G. Yeh, Ph.D., *Vice Chair*

Professors

Birgitte K. Ahring, Ph.D.
John A. Dracup, Ph.D.
Lewis P. Felton, Ph.D.
Gary C. Hart, Ph.D.
Jiann-Wen Ju, Ph.D.
Lawrence G. Selna, Ph.D.
Michael K. Stenstrom, Ph.D.
Keith D. Stolzenbach, Ph.D.
William W-G. Yeh, Ph.D.

Professors Emeriti

Stanley B. Dong, Ph.D.
Michael E. Fournay, Ph.D.
Poul V. Lade, Ph.D.
Tung Hua Lin, D.Sc.
Chung Yen Liu, Ph.D.
Rokuro Muki, Ph.D.
Richard L. Perrine, Ph.D.
Moshe F. Rubinstein, Ph.D.
Lucien A. Schmit, Jr., M.S.

Associate Professors

Joel P. Conte, Ph.D.
Mladen Vucetic, Ph.D.
John W. Wallace, Ph.D.

Assistant Professors

Thomas C. Harmon, Ph.D.
Jonathan P. Stewart, Ph.D.

Senior Lecturer

George J. Tauxe, M.S., *Emeritus*

Adjunct Professors

Menachem Elimelech, Ph.D.
Janet G. Hering, Ph.D.
Daniel E. Pradel, Ph.D.
Ne-Zheng Sun, Ph.D.

Scope and Objectives

The civil and environmental engineering programs at UCLA include structural engineering, structural mechanics, geotechnical engineering, earthquake engineering, water resources engineering, and environmental engineering.

The ABET-accredited civil engineering curriculum leads to a B.S. in Civil Engineering, a broad-based education in structural engineering, geotechnical engineering, water resources engineering, and environmental engineering. This program is an excellent foundation for entry into professional practice in civil engineering or for more advanced study.

At the graduate level, M.S. and Ph.D. degree programs are offered in the areas of structures (including structural/earthquake engineering and structural mechanics), geotechnical engineering, water resources engineering, and environmental engineering. In these areas, research is being done on a variety of problems ranging from basic physics and mechanics problems to critical problems in earthquake engineering and in the development of new technologies for pollution control and water distribution and treatment.

Undergraduate Study

Civil Engineering B.S.

The objective of the civil engineering curriculum is to give graduating seniors an academically sound and practical background in civil engineering. A balanced program, including engineering science, design, and laboratory courses in civil engineering, is stressed. The ongoing goal of the program is to produce well-qualified graduates for the engineering profession or for graduate civil engineering schools in the U.S.

The Major

Course requirements are as follows (181 minimum units required):

(1) Eight core courses: Chemical Engineering M105A or Mechanical and Aerospace Engineering M105A, Civil and Environmental Engineering 11, 108, Electrical Engineering 100, 103, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 103.

(2) Civil and Environmental Engineering 120, 121, 130, 135A, 151, 153; one mathematics course from Mechanical and Aerospace Engineering 174, 191A, 192A, 192B, 192C.

(3) Thirty-two elective units, to be selected from the courses listed below, which must include eight units of laboratory:

Engineering Mechanics: Civil and Environmental Engineering 130F, 130L, Mechanical and Aerospace Engineering 166C, 168.

Geotechnical Engineering: Civil and Environmental Engineering 125, 128L, Earth and Space Sciences 100, 139.

Structures: Civil and Environmental Engineering 135B, 135C, 135L, 137, 137L, 141, 142, 142L, 143, 144, 147, 180.

Systems Analysis: Civil and Environmental Engineering 106A, M140.

Water Resources and Environmental Engineering: Civil and Environmental Engineering 150, 154, 155, 156A, 156B, 157A, 157B, 157C, 160, 163, 164, 166.

(4) Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering 15; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Civil and Environmental Engineering offers the Master of Science (M.S.) degree in Civil Engineering.

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE).

Students not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework that

cannot be applied toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.cee.ucla.edu>. Forms are also available by writing to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Areas of Study

Environmental engineering; geotechnical engineering; structural mechanics; structural/earthquake engineering; water resource systems engineering.

Course Requirements

At least nine courses are required, a majority of which must be in the Civil and Environmental Engineering Department. At least five of the courses must be at the 200 level. In the thesis plan, seven of the nine must be formal 100- or 200-series courses. The remaining two may be 598 courses involving work on the thesis. In the comprehensive examination plan, 500-series courses may not be applied toward the nine-course requirement. A minimum 3.0 grade-point average is required in all coursework.

Each major field has a set of required preparatory courses which are normally completed during undergraduate studies. Equivalent courses taken at other institutions can satisfy the preparatory course requirements. The preparatory courses cannot be used to satisfy course requirements for the master's degree; courses must be selected in accordance with the lists of required graduate courses and elective courses for each major field.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Environmental Engineering

Required Preparatory Courses. Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 33A, 33B; Mechanical and Aerospace Engineering 103, M105A; Civil and Environmental Engineering 150 or 151, 153; Physics 8A/8AL, 8B/8BL, 8C.

Required Graduate Courses. Civil and Environmental Engineering 254A, 255A, 255B.

Elective Courses. Civil and Environmental Engineering 155, 157B, 157C, 163, 164, 253, 254B, 254C, 258A, 261, 265A, 265B; a maximum of two of the following courses for students electing the thesis plan or a maximum of three of the following courses for students electing the comprehensive examination plan: Civil and Environmental Engineering 150, 250A, 250B, 250C, 251, 252, 260, M262A, M262B; Chemical Engineering 101C or Mechanical and Aerospace Engineering 105D; Chemical Engineering 106, 210, C240; Computer Science 270A, 271A, 271B; Electrical Engineering 236A, 236B, 236C; Environmental Health Sciences 240, 241, 252D, 255, 262, 264, 410A, 410B; Mechanical and Aerospace Engineering 175, 274, 275.

Geotechnical Engineering

Required Preparatory Courses. Civil and Environmental Engineering 108, 120, 121, 128L.

Required Graduate Courses. Civil and Environmental Engineering 220, 221, 222, 223, 228L.

Elective Courses. Civil and Environmental Engineering 135A, 142, 229, 235A, 235B, 235C, 250B; Mechanical and Aerospace Engineering 256A; Earth and Space Sciences 139.

Structural Mechanics

Required Preparatory Courses. Civil and Environmental Engineering 130, 135A, 135B.

Required Graduate Courses. Civil and Environmental Engineering 232, 235A, 235B, 236, M237A.

Elective Courses. Civil and Environmental Engineering 130F, 130L, 135C, 137, M140, M230, 231, 233, 234, 235C, M240, 275, 276; Mechanical and Aerospace Engineering 269B.

Structural/Earthquake Engineering

Required Preparatory Courses. Civil and Environmental Engineering 135A, 135B, 141, 142.

Required Graduate Courses. Civil and Environmental Engineering 235A, 246; at least three of the following courses: Civil and Environmental Engineering 241, 242, 244.

Elective Courses. Civil and Environmental Engineering 120, 121, 130, 135C, 137, 142L, 143, 175, 221, 222, 223, 232, 235B, 236, M237A, M240, 275, 276.

Water Resource Systems Engineering

Required Preparatory Courses. Chemistry and Biochemistry 20A, 20B, 20L, Mathematics 33A, 33B; Mechanical and Aerospace Engineering 103, M105A; Civil and Environmental Engineering 150 or 151, 153; Physics 8A/8AL, 8B/8BL, 8C.

Required Graduate Courses. A minimum of five of the following courses: Civil and Environmental Engineering 250A, 250B, 250C, 251, 252, 253, 260, 265A, 265B.

Elective Courses. Civil and Environmental Engineering 150, 164, 255A, 255B; a maximum

of two of the following courses for students electing the thesis plan or a maximum of three of the following courses for students electing the comprehensive examination plan: Atmospheric Sciences C200B, M203A, 218; Computer Science 270A, 271A, 271B; Electrical Engineering 236A, 236B, 236C, 237; Environmental Health Sciences 225, 264; Mathematics 269A, 269B, 269C; Mechanical and Aerospace Engineering 274, 275.

Students may petition the department for permission to pursue programs of study which differ from the above norms.

Comprehensive Examination Plan

In addition to the course requirements, under this plan there is a comprehensive written examination covering the subject matter contained in the program of study. The examination is administered by a comprehensive examination committee, which may conduct an oral examination in addition to the written examination. In case of failure, the examination may be repeated once with the consent of the graduate adviser.

Thesis Plan

In addition to the course requirements, under this plan students are required to write a thesis on a research topic in civil and environmental engineering supervised by the thesis adviser. An M.S. thesis committee reviews and approves the thesis. No oral examination is required.

Doctoral Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. degree in Civil Engineering are required to take the General Test of the Graduate Record Examination (GRE).

Applicants to the Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having the M.S. degree.

Students not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which would not be applicable toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies. For information on completing the Engineer degree, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.cee.ucla.edu>. Forms are also available by writing to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601,

Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Major Fields or Subdisciplines

Environmental engineering; geotechnical engineering; structural/earthquake engineering; water resource systems engineering.

Course Requirements

There is no formal course requirement for the Ph.D. degree, and students may theoretically substitute coursework by examinations. Normally, however, students take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one major field and two minor fields. The major field has a scope corresponding to a body of knowledge contained in a detailed Ph.D. field syllabus available on request from the department office. Each minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. Grades of B- or better, with a grade-point average of at least 3.33 in all courses included in the minor field, are required. If students fail to satisfy the minor field requirements through coursework, a minor field examination may be taken (once only). The minor fields are chosen to support the major field and are usually subsets of other major fields.

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the three fields, the students take a written preliminary examination in the major field. When the examination is passed and all coursework is completed, students proceed to take an oral preliminary examination which encompasses the major and minor fields. Both preliminary examinations should be completed within the first two years of full-time enrollment in the Ph.D. program. Students may not take an examination more than twice.

After passing both preliminary examinations, students are ready to take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee but ordinarily include a broad inquiry into the student's preparation for research. The doctoral committee also reviews the prospectus of the dissertation at the oral qualifying examination.

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are "inside" members and must hold appointments at UCLA in the student's major department in the School of Engineering and Applied Science. The "outside" member must be a UCLA faculty member outside the student's major department.

Civil and Environmental Engineering

Lower Division Courses

1. Introduction to Civil Engineering. (2) Lecture, two hours. Introduction to scope of civil engineering profession, including earthquake, environmental, geotechnical, structural, transportation, and water resources engineering. Letter grading.

3. Fundamentals of Environmental Engineering Science. (4) Lecture, four hours; outside study, eight hours. Quantitative analysis of sources, transformations, and effects of pollutants in water, air, and soil. Topics include drinking water, wastewater, hazardous wastes, radioactive wastes, and atmospheric emissions. P/NP or letter grading.

11. Patterns of Problem Solving. (4) Lecture, four hours; outside study, eight hours. Introduction to creative patterns of problem solving and decision making. Discussion of attitudes and techniques productive in problem solving. Heuristic guides for knowledge acquisition, problem presentation, and problem solution. Tools and concepts for decision making that include technology and human values. Letter grading.

15. Introduction to Computing for Civil Engineers. (4) (Formerly numbered 15A, 15B.) Lecture, four hours; laboratory, four hours; outside study, four hours. Introduction to programming using structured FORTRAN. Selected topics in programming, with emphasis on numerical techniques as applied to engineering programs. Letter grading.

Upper Division Courses

106A. Problem Solving in Engineering Economy. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Problem-solving and decision-making framework for economic analysis of engineering projects. Foundation for understanding corporate financial practices and accounting. Decisions on capital investments and choice of alternatives for engineering applications in all fields. Introduction to use of engineering economics in analysis of inflation and public investments. Letter grading.

108. Introduction to Mechanics of Deformable Solids. (4) Lecture, three hours; recitation, two hours; outside study, seven hours. Prerequisite: Mathematics 33A. Review of equilibrium principles; forces and moments transmitted by slender members. Concepts of stress and strain. Material constitution (stress-strain relations). Yield criteria. Structural applications to trusses, beams, shafts, columns, and pressure vessels. Letter grading.

120. Principles of Soil Mechanics. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Prerequisite: course 108. Soil as a foundation for structures and as a material of construction. Soil formation, classification, physical and mechanical properties, soil compaction, earth pressures, consolidation, and shear strength. Letter grading.

121. Design of Foundations and Earth Structures. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Prerequisite: 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.

125. Fundamentals of Earthquake Engineering. (4) Lecture, four hours; outside study, eight hours. Prerequisites: courses 121, 137. Designed for seniors. Representations of earthquake ground motion, including response and Fourier spectra. Response of simple soil deposits and structures to ground motion. Hazard analysis by deterministic and probabilistic methods. Seismic design codes. Letter grading.

128L. Soil Mechanics Laboratory. (4) Lecture, one hour; laboratory, eight hours; outside study, three 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.

130. Elementary Structural Mechanics. (4) Lecture, four hours; recitation, 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.

130F. Experimental Fracture Mechanics. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite: course 108. Elementary introduction to fracture mechanics and experimental techniques used in fracture, crack tip stress fields, strain energy release rate, fracture characterization, compliance calibration, surface flaws, fatigue crack growth and fatigue life of structural components, mixed mode fracture, and individual projects. Letter grading.

130L. Experimental Structural Mechanics. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 130. Lecture and experiments in limit analysis of various aspects of structures. Elastic and plastic analysis of structural elements in multiaxial stress states. Buckling of columns, plates, and shells. Effects of actual boundary conditions on structural performance. Evaluation of structural fasteners. Letter grading.

135A. Elementary Structural Analysis. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Requisites: courses 11, 15, 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; outside study, eight 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. Computer Analysis of Structures. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: courses 135A, 135B. Direct stiffness method of structural analysis, with emphasis on its application in computer analysis. Development of approximate analysis techniques for estimation/verification of computer results. Discussion of structural principles, including symmetry/antisymmetry, superposition, Mueller/Breslau principle for influence lines, and deflected shapes. Numerical procedure for linear algebraic equations. Letter grading.

135L. Structural Design and Testing Laboratory. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 15, 135A. Limited enrollment. Computer-aided optimum design, construction, instrumentation, and test of a small-scale model structure. Use of computer-based data acquisition and interpretation systems for comparison of experimental and theoretically predicted behavior. Letter grading.

137. Elementary Structural Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135B. Basic structural dynamics course for civil engineering students. Elastic free, forced vibration, and earthquake response spectra analysis for single and multidegree of freedom systems. Axial, bending, and torsional vibration of beams. 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.

M140. Numerical Optimization Methods for Engineering Design. (4) (Same as Mechanical and Aerospace Engineering M192F.) Lecture, four hours; outside study, eight hours. Requisites: course 15 or Mechanical and Aerospace Engineering 20, Mathematics 32A, 33A. Recommended: Mathematics 115A. Systematic presentation of numerical optimization methods for engineering design; one-dimensional minimization, unconstrained minimization, linearly constrained minimization, general nonlinear problems, approximation concepts, duality. Optimization problem statements. Advantages and limitations of numerical optimization. Applications. Letter grading.

141. Steel Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135B. 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. Letter grading.

142. Design of Reinforced Concrete Structures. (4) Lecture, three hours; recitation, three 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. Requisite: course 142. Limited enrollment. Design considerations used for reinforced concrete beams, columns, slabs, and joints evaluated using analysis and experiments. Links between technical theory, building codes, and experimental results. Letter grading.

143. Design of Prestressed Concrete Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135A. Prestressing and post-tensioning techniques. Properties of concrete and prestressing steels. Loss of prestress. Analysis of sections for flexural stresses and ultimate strength. Design of beams by allowable stress and strength methods. Load balancing design of continuous beams and slabs. Letter grading.

144. Structural Systems Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 141, 142. Design course for civil engineering students, with focus on design and performance of complete building structural systems. Uniform Building Code dead, live, wind, and earthquake loads. Design of concrete masonry building. Computer analysis of performance of designed building. Letter grading.

147. Design and Construction of Tall Buildings. (4) Lecture, four hours; outside study, eight hours. Requisite: course 141. Limited enrollment. Introduction to total design process and professional participants. Systematic presentation of advantages and limitations of different structural forms and systems. Identification of critical design factors influenced by tallness. Foundation systems. Construction site visits, costing, and scheduling. Letter grading.

150. Engineering Hydrology. (4) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 103. Recommended: elementary probability. Precipitation, climatology, stream flow analysis, flood frequency analysis, groundwater, snow hydrology, hydrologic simulation. Possible field trips. Letter grading.

151. Introduction to Water Resources Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 103. 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.

153. Introduction to Environmental Engineering Science. (4) Lecture, four hours; outside study, eight hours. Requisite: 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. Field trip. Letter grading.

154. Introduction to Environmental Aquatic Chemistry. (4) Lecture, four hours; outside study, eight hours. Requisites: course 153, Chemistry 20A, 20B, Mathematics 31A, 31B, Physics 1A, 1B. Description of chemical behavior of metals and anthropogenic/natural inorganic/organic compounds in natural fresh/marine surface waters and water treatment; acid-base chemistry, alkalinity, complexation, precipitation, sorption, redox, photochemistry, disinfection by-products, ozonation. Selected global chemical cycle(s). Letter grading.

155. Unit Operations and Processes for Water and Wastewater Treatment. (4) Lecture, four hours; recitation, 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 experiments 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. Water Quality Control Laboratory. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 156A, Chemistry 20A, 20B. Characterization and analysis of typical natural waters and wastewaters for inorganic and organic constituents. Selected experiments include solids, nitrogen species, oxygen demand, chlorine, alkalinity, hardness, and trace analysis. Discussion of relevance of these measurements to water resource engineering. Letter grading.

157A. Design of Water Resource Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: course 151, Mechanical and Aerospace Engineering 103. Review design of hydraulic structures, pertinent fluid mechanics, and hydraulic theory and applications. Examples of failures and successes of hydraulic structures. Class project and field trip required. Letter grading.

157B. Design of Water Treatment Plants. (4) Lecture, two hours; discussion, two hours; laboratory, four hours; other, four hours. Requisite: course 155. Water quality standards and regulations, overview of water treatment plants, design of unit operations, pre-design 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. Requisite: course 155. Process design of wastewater treatment plants, including primary and secondary treatment, detailed design review of existing plants, process control, and economics. Letter grading.

160. Environmental Monitoring and Data Analysis. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 11, 15, 153, Mathematics 32A, 33A. Random and multistage sampling of environmental systems, empirical models and curve fitting, estimation of trends and statistical parameters, regression and correlation, factor analysis of multivariate data, kriging, monitoring network design and field experimental design, visual representation and computational mapping of environmental data. Letter grading.

163. Introduction to Atmospheric Chemistry and Air Pollution. (4) Lecture, four hours; outside study, eight hours. Requisites: course 153, Chemistry 20A, 20B, Mathematics 31A, 31B, Physics 1A, 1B. Description of processes affecting chemical composition of troposphere: air pollutant concentrations/standards, urban and regional ozone, aerosol pollution, formation/deposition of acid precipitation, fate of anthropogenic/toxic/natural organic and inorganic compounds, selected global chemical cycle(s). Control technologies. Letter grading.

164. Hazardous Waste Site Investigation and Remediation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150, 153, Mechanical and Aerospace Engineering 103. Overview of hazardous waste types and potential sources. Techniques in measuring and modeling subsurface flow and contaminant transport in the subsurface. Design project illustrating a remedial investigation and feasibility study. Letter grading.

166. Environmental Microbiology. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Requisite: 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.

180. Introduction to Transportation Engineering. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Designed for juniors/seniors. General characteristics of transportation systems, including streets and highways, rail, transit, air, and water. Capacity considerations including time-space diagrams and queueing. Components of transportation system design, including horizontal and vertical alignment, cross sections, earthwork, drainage, and pavements. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

Graduate Courses

220. Advanced Soil Mechanics and Stability of Slopes. (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. Static slope stability. Letter grading.

221. Advanced Foundation Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 121, 220. Stress distribution. Hydro-compression and swell of earth fills. Bearing capacity and settlement of shallow foundations. Performance of pile and pier foundations under vertical and lateral loading. Construction considerations for pile foundations. Letter grading.

222. Soil Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. In-depth study of stress-strain behavior of soils under cyclic and dynamic loads caused by earthquakes, ocean waves, machine foundations, and similar items. Analysis of laboratory and field tests for determination of cyclic and dynamic soil properties. Effects of type of soil, degree of saturation, and loading conditions on cyclic properties. Letter grading.

223. Earth Retaining Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 121. Basic concepts of theory of earth pressures behind retaining structures, with special application to design of retaining walls, bulkheads, sheet piles, and excavation bracing. Effects of flexibility, creep in soils, and construction techniques on stability of bulkheads and sheet piles. Mechanical stabilization of soils, such as with soil nails and geosynthetics. Letter grading.

225. Geotechnical Earthquake Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 137. Analysis of earthquake ground motions, including seismic source modeling, travel path effects, and site response effects. Soil/structure interaction. Liquefaction susceptibility and mitigation. Undrained residual strength. Seismic slope stability. Seismic earth pressures. Letter grading.

228L. Advanced Soil Mechanics Laboratory. (4) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 120, 121. Lectures and laboratory studies covering more advanced aspects of laboratory determination of soil properties and their application to design. Tests to determine permeability, consolidation, and shear strength. Review of advanced instrumentation and measurement techniques. Letter grading.

229. Seminar: Advanced Topics in Soil Mechanics. (4) Seminar, four hours; outside study, eight hours. Topics may vary each term to cover subjects such as earth dam design, seepage through soils, consolidation, constitutive laws, finite difference and finite element methods with special application in soil mechanics, theories of elasticity and plasticity, and case histories. Letter grading.

M230. Elasticity. (4) (Same as Mechanical and Aerospace Engineering M256B.) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 256A. Equations of linear elasticity; uniqueness of solution; Betti/Rayleigh reciprocity; Saint-Venant's principle; simple problems involving spheres and cylinders; special techniques for plane problems. Airy's stress function, complex variable method, transform method; three-dimensional problems, torsion, entire space and half-space problems; boundary integral equations. Letter grading.

231. Inelastic Effects in Structures and Materials. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130. Analogy between inelastic strain and applied force in stress analysis. Mathematical and physical theories of plasticity and creep and their basic assumptions. Static and dynamic analysis of inelastic beams, columns, frames, and plates. Localized plastic deformation in materials. S/U or letter grading.

232. Theory of Plates and Shells. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or Mechanical and Aerospace Engineering 156B. 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 M230, 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.

234. Advanced Topics in Structural Mechanics. (4) Lecture, four hours; outside study, eight hours. Limited to graduate engineering students. Current topics in composite materials, computational methods, finite element analysis, structural synthesis, nonlinear mechanics, and structural mechanics in general. Topics may vary from term to term. S/U or letter grading.

235A. Advanced Structural Analysis. (4) Lecture, four hours; outside study, eight 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; outside study, eight 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. S/U or 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. S/U or 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. S/U or letter grading.

M237A. Dynamics of Structures. (4) (Same as Mechanical and Aerospace Engineering M269A.) Lecture, four hours; outside study, eight hours. Requisite: course 137. 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. S/U or letter grading.

M239. Plasticity. (4) (Same as Mechanical and Aerospace Engineering M256C.) Lecture, four hours; outside study, eight hours. Requisites: Mechanical and Aerospace Engineering 256A, 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.

M240. Optimum Structural Design. (4) (Same as Mechanical and Aerospace Engineering M267A.) Lecture, four hours; outside study, eight hours. Requisite: course 235A or Mechanical and Aerospace Engineering 261A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures. S/U or letter grading.

241. Advanced Steel Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 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.

242. Advanced Reinforced Concrete Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 142. Design of building and other structural systems for vertical and lateral loads. Earthquake forces. Ductility in elements and systems. Columns: secondary effects and biaxial bending. Slabs: code and analysis methods. Footings, shear walls, diaphragms, chords, and collectors. Detailing for ductile behavior. Retrofitting. Letter grading.

243A. Behavior and Design of Reinforced Concrete Structural Elements. (4) Lecture, four hours; outside study, eight 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) (Formerly numbered 243.) Lecture, four hours; outside study, eight 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 Loads and Safety for Civil Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course 141 or 142 or 143 or 144. Modeling of uncertainties in structural loads and structural mechanics; structural safety analysis; and calculation of capacity reduction factors. Letter grading.

246. Structural Response to Ground Motions. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 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. Advanced Structural Dynamics for Civil Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 235A, 235B, M237A or 246. Dynamic response of linear structures with proportional and nonproportional damping using modal superposition methods. Dynamic response of inelastic systems using numerical integration. Introduction to base isolation and active structural control. Earthquake engineering applications. Letter grading.

249. Selected Topics in Structural Engineering and Mechanics. (2) Lecture, two hours; outside study, six hours. Review of recent research and developments in structural engineering and mechanics. Structural analysis, finite elements, structural stability, dynamics of structures, structural design, earthquake engineering, ground motion, elasticity, plasticity, structural mechanics, mechanics of composites, and constitutive modeling. May be repeated for credit. S/U grading.

250A. Surface Water Hydrology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150. In-depth study of surface water components of hydrologic cycle. Hydrologic mass balance analysis, hydrologic error analysis using systems investigation and physical hydrology. Stochastic hydrology: time-series analysis, Markovian streamflow generating models, and generation of multivariate synthetic streamflows. Applications. Letter grading.

250B. Groundwater Hydrology. (4) Lecture, four hours; outside study, eight 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. Mathematical Modeling of Contaminant Transport in Groundwater. (4) Lecture, four hours; laboratory, 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, coupled and multiphase pollution problems, computer programs and applications. S/U or letter grading.

251. 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.

252. Engineering Economic Analysis of Water and Environmental Planning. (4) Lecture, four hours; outside study, eight hours. Requisites: course 106A, one or more courses from Economics 1, 2, 11, 100, 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; outside study, eight 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.

254B. Environmental Aquatic Organic Chemistry. (4) Lecture, four hours; outside study, eight hours. Requisites: Chemistry 11A, 11B, Mathematics 31A, 31B, Physics 8A, 8B. Equilibrium and kinetic descriptions of anthropogenic and natural organic compounds in natural fresh/marine surface waters and in water treatment. Processes include sorption, air/water exchange, hydrolysis, photolysis, photooxidation, oxidation/reduction, disinfection, by-products, and ozonation. Letter grading.

254C. Aerosol, Fog, and Cloud Chemistry of Air Pollution. (4) Lecture, four hours; outside study, eight hours. Requisite: Chemistry 11A, 11B, Mathematics 31A, 31B, Physics 8A, 8B. Chemical/physical properties of aerosols (inorganic, metals, organic). Ionic composition. Equilibrium/dynamic gas-to-drop partitioning of water and semivolatile inorganic/organic compounds. Aqueous/condensed-phase transformations of inorganic/organic compounds and metals. Condensed-phase oxidant cycles. Letter grading.

255A. Physical and Chemical Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight 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; outside study, eight 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.

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. S/U or letter grading.

259A. Selected Topics in Environmental Engineering. (2) Lecture, two hours; outside study, four hours. Review of recent research and developments in environmental engineering. Water and wastewater treatment systems, nonpoint pollution, multimedia impacts. May be repeated for credit. S/U grading.

259B. Selected Topics in Water Resources. (2 to 4) Lecture, four hours; outside study, eight hours. Review of recent research and developments in water resources. Water supply and hydrology, global climate change, economic planning, optimization of water resources development. May be taken for a maximum of four units. S/U or letter grading.

260. Advanced Topics in Hydrology and Water Resources. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B, 251. 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. S/U or 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.

M262A. Introduction to Atmospheric Chemistry. (4) (Same as Atmospheric 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.

M262B. Atmospheric Diffusion and Air Pollution. (4) (Same as Atmospheric 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 grading for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

263A. Physics of Environmental Transport. (4) (Formerly numbered 263.) 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.

265A. Mass Transfer in Environmental Systems. (4) Lecture, four hours; computer applications, two hours; outside study, eight hours. Designed for graduate environmental engineering program students. Physical chemistry and mass transfer fundamentals related to contaminant fate and transport in soil, air, and water systems, including soil/water sorption and desorption, contaminant retardation, vaporization and dissolution of nonaqueous phase liquids (NAPL), and other environmental systems. Letter grading.

265B. Contaminant Transport in Soils and Groundwater. (4) Lecture, four hours; computer applications, two hours; outside study, six hours. Requisites: courses 250B, 265A. Principles of mass transfer as they apply in soil and groundwater, independent estimation of transport model parameters; remediating hazardous waste sites. 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.

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.

297. Seminar: Current Topics in Civil Engineering. (2 to 4) Seminar, to be arranged. Lectures, discussions, and student presentations and projects in areas of current interest in civil engineering. May be repeated for credit. 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. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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 M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate civil engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. S/U grading.

597C. Preparation for Ph.D. 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 M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate civil engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. 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

College of Letters and Science

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Sarah P. Morris, Ph.D., *Chair*

Professors

Ann L.T. Bergren, Ph.D.
David L. Blank, Ph.D.
Andrew R. Dyck, Ph.D.
Bernard D. Frischer, Ph.D.
Sander M. Goldberg, Ph.D.
Michael W. Haslam, Ph.D.
Steven Lattimore, Ph.D.
Sarah P. Morris, Ph.D.
Brent H. Vine, Ph.D.

Professors Emeriti

Philip Levine, Ph.D.
Bengt T.M. Löfstedt, Ph.D.
Jaan Puhvel, Ph.D.
Albert H. Travis, Ph.D.

Associate Professors

Robert A. Curval, Ph.D.
Katherine C. King, Ph.D.
Kathryn A. Morgan, Ph.D.
Carole E. Newlands, Ph.D.

Scope and Objectives

The general objective of the Classics Department is to provide a thorough knowledge of the Greek and Roman languages and culture. To this end, it offers elementary and advanced courses in the languages, the reading and analysis of Greek and Roman authors, the history of Greek and Roman literature, classical art, archaeology, linguistics, mythology, philosophy, and religion. The department is also strong in two fields which are not universally taught in classics departments, namely medieval Latin and Byzantine studies.

Bachelor of Arts degrees are offered in Classical Civilization, in Greek, in Latin, and in Greek and Latin. Other undergraduate degrees include the B.A. in English/Greek and in English/Latin, offered jointly with the English Department. Graduate degrees include the Master of Arts in Classics (Greek and Latin), Greek, and Latin, and the Ph.D. in Classics.

Undergraduate Study

Students considering a major in the department should consult the adviser as soon as possible in their University career, but in no case later than the point at which they are about to take upper division courses.

Classical Civilization B.A.

The civilizations of ancient Greece and Rome have made important contributions to the political, social, artistic, and intellectual development of the Western world. The purpose of the classical civilization major is to provide a formal and balanced introduction to the historical and cultural experiences of the ancient Greeks and Romans. The program of study is structured, yet not rigid. Lower division survey courses and requirements in elementary language study, ancient history, and classical art establish an essential background of knowledge, while electives encourage individual and specialized interests. The program offers a broad range of courses in the fields of language, literature, history, mythology, religion, philosophy, art, and archaeology. The major serves as excellent and rewarding preparation for a professional career in medicine, law, business, journalism, communications, or the arts.

Preparation for the Major

Required: Classics 10, 20, and one course from 40, 41, 42.

The Major

Required: (1) Greek 3 or Latin 3; (2) two courses in Greek or Roman history (History 115B, 115C, 116A, 116B, 117A, 117B, 118); (3) two courses in classical art or archaeology (Classics M153A through M153K); (4) seven upper division courses in the department (courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser) — no more than three may be selected from Greek 100 through 133 or Latin 100 through 133, and Classics 195 may be applied as only one course toward the major; (5) one senior seminar (Classics 197); with approval of the undergraduate adviser, a senior paper (Classics 195 or 199) may be substituted for the senior seminar.

Greek B.A.

Preparation for the Major

Required: Classics 10, 20; Greek 1, 2, 3, or equivalent.

The Major

Required: Eight upper division Greek courses, including course 110, and four courses in classical civilization (Classics 140 through 197) and/or ancient history (History 115A, 115B, 115C, 116A, 116B, 117A, 117B, 117C). Courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser.

Greek and Latin B.A.

Preparation for the Major

Required: Classics 10, 20; Greek 1, 2, 3 and Latin 1, 2, 3, or equivalent.

The Major

Required: Ten upper division Greek and/or Latin courses (of which at least four must be in each language), including Greek 110 or Latin 110, and three courses in classical civilization (Classics 140 through 197) and/or ancient history (History 115A, 115B, 115C, 116A, 116B, 117A, 117B, 117C). Courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser.

Latin B.A.

Preparation for the Major

Required: Classics 10, 20; Latin 1, 2, 3, or equivalent.

The Major

Required: Eight upper division Latin courses, including course 110, and four courses in classical civilization (Classics 140 through 197) and/or ancient history (History 115A, 115B, 115C, 116A, 116B, 117A, 117B, 117C). Courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser.

Note: Students in the Greek, Latin, and Greek and Latin majors are permitted to take Greek 200A-200B-200C and Latin 200A-200B-200C with consent of the instructor.

English/Greek B.A.

Preparation for the Major

Required: English 4, 10A, 10B, 10C, Greek 1, 2, 3.

The Major

Required: (1) Seven courses from English 140A through 190 selected in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Greek, including courses 100 and either 101A or 101B, selected in consultation with an adviser in the Department of Classics (of these seven courses, at least two must be in poetry and two in prose). Total courses required: 14.

English/Latin B.A.

Preparation for the Major

Required: English 4, 10A, 10B, 10C, Latin 1, 2, 3.

The Major

Required: (1) Seven courses from English 140A through 190 selected in consultation with an adviser in the Department of English; (2) seven upper division or graduate courses in Latin, including courses 105A and 113, selected in consultation with an adviser in the Department of Classics (of these seven courses,

at least two must be in poetry and two in prose). Total courses required: 14.

Honors Program

The honors program is open to students in each of the departmental majors. To qualify for graduation with departmental honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses in the department and an overall GPA of 3.0 or better, and (3) complete Classics 195 with a grade of A- or better.

To qualify for graduation with departmental highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.85 or better in upper division courses in the department and an overall GPA of 3.65 or better, and (3) complete Classics 195 with a grade of A.

Classical Civilization Minor

The Classical Civilization minor is designed to recognize a serious commitment to the study of the cultures and civilizations of ancient Greece and Rome. Lower division survey courses in historical studies, classical literature, mythology, and film provide an essential introduction to the imagination and power of the ancient world. Students may fulfill upper division requirements from a variety of courses in classical civilization and related fields, including political and social history, literature, art and archaeology, religion, mythology, philosophy, and cultural studies of ethnicity, gender, and sexuality in antiquity.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Classics 10, 20, and one course from 30, 40, 41, 42.

Required Upper Division Courses (20 units): Five courses selected from Classics 140 through 197. One course in a related field may be substituted with approval of the faculty undergraduate adviser.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Greek Minor

The Greek minor is designed to recognize a serious commitment to the study of the Greek language. After a year of elementary Greek (Greek 1, 2, 3) or its equivalent, students select departmental upper division reading courses in ancient Greek prose and poetry which provide close analysis of individual texts, with attention to their historical, literary, and cultural context. Subjects of study include Homeric epic, lyric poetry, tragedy and comedy, history, rhetoric, philosophy, and the New Testament.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (15 units): Greek 1, 2, 3, or equivalent.

Required Upper Division Courses (20 units): Five courses selected from Greek 100 through 133.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Latin Minor

The Latin minor is designed to recognize a serious commitment to the study of the Latin language. After a year of elementary Latin (Latin 1, 2, 3) or its equivalent, students select departmental upper division reading courses in classical (and/or late antique and medieval) Latin prose and poetry which provide close analysis of individual texts, with attention to their historical, literary, and cultural context. Subjects of study include Roman comedy, epic, lyric, elegy, satire, history, rhetoric, philosophy, epistolography, and the novel.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (15 units): Latin 1, 2, 3, or equivalent.

Required Upper Division Courses (20 units): Five courses selected from Latin 100 through 133.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Classics offers the Master of Arts (M.A.) degrees in Classics, in Greek, and in Latin.

Admission

Requirements for admission to the M.A. programs are a UCLA B.A. degree, or the equivalent, with a major in classics for the Classics M.A., Greek for the Greek M.A., or Latin for the Latin M.A.; a grade-point average of at least 3.0 in the major; a statement of purpose; three letters of recommendation, normally from previous instructors in the classics; and Graduate Record Examination (GRE) scores. Applicants

for the Classics M.A. program who are deficient in Greek or Latin may be admitted to the Greek or Latin program, then permitted to transfer into the classics program when the deficiencies have been removed.

Areas of Study

The department offers M.A. degrees in Classics (Greek and Latin), Greek, and Latin.

Course Requirements

The courses presented for the Classics M.A. must include (1) Classics 287, (2) Greek or Latin 210, and (3) five courses from Greek 200A-200B-200C/Latin 200A-200B-200C. Courses for the Greek M.A. are (1) Classics 287, (2) Greek 210, and (3) Greek 200A-200B-200C. Courses for the Latin M.A. are (1) Classics 287, (2) Latin 210, (3) Latin 200A-200B-200C. The six-unit 200A-200B-200C courses test the appropriate part of the departmental reading lists in a one-hour translation examination. The remaining courses are to be selected in consultation with the graduate adviser.

No more than two half seminars, each counting as two units, may be applied toward the M.A. course requirements. No more than one course in the 500 series may be applied toward the M.A. course requirements.

No more than one 596 course may be applied toward the M.A. course requirements.

Comprehensive Examination Plan

The department follows the comprehensive examination plan. Before the examination, students are expected to complete the departmental reading lists in Greek authors for the Greek M.A., or Latin authors for the Latin M.A., or in Greek and Latin authors for the Classics M.A. The examination consists of a three-hour written test in Greek and Latin literature (Greek for Greek M.A., Latin for Latin M.A., Greek and Latin for Classics M.A.) in two parts: (1) passages for translation at sight and for generic identification and comparison; (2) an essay question combining periods kept separate in the 200A-200B-200C courses (for Classics M.A., combining Greek and Latin). It is to be taken no later than one quarter after the fulfillment of the M.A. course requirements. It may be repeated once, in the quarter following the first attempt; in exceptional cases and with the consent of the departmental faculty, more than once. For admission into the Ph.D. program, a grade of B+ or better is required.

Thesis Plan

None.

Doctoral Degree

Admission

A UCLA M.A. degree in Classics, Greek, or Latin with a comprehensive examination grade of B+ or better, or an equivalent degree from another university is required for admission to the program leading to the Ph.D. degree in Classics.

In addition to an M.A. degree, the department requires a statement of purpose. If applicants do not have a UCLA M.A., they must also submit three letters of recommendation, normally from previous instructors in the classics, and Graduate Record Examination (GRE) scores. While there is no minimum required score, the GRE is used as a criterion in uncertain cases, and to assess applications for teaching assistantships and other financial assistance from the department. The application may be obtained by writing to the department.

Major Fields or Subdisciplines

The department offers the Ph.D. in Classics with major fields in classical literature and philology; classical linguistics; Byzantine Greek; and medieval Latin.

Course Requirements

Classical Literature and Philology. M.A. degree holders in Greek only or Latin only must take two 200A-200B-200C courses in the other language. In addition, five (or more) 200-series courses are required of all Ph.D. students, including Greek 210 and Latin 210 unless taken previously. Required courses, except for Greek 210 and Latin 210, are in addition to those taken for the M.A.

Classical Linguistics. M.A. degree holders in Greek only or Latin only must complete the Classics M.A. course requirements by taking two 200A-200B-200C courses in the other language. A minimum of five (full) seminars is required for this major field: Classics 180 (or an equivalent undergraduate or graduate course taken at UCLA or elsewhere), Classics 240, Greek 242, 243, Latin 242, and either Classics 230A-230B or one quarter of Vedic (Indic M222A, presupposing three quarters of upper division classical Sanskrit).

Byzantine Greek. M.A. degree holders in Greek only or Latin only must complete the Classics M.A. course requirements by taking 200A-200B-200C courses in the other language. A minimum of five (full) seminars is required: Greek 210, at least two seminars from 231A-231B-231C, 240A-240B, 245, History 216A-216B.

Medieval Latin. M.A. degree holders in Greek only or Latin only must complete the Classics M.A. course requirements by taking 200A-200B-200C courses in the other language. A minimum of five (full) seminars is required: Latin 130 or 120, 131, 133 (or equivalent undergraduate or graduate courses taken at UCLA or elsewhere); Latin 210; at least two seminars from Latin 231A-231B, 243 or History 219A or 219B; Greek 231A or 231B or 231C (or an upper division medieval language course such as French 115A, 115B, 115C, German 152, Italian 113, 114A, 114B, 190, Spanish M118A, M118B, 122, 123, or an equivalent undergraduate or graduate course taken at UCLA or elsewhere); History 217.

Most classics, Greek, and Latin seminars may be taken in one of two ways: (1) as full seminars, with the requirement of a final paper (or

an equivalent workload, such as a final examination, as designated by the instructor) to be presented to the instructor and assessed as part of the final grade; full seminars carry four units, with letter grading or (2) as half seminars, requiring full participation in the course but no paper (or equivalent as described above). Half seminars carry two units and are normally taken for an S/U grade only, except that arrangements may be made with the instructor beforehand, at the instructor's discretion, for a letter grade to be given.

Written and Oral Qualifying Examinations

The major fields have separate reading lists. All lists include the reading list in Greek and in Latin authors required for the M.A. in Classics. The major fields have the following examination structure:

Classical Literature and Philology: (1) Two one and one-half hour translation examinations, one in Greek, one in Latin, which may be taken concurrently or separately, consisting of passages from the Ph.D. reading list and other literature (M.A. degree holders in Greek only or Latin only take an additional two-hour examination in sight translation from the other language); (2) a 15- to 22-page research paper on a field or author of the student's choosing outside the area of specialization (submitted either before or after the comprehensive examination); (3) a written three-hour examination in the area of the student's specialization and prospective dissertation topic.

Classical Linguistics: (1) A written three-hour translation examination in classical Greek or Latin (half from the reading list and half at sight); (2) a written three-hour examination consisting of passages of ancient texts covered in the required course, for translation and comment; (3) a two-hour written examination in comparative grammar.

Byzantine Greek: (1) A written three-hour translation examination in classical Greek (half from the reading list and half at sight); (2) a written three-hour examination on Byzantine Greek (translation from the reading list, sight translation, questions pertaining to the list of recommended secondary literature).

Medieval Latin: (1) A written three-hour translation examination in classical Latin (half from the reading list and half at sight); (2) a written three-hour examination on medieval Latin (translation from the reading list, sight translation, questions pertaining to the list of recommended secondary literature).

Each qualifying examination may normally be retaken twice. Promptly on the completion of the last qualifying examination, the University Oral Qualifying Examination is administered by the doctoral committee, probing the candidate's knowledge of the major field (and possible stipulated areas outside the specialization) and discussing a formal dissertation proposal.

Classics

Lower Division Courses

10. Survey of Classical Greek Culture. (4) Lecture, two to three hours; discussion, 90 minutes; outside study, seven and one-half hours. Knowledge of Greek not required. Lectures, many illustrated, on Greek life and culture from age of Homer to Roman Conquest. Discussion of art, literature, philosophy, and mythology. P/NP or letter grading.

20. Survey of Roman Civilization. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Knowledge of Latin not required. Study of life and culture of Rome from time of its foundation to end of antiquity. Survey of art, literature, and political thought of the Romans. Selections from Latin authors read in translation. P/NP or letter grading.

30. Introduction to Classical Mythology. (4) (Formerly numbered 161.) Lecture, three hours; discussion, one hour. Introduction to myths and legends of ancient Greece and Rome, role of those stories in their societies, and modern approaches to studying them. P/NP or letter grading.

40. Survey of Greek Literature in Translation. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Readings in English of Greek literature from the beginning to Roman times to demonstrate the sweep of Greek literary achievement and the foundations it laid for subsequent literary developments. P/NP or letter grading.

41. Survey of Latin Literature in Translation. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Readings in English to emphasize unique achievements of Latin literature, particularly in such areas as drama, epic, satire, oratory, and history. P/NP or letter grading.

42. Cinema and the Ancient World. (4) Lecture, three hours; discussion, 90 minutes. Use of popular cinema to introduce students to ancient Greek and Roman culture; limits of investigation set by individual instructor. P/NP or letter grading.

50F. Power and Imagination in Ancient Rome. (4) Lecture, 90 minutes; discussion, 90 minutes. Freshman seminar designed to survey major aspects of Roman civilization, including art, religion, literature, and politics. P/NP or letter grading.

51A. Art and Archaeology of Classical World: Greece. (4) (Formerly numbered 51.) Lecture, three hours; discussion, one hour. Survey of a major period, theme, or medium of Greek art and archaeology at discretion of instructor. P/NP or letter grading.

51B. Art and Archaeology of Classical World: Rome. (4) (Formerly numbered 51.) Lecture, three hours; discussion, one hour. Survey of a major period, theme, or medium of Roman art and archaeology at discretion of instructor. P/NP or letter grading.

55. Origins and Nature of English Vocabulary. (4) Lecture, three hours. Origins and nature of English vocabulary, from Proto-Indo-European prehistory to current slang. Topics include the Greek and Latin component in English (including technical terminology), the alphabet and English spelling, semantic change and word formation, vocabulary in literature and film.

M70. Survey of Medieval Greek Culture. (4) (Same as History M70.) Lecture, three to four hours. Classical roots and medieval manifestation of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including discovery of America).

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

88A. Socrates. Examination of evidence for Socrates' life and thought, through texts from Plato, Xenophon, and Aristophanes, in an attempt to see how Socrates worked and affected those around him.

88C. Comparative Mythology. Ways of studying myth through history, especially in ancient Near Eastern and Indo-European cultures. Comparison of myths on both diffusionary and genetic models. Reconstruction of protomyths common to prehistoric Western Asia and Europe.

88D. The Greek Symposium. Freshman seminar on the topic of the Greek symposium, an institution that permits students to understand many major features of Greek culture and society.

Upper Division Courses

140. Topics in History of Greek Literature. (4) Lecture, three hours. Requisites: courses 10, 40. Investigation of a specific issue in the understanding of Greek literature, such as definition of a genre or evaluation of a 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. Requisites: courses 20, 41. Investigation of a specific issue in the interpretation of Latin literature, such as definition of a genre or evaluation of a particular author. May be repeated for credit with topic change. P/NP or letter grading.

142. Ancient Epic. (4) Lecture, three hours. Requisites: courses 10 or 20, and 40 or 41. Homer's *Iliad* and *Odyssey*, Vergil's *Aeneid*, and Ovid's *Metamorphoses*, studied in translation.

143. Ancient Drama. (4) Lecture, three hours. Requisites: courses 10 or 20, and 40 or 41. Study of Greek and/or Latin drama in translation. P/NP or letter grading.

144. Topical Studies in Ancient Culture. (4) Lecture, three hours. Requisites: courses 10 or 20, and 40 or 41. Investigation of a 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.

M145A. Ancient Greek and Roman Philosophy. (4) (Same as Philosophy M103A.) Lecture, three hours; outside study, nine 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 the texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues.

M145B. Later Ancient Greek Philosophy. (4) (Same as Philosophy M103B.) Lecture, three hours; outside study, nine hours. Requisite: one course from M145A, Philosophy 1, 100A, M101B, M102. Study of some major texts in Greek philosophy of the Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

M146A. Plato — Earlier Dialogues. (4) (Same as Philosophy M101A.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato.

M146B. Plato — Later Dialogues. (4) (Same as Philosophy M101B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M146A. Study of selected topics in middle and later dialogues of Plato.

M147. Aristotle. (4) (Same as Philosophy M102.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one philosophy course. Study of selected works of Aristotle.

150A. Origins of the Western View of Women: The Female in Greek Thought. (4) Lecture, three hours. Requisite: course 10. Interdisciplinary study of concept of the female in various forms of thought developed by the Greeks (e.g., epic, tragedy, comedy, history, political philosophy, gynecology). Special emphasis on how these texts lay the foundation for the Western view of women.

150B. Origins of the Western View of Women: The Female in Roman and Early Christian Thought. (4) Lecture, three hours. Requisite: course 20. Interdisciplinary study of concept of the female in Roman and early Christian thought. Special emphasis on status of the female with regard to sexuality, procreation, and the sacred.

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 the 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.

152. The Ancient City. (4) Lecture, three to four hours. Requisites: courses 10 and 20, or History 1A. Study of urban planning in the ancient world, with particular attention to cities of classical Greece and Rome, but with consideration also to comparable developments in the ancient Near and Far East. Examination of questions of architectural space and organization, of form, design, and function of major municipal areas and buildings, and of provision of public amenities by detailed reference to significant archaeological sites and contemporary sources.

M153A. Minoan Art and Archaeology. (4) (Same as Art History M102A.) Lecture, three hours. Requisite: course 10 or Art History 50. Study of development of art and architecture in Minoan Crete from ca. 3000 to 1000 B.C. P/NP or letter grading.

M153B. Mycenaean Art and Architecture. (4) (Same as Art History M102B.) Lecture, three hours. Requisite: course 10 or Art History 50. Study of development of art and architecture in Mycenaean Greece from 2000 to 1000 B.C. P/NP or letter grading.

M153C. Archaic Greek Art and Archaeology. (4) (Same as Art History M102C.) Lecture, three hours. Requisites: course 10, Art History 50. Study of development of art and architecture of Greek world from approximately 800 through 490 B.C. P/NP or letter grading.

M153D. Classical Greek Art and Archaeology. (4) (Same as Art History M102D.) Lecture, three hours. Requisites: course 10, Art History 50. Recommended: upper division classics or Greek courses. Study of development of art and architecture of Greek world from approximately 490 through 350 B.C. P/NP or letter grading.

M153E. Hellenistic Greek Art and Archaeology. (4) (Same as Art History M102E.) Lecture, three hours. Requisites: course 10, Art History 50. Study of development of art and architecture of Greek world from middle of the 4th century B.C., including transmittal of Greek art forms to the Romans. P/NP or letter grading.

M153F. Etruscan Art. (4) (Same as Art History M102F.) Lecture, three hours. Requisite: course 20 or Art History 50. Arts of Italic peninsula from ca. 1000 B.C. to end of the Roman Republic. P/NP or letter grading.

M153G. Roman Art. (4) (Same as Art History M102G.) Lecture, three hours. Requisite: Art History 50. Art and architecture of Rome and its Empire from ca. 300 B.C. to A.D. 300. P/NP or letter grading.

M153H. Late Roman Art. (4) (Same as Art History M102H.) Lecture, three hours. Requisites: course M153G, Art History 50. Art of Roman Empire from the 2nd through 4th century (A.D.). P/NP or letter grading.

M153I-M153J-M153K. Classical Archaeology. (4) (Same as Art History M102I-M102J-M102K.) Lecture, three or four hours. Requisite: course 10 or 20 or Art History 50 or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. P/NP or letter grading. **M153I.** Greco-Roman Architecture; **M153J.** Greco-Roman Sculpture; **M153K.** Greco-Roman Painting.

160. Legal Advocacy in Ancient World. (4) Lecture, three hours. Study of theory and practice of legal advocacy in classical Greece and Rome, with emphasis on speeches of Cicero.

162. Classical Myth in Literature. (4) Use of myth in principal authors and genres of Greek and Roman literature, with examples of its influence in later literatures.

165. Ancient Athletics. (4) Requisite: course 10 or History 1A. Study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art.

166A. Greek Religion. (4) Requisite: course 10. Study of the religion of the ancient Greeks.

166B. Roman Religion. (4) Requisite: course 20. Study of the religion of the ancient Romans.

167. Greek and Roman Magic. (4) Lecture, three hours. Requisite: course 10 or 20. Study of beliefs about supernatural phenomena in the ancient world, including witches, ghosts, vampires, and magic spells, attested in both literary and archaeological sources. P/NP or letter grading.

168. Comparative Mythology. (4) Lecture, three hours. Requisite: course 30. Religious, mythical, and historical traditions of Greece and Rome compared with each other and with those of other ancient Near Eastern and European societies.

M170. Power and Imagination in Byzantium. (4) (Same as History M122.) Lecture, three hours. Requisites: course M70 or History 123A-123B. Designed for juniors/seniors. Study of relations of authority and the intelligentsia in the highly centralized Byzantine Empire. Topics include criticism of the emperor, iconoclasm, intellectual freedom, attempts at reform.

180. Introduction to Classical Linguistics. (4) Requisites: Greek 3, Latin 3. Basics of comparative grammar of Greek and Latin in relation to one another and in the frame of Indo-European linguistics.

190. The Medieval Book. (4) Seminar, three hours. Requisites: courses 10, 20, and 40 or 41. Limited to senior Greek and Latin, Greek, Latin, and Classical Civilization majors. History of the book from manuscript to printing, with attention to construction, layout, decoration, and script, as well as changing cultural and historical contexts, medieval methods of information retrieval, and transition from script to print culture.

195. Senior Honors Paper. (4) Supervised through individual consultation with an appropriate faculty member, students revise paper written in a prior upper division course into substantial piece of academic writing.

197. Senior Seminar. (4) Seminar, three hours. Limited to seniors. Seminar on important themes, periods, genres of ancient Greek and Roman world that take an innovative interdisciplinary approach to questions old and new. Class presentations and papers.

199. Special Studies in Classics. (2 to 8) Limited to seniors.

Graduate Courses

200. History of Classical Scholarship. (4) Lecture, four hours. S/U or letter grading.

201B. Topics in Ancient History: Roman World (2 or 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.

M223. Introduction to Transmission of Ancient Latin Literature. (4) (Same as History M223.) Discussion, three hours. Designed for graduate students. Examination of role of Latin classical authors in history of Middle Ages and Renaissance to understand processes by which Latin literature has been preserved.

230A-230B. Language in Ancient Asia Minor. (4) Survey of the language situation in Anatolia in 2nd and 1st millennia B.C. Readings in Hittite, Palaic, Luwian, Hieroglyphic, Lycian, and Lydian texts. Anatolian-Greek relationships and survivals in classical and Hellenistic times.

244. Textual Criticism: Studies in Preparation of a Critical Edition of Greek and/or Latin Texts. (4) Seminar, three hours. Different steps required in preparation of a critical edition of an ancient text: localizing manuscripts; collation; establishing the stemma; selecting the right reading on basis of knowledge of the context, of the language of the author, and of the sources; emendations; formulation of *apparatus criticus* and *apparatus fontium*.

245. Computing and Classics. (4) Introduction to processing and analysis of digitized texts of classical authors for purposes of literary history and criticism.

246. Greek and Latin Meter. (4) Comprehensive study of meter as it functions in classical poetry.

251A. Seminar: Classical Archaeology — Aegean Bronze Age. (2 or 4) Seminar, three hours. S/U or letter grading.

251B. Seminar: Classical Archaeology — Greco-Roman Architecture. (4) Seminar, three hours. S/U or letter grading.

251C. Seminar: Classical Archaeology — Greco-Roman Sculpture. (4) Seminar, three hours. S/U or letter grading.

251D. Seminar: Classical Archaeology — Greco-Roman Painting. (2 or 4) Seminar, three hours. Studies in style and iconography of various periods of ancient Greek and Roman painting. May be repeated for credit with consent of instructor.

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 the 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 Athens. (2 or 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 Rome. (4) Detailed studies in topography and monuments of ancient Rome, combining evidence of literature, inscriptions, and actual remains.

260. Topics in Ancient Religion. (4) Seminar, three hours.

268. Seminar: Comparative Mythology. (4) Requisite: course 168. Advanced study of selected topics in comparing Greek and Roman traditions with other ancient Near Eastern and European societies.

287. Graduate Colloquium in Classical Literature. (4) 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.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Greek

Lower Division Courses

1. Elementary Greek. (5) Lecture, five hours; outside study, 10 hours.

2. Elementary Greek. (5) Lecture, five hours; outside study, 10 hours. Enforced requisite: course 1.

3. Elementary Greek. (5) Lecture, five hours; outside study, 10 hours. Enforced requisite: course 2.

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, 15 hours. Ten-week intensive introduction to Greek language equivalent to courses 1, 2, and 3. Offered in summer only. Letter grading.

Upper Division Courses

100. Readings in Greek Prose. Requisite: course 3. Reading of Plato's *Apology* or a text of comparable difficulty.

101A. Homer: *Odyssey*. (4) Requisite: course 100.

101B. Homer: *Iliad*. (4) Requisite: course 100.

102. Lyric Poets. (4) Requisite: course 100. Selections from Archilochus to Bacchylides.

103. Aeschylus. (4) Requisite: course 100.

104. Sophocles. (4) Requisite: course 100.

105. Euripides. (4) Requisite: course 100.

106. Aristophanes. (4) Requisite: course 100.

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.

110. Study of Greek Prose. (4) Requisite: course 100. Work in sight reading and grammatical analysis of Attic prose texts; writing Attic prose.

111. Herodotus. (4) Requisite: course 100.

112. Thucydides. (4) Requisite: course 100.

113. Attic Orators. (4) Requisite: course 100.

115. Xenophon. (4) Lecture, three hours. Requisite: course 100. Reading of one major work of Xenophon — the *Memorabilia*, *Cyropaedia*, *Anabasis*, *Hellenica*, or *Oeconomicus* — in Greek. P/NP or letter grading.

121. Plato. (4) Requisite: course 100.

122. Plato: *Republic*. (4) Requisite: course 100.

123. Aristotle: *Poetics* and *Rhetoric*. (4) Requisite: course 100.

124. Aristotle: *Ethics*. (4) (4) Requisite: course 100.

130. Readings in the New Testament. (4) Requisite: course 3.

131. Readings in Later Greek. (4) Requisite: course 100. Topics vary from year to year and include "Longinus," On the Sublime; Marcus Aurelius; Arrian; the Second Sophistic; Plutarch; later epic; epigram; epistolography Graeci.

132. Survey of Byzantine Literature. (4) 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.

133. Readings in Byzantine Literature. (4) Requisite: course 132. Topics vary from year to year and include Procopius, Agathias, Michael Psellus, the *Alexiad* of Anna Comnena, and Digenis Akritas.

199. Special Studies in Greek. (2 to 8) Limited to seniors.

Graduate Courses

200A-200B-200C. History of Greek Literature (6-6-6). Lectures on history of Greek literature, supplemented on the part of the student by independent reading of Greek texts in original language.

201A-201B. Homer: *Iliad*. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

202A-202B. Homer: *Odyssey* and the Epic Cycle. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

203. Hesiod. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

204. Homeric Hymns. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

205. Seminar: Aeschylus. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

206A-206B. Sophocles. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

207A-207B. Euripides. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

208A-208B. Aristophanes. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

209A-209B. Seminars: Hellenistic Poetry. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

210. Advanced Greek Prose Composition. Requisite: course 110.

211A-211B. Herodotus. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

212A-212B. Thucydides. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

213. Seminar: Greek Historiography. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

214. Demosthenes. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

215. Early Greek Orators. (2 or 4) Studies in works of Antiphon, Andocides, and Lysias. S/U (two-unit course) or letter (four-unit course) grading.

216. Menander. (2 or 4) Preparation: reading knowledge of classical Greek. S/U (two-unit course) or letter (four-unit course) grading.

217A-217B. Greek Lyric Poetry. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading. **217A.** Archaic Lyric. Study of lyric poetry of Archaic period, both choral and monodic, with elegiac and iambic included. **217B.** Pindar and Bacchylides. Study of choral odes of Pindar and Bacchylides, with special attention to conventions of the epinician.

220. Seminar: Greek Novel. (2 or 4) Seminar, three hours. Study of the 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 (two-unit course) or letter (four-unit course) grading.

221. Seminar: Pre-Socratic Philosophers. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

222A-222B. Plato. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

223A-223B. Aristotle. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

224. Seminar: Post-Aristotelian Philosophy. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

229. Sight Translation (2 to 4). Discussion, three hours. Designed for graduate students. Practice in translation of previously unseen texts from a variety of authors and genres. Topics include peculiarities of style and vocabulary of the distinct genres, literary vs. scholarly translation, semantic properties of particular words and constructions.

231A-231B-231C. Seminars: Later Greek and Byzantine Literature. (2 or 4) Studies in various aspects of Byzantine Greek language and literature. Topics vary from year to year. Each course may be taken independently and may be repeated for credit with topic change. S/U (two-unit course) or letter (four-unit course) grading.

233. Byzantine Poetry. (2 or 4) Study of main representatives of both religious and secular poetry. S/U (two-unit course) or letter (four-unit course) grading.

240A-240B. History of the Greek Language. 240A. Linguistic history of classical Greek. **240B.** Postclassical, medieval, and modern Greek.

241. Greek Epigraphy. (4) Survey of Greek historical inscriptions, chiefly Attic.

242. Greek Dialects and Historical Grammar. (4) Linguistic situation in early Greece. Readings in classical Greek dialectal texts. Greek grammar in context of common Greek and Indo-European linguistics.

243. Mycenaean Greek. (2 or 4) Seminar, three hours. Script, language, and grammar of the Linear B inscriptions; their relevance to ancient Greek linguistic and cultural history. S/U or letter grading.

244. Greek Papyrology. (4) Preparation: reading knowledge of Greek. Introduction to Greek papyri, considered both as historical documents and as carriers of literature.

245. Greek Paleography. (4) Studies in development of book hand in Greek manuscripts earlier than the invention of printing.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Latin

Lower Division Courses

1. Elementary Latin. (5) Lecture, five hours; outside study, 10 hours.

1G. Elementary Latin for Graduate Students (No credit). Concurrently scheduled with course 14.

2. Elementary Latin. (5) Lecture, five hours; outside study, 10 hours. Enforced requisite: course 1.

3. Elementary Latin. (5) Lecture, five hours; outside study, 10 hours. Enforced requisite: course 2 or 14.

14. Elementary Latin: Intensive. (10) Lecture, 10 hours; outside study, 20 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, 15 hours. Ten-week intensive introduction to Latin language equivalent to courses 1, 2, and 3. Offered in summer only. Letter grading.

Upper Division Courses

100. Readings in Latin Prose and Poetry. (4) Lecture, three hours. Requisite: course 3. Close study of a prose text supplemented with related readings in poetry. Attention to historical and cultural context. Course is normally requisite to other courses in the Latin 100 series.

101. Plautus. (4) Requisite: course 100.

102. Terence. (4) Requisite: course 100.

103. Lucretius. (4) Requisite: course 100.

104. Ovid. (4) Requisite: course 100.

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 the *Aeneid*, designed especially for students with only limited experience in reading Latin poetry.

105B. Advanced Vergil. (4) Lecture, three hours. Requisite: course 105A. Reading and discussion of Vergil's *Eclogues*, *Georgics*, and/or second half of the *Aeneid*. May be repeated for credit with change in readings. P/NP or letter grading.

106. Catullus. (4) Requisite: course 100.

107. Horace. (4) Requisite: course 100.

108. Roman Elegy. (4) Requisite: course 100. Selections from Catullus, Tibullus, and Propertius.

109. Roman Satire. (4) Requisite: course 100. Selections from *Epistles* of Horace, *Satires* of Juvenal, and *Epigrams* of Martial.

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.

111. Livy. (4) Requisite: course 100.

112. Tacitus. (4) Requisite: course 100.

113. Cicero: *The Orations*. Requisite: course 100.

114. Roman Epistolography: Cicero and Pliny. (4) Requisite: course 100.

115. Caesar. (4) Requisite: course 100.

116. Roman Novel. (4) Lecture, three hours. Requisite: course 100. Reading and discussion of either Petronius' *Satyricon* or Apuleius' *Metamorphoses* and development of the genre of prose novel in antiquity. May be repeated for credit with change in author and text.

117. Sallust. (4) Requisite: course 100.

118. Seneca. (4) Requisite: course 100. Selection of Seneca's works read in Latin.

120. The Vulgate. (4) Lecture, three hours. Requisite: course 3. Reading of selected chapters of St. Jerome's translation of the Bible, with emphasis on unclassical features of the Latin.

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.

130. Introduction to Medieval Latin. (4) Requisite: course 3. Reading of easy prose texts, with emphasis on basic language training.

131. Medieval Latin Prose. (4) Requisite: course 130. Extensive reading of selected texts in prose, with emphasis on idiosyncrasies of medieval Latin.

133. Medieval Latin Poetry. (4) Preparation: one upper division Latin language course.

199. Special Studies in Latin. (2 to 8) Limited to seniors.

Graduate Courses

200A-200B-200C. History of Latin Literature (6-6-6). Lectures on history of Latin literature, supplemented on the part of the student by independent reading of Latin texts in the original.

201. Roman Epic Tradition. (2 or 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 the literary tradition of epic. May be repeated for credit with topic change. S/U (two-unit course) or letter (four-unit course) grading.

202. Seminar: Catullus. (2 or 4) Detailed consideration of entire Catullan corpus. S/U (two-unit course) or letter (four-unit course) grading.

203A. Elegiac Poetry. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

203B. Propertius. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

204A-204B. Vergil's *Aeneid*. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

205A. Seminar: Vergil's *Bucolics*. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

205B. Seminar: Vergil's *Georgics*. (2 or 4) Close reading of Vergil's text; careful evaluation of influential criticism on the poem, much of it recent; examination of the work's place within the tradition of rural poetry. S/U (two-unit course) or letter (four-unit course) grading.

206. Horace. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

207. Roman Comedy. (2 or 4) Survey of history of Roman comedy. Reading of one comedy by Plautus or Terence, with emphasis on language and meter. S/U (two-unit course) or letter (four-unit course) grading.

208. Ovid. (2 or 4) Preparation: reading knowledge of classical Latin. Detailed study of poetic works of Ovid. Readings in the original with discussion of secondary literature and scholarship. May be repeated for credit with topic change. S/U (two-unit course) or letter (four-unit course) grading.

209. Seminar: Roman Satire. (2 or 4) Detailed study of an individual satirist, with attention to his position in development of the satirical genre in Roman literature. Choice of author varies from year to year. Close study of the text, of characteristics of the writer as a social critic and artist, and of contemporary literary and social environment. S/U (two-unit course) or letter (four-unit course) grading.

210. Advanced Latin Prose Composition. (4) Requirement: course 110.

211A-211B-211C. Seminars: Roman Historians. (2 or 4 each) Study of considerable portions of writings of the following. S/U (two-unit course) or letter (four-unit course) grading. **211A.** Sallust; **211B.** Livy; **211C.** Tacitus.

215. Seminar: Roman Novel. (2 or 4) Works such as Petronius' *Satyricon* and Apuleius' *Metamorphoses*: study of literary problems. May be repeated for credit with topic change. S/U (two-unit course) or letter (four-unit course) grading.

216. Roman Rhetoric. (2 or 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 with topic change. S/U (two-unit course) or letter (four-unit course) grading.

220. Cicero's Orations. (2 or 4) Seminar, three hours. S/U (two-unit course) or letter (four-unit course) grading.

221A. Cicero's Philosophical Works. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

221B. Cicero: De Natura Deorum. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

222. Seminar: Roman Stoicism. (2 or 4) Preparation: reading knowledge of Greek and Latin. S/U (two-unit course) or letter (four-unit course) grading.

223. Lucretius. (2 or 4) S/U (two-unit course) or letter (four-unit course) grading.

224. Seneca. (2 or 4) Seminar, three hours. Detailed study of one work of prose or poetry by the younger Seneca. Emphasis on literary and philological problems, with some attention to philosophical and historical matters as well. May be repeated with topic change. S/U (two-unit course) or letter (four-unit course) grading.

229. Sight Translation (2 to 4). Discussion, three hours. Designed for graduate students. Practice in translation of previously unseen texts from a variety of authors and genres. Topics include peculiarities of style and vocabulary of the distinct genres, literary vs. scholarly translation, semantic properties of particular words and constructions.

231A-231B. Seminars: Medieval Latin. (2 or 4) Preparation: at least one upper division Latin course. Studies in various areas of the language and literature of medieval Latin. May be repeated for credit with consent of instructor. S/U (two-unit course) or letter (four-unit course) grading.

232. Vulgar Latin. (4) History and characteristics of popular Latin; its development into early forms of the Romance languages.

235. Late Latin Poetry. (2 or 4) Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several poets who flourished between the death of Ovid and fall of the Roman Empire. May be repeated with change in author.

236. Late Latin Prose. (2 or 4) Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several prose authors who flourished between the death of Tacitus and fall of the Roman Empire. May be repeated with change in author.

240. History of the Latin Language. (4) Development of Latin from the earliest monuments until its emergence in the Romance languages.

242. Italic Dialects and Latin Historical Grammar. (4) Linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in context of Italic and Indo-European linguistics.

243. Seminar: Latin Paleography. (4) Studies in development of book hand in Latin manuscripts earlier than the invention of printing.

245. Neo-Latin. (2 or 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 the present, written on related topics. S/U or letter grading.

370. Teaching Latin. (4) Designed for graduate students. Techniques for teaching; organization of courses; review of content of curriculum offered in junior and senior high schools.

495. College Teaching of Latin. (2) Preparation: appointment as a 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 M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Related Courses

Ancient Near East (Near Eastern Languages)

170. Introduction to Biblical Studies

272. Semitic Background of the New Testament

Art History

223. Classical Art

History

115A-115B-115C. History of Ancient Mediterranean World

116A-116B. History of Ancient Greece

117A-117B-117C. History of Rome

121A-121B. Medieval Europe

123A-123B. Byzantine History

215A-215B. Seminars: Ancient History

216A-216B. Seminars: Byzantine History

222A-222B. Seminars: Medieval Intellectual History and History of Science

Indo-European Studies

132. European Archaeology: Bronze Age

M150. Introduction to Indo-European Linguistics

210. Indo-European Linguistics: Advanced Course

280A-280B. Seminars: Indo-European Linguistics

COMMUNICATION STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
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Los Angeles, CA 90095-1538

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Neil M. Malamuth, Ph.D., *Chair*

Professors

Christine L. Borgman, Ph.D. (*Information Studies*)

Andrew Christensen, Ph.D. (*Psychology*)

Patricia M. Greenfield, Ph.D. (*Psychology*)

John C. Heritage, Ph.D. (*Sociology*)

Neil M. Malamuth, Ph.D.

Melvin Pollner, Ph.D. (*Sociology*)

Emanuel A. Schegloff, Ph.D. (*Sociology*)

Professors Emeriti

Gordon L. Berry, Ed.D. (*Education*)

Nancy M. Henley, Ph.D. (*Psychology*)

Associate Professors

Thomas N. Bradbury, Ph.D. (*Psychology*)

Steven E. Clayman, Ph.D. (*Sociology*)

Michael R. Curry, Ph.D. (*Geography*)

Patrice L. French, Ph.D. (*Psychology*)

Jody E. Kreiman, Ph.D., *in Residence (Surgery)*

Leah Lievrouw, Ph.D. (*Information Studies*)

Sara Melzer, Ph.D. (*French*)

Paul I. Rosenthal, Ph.D.

Senior Lecturers

Stuart Biegel, J.D. (*Education*)

Marde S. Gregory, M.A.

Lecturers

Timothy V. Ketelaar, Ph.D.

Dawn R. Ross, J.D.

Michael W. Suman, Ph.D.

Jeffrey B. Valle, J.D.

Paul Von Blum, J.D.

Adjunct Professors

Thomas G. Plate, M.A.

Scope and Objectives

The major in Communication Studies is an interdisciplinary program leading to a Bachelor of Arts degree. It seeks to provide students with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. Employing critical and empirical approaches, the major draws its resources from the social sciences, humanities, and fine arts. Two areas of specialty are offered: the concentration in mass communication centers on formal and institutional communication systems and the macrocosmic social contexts in which they function; the concentration in interpersonal communication centers on face-to-face communicative interaction in the small group environment.

Undergraduate Study

Communication Studies B.A.

Students selecting the major in Communication Studies must complete the required lower division requisites and a minimum of 15 upper division courses as set forth below. Enrollment in the major is limited. Admission to the major is by application to the committee in charge. Applications are available during Spring Quarter in the program office.

Preparation for the Major

Required Lower Division Courses: Communication Studies 10, Anthropology 33 or Linguistics 1, Speech 1, one statistics course from Economics M40 or Sociology M18 or Statistics 10. Three additional courses must be selected from Political Science 40, Psychology 10, Sociology 1, and Economics 1 or 2 or 5 or Political Science 30.

Students are encouraged but not required to complete as many lower division preparation for the major courses as possible before admission to the program.

Writing Requirement

Required: English Composition 131D.

The Major

Required Core Courses: Communication Studies 100, 101, 150.

Interpersonal Communication Concentration

Required: Eleven courses as follows:

(1) Seven courses, three of which must be in communication studies and one of which must be Communication Studies 115 or 120, from Anthropology 141, Communication Studies 115, M116, 120, M125, 130, M144A, M144B, 197G, 197J, Psychology 137C, M165, 174, 177, 178, Sociology 132 or Psychology 135, Sociology 135 or Psychology 137I, and Sociology 156 or 160.

(2) Two mass communication elective courses from Communication Studies M135, 140, M147, 152, 153, M155, 156, 165, 170, 177, 180, 187, 197A, 197B, 197K, 197N, 197R, 197T.

(3) Two general interpersonal communication elective courses from one of the following groups: (a) *language theory* — Anthropology M140, M145 (by petition), Applied Linguistics and Teaching English as a Second Language M189, Communication Studies M124, 197E, Linguistics 103, 170, Philosophy 172, Psychology 122 or 123, (b) *media content/criticism/history* — Communication Studies 160, M161, 171, 175 (or Film and Television 116), 189, 197C, 197R, Film and Television 106A, 108, 110A, (c) *theories of social interaction* — Anthropology 133R, 135A, 135B, 142A, 142B, Communication Studies M125, M144A, M144B, 197F, Sociology 134.

Mass Communication Concentration

Required: Eleven courses as follows:

(1) Seven courses, three of which must be in communication studies, from Anthropology M140, Communication Studies M135, 140, M147, 152, 153, M155, 156, 160, M161, 165, 170, 171, 175 (or Film and Television 116), 177, 180, 187, 189, 197A, 197B, 197C, 197K, 197N, 197R, 197T, Film and Television 106A, 108, 110A, and Political Science 141B or Psychology 137B or Sociology 133.

(2) Two interpersonal communication elective courses from Communication Studies 115, M116, 120, M124, M125, 130, M144A, M144B, 197G, 197J, Psychology 135 or Sociology 132, Psychology 137I or Sociology 135, Sociology 156 or 160.

(3) Two general mass communication elective courses from one of the following groups: (a) *American studies* — Communication Studies 197D, English 115A, History 148A, 148B, 148C, 150A, 150B, 156A, 156B, Political Science 114A, 114B, (b) *language theory* — Anthropology M140, M145 (by petition), Applied Linguistics and Teaching English as a Second Language M189, Communication Studies M124, 197E, Linguistics 103, 170, Philosophy

172, Psychology 122 or 123, (c) *theories of social interaction* — Anthropology 133R, 135A, 135B, 142A, 142B, Communication Studies M125, M144A, M144B, 197F, Sociology 134.

Communication Studies

Lower Division Courses

10. Introduction to Communication Studies. (4) Introduction to fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory.

15A. Production of Multimedia Software. (4) Description of what goes into a multimedia software program; discussion of different platforms (PC, Mac, network computers, servers, and transmitters) and distribution means (CD-ROM, DVD-ROM, Internet), content organization and layout, data structure and management; and overall planning for prototype and final product. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Special Topics in Communication Studies. (4 each) Seminar, three hours. Variable topics courses; consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading. **88A.** Mass Communication Theory; **88B.** Systems, Institutions, and Policies; **88C.** Media Content/Criticism and History; **88D.** American Studies; **88E.** Language/Interaction Structures; **88F.** Social Systematics; **88G.** Interpersonal Communication Theory; **88J.** Heterogeneous Groups Communication.

Upper Division Courses

100. Communication Theory. (4) Requisite: course 10 or Linguistics 1 or Sociology 1 or Psychology 10. Analysis of fundamental nature of human communication; its physical, linguistic, psychological, and sociological bases. Study of theoretical models explicating the process and constituents of the communicative act.

101. Freedom of Communication. (4) Analysis of legal, political, and philosophical issues entailed in rights of free expression, access to an audience, and access to information. Study of court decisions governing freedom of communication in the U.S.

115. Dyadic Communication and Interpersonal Relationships. (4) Requisite: course 100. Developmental approach to study of communication in dyadic relationships. Analysis of differences in the stages of relationships in terms of communication rules and verbal and nonverbal messages.

M116. Communication and Conflict in Couples and Families. (4) (Same as Psychology M176.) Lecture, 90 minutes; discussion, 90 minutes. Requisites: Psychology 10, 100A, 127. Examination of (1) dysfunctional communication and conflict in couples and families and (2) relationship of these processes to individual psychopathology, marital discord, and family disruption (e.g., separation and divorce). P/NP or letter grading.

M117. Rhetoric of Rule. (4) (Same as French M143.) Lecture, three hours. Exploration of how and why power is symbolically constructed by comparing Louis XIV's and President Clinton's attempts to manipulate their image in the "media" of their respective cultures.

120. Principles and Types of Group Communication. (4) Requisite: course 100. Analysis of purposes, principles, and types of small group communication. Particular emphasis on organization of and participation in problem-solving discussion.

M124. Psychology of Language and Gender. (4) (Same as Psychology M137J and Women's Studies M137J.) Lecture, three hours. Requisite: Psychology 10. Designed for juniors/seniors. Examination of current topics at intersection of gender and language. Topics include sex differentiation in language cross-culturally; sex bias in lexicon and usage; sex differences in lexicon, syntax, phonology, and nonverbal behavior; development of sex-differentiated language in children; "women's" and "men's" language in various racial/ethnic/class/sexual preference groups; and conversational interaction.

M125. 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 a 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.

130. Cultural Factors in Interpersonal Communication. (4) Requisite: course 100. Study of cultural factors as they affect the quality and processes of interpersonal communication; exercises in participation, analysis, and criticism of interethnic and interracial communications in the small group configuration.

M135. Narrative in Mass Communication. (6) (Same as Honors Collegium M135.) Seminar, four hours; outside study, 10 hours. Examination of narrative as a primary function of mass media, beginning with social, psychological, cultural, and rhetorical functions of storytelling and basic elements of narrative, then applying these to study of film, television, and print media. P/NP or letter grading.

140. Theory of Persuasive Communication. (4) Requisite: course 100. 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.

142. Rhetorical Theory. (4) Requisite: course 100. Survey of major classical and neoclassical treatises on rhetoric. Analysis of theories of Plato, Aristotle, Cicero, Quintilian, St. Augustine, Blair, Whately, Campbell, and other leading works in theory of rhetoric.

M144A-M144B. Conversational Structures I, II. (4) (Same as Sociology CM124A-CM124B.) Lecture, three hours; discussion, one hour. P/NP or letter grading. **M144A.** Introduction to some structures which are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **M144B.** Requisite: course M144A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

M147. Sociology of Mass Communication. (4) (Same as Sociology M176.) Requisite: course 100. 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.

150. Methodologies in Communication Research. (4) Lecture, three hours; discussion, one hour. Requisite: course 100. Critical studies of quantitative and qualitative methodologies in communication research.

152. Analysis of Communication Effects. (4) Requisite: course 100. Survey of experimental and field research on effects of communications. Study of source, message, and environmental factors affecting audience response.

153. The Media and Aggression against Women. (4) Lecture, two hours; discussion, two hours. Requisite: course 152. Study of the growing body of literature on relationship between mass media and aggression against women. Consideration of both role of the media as reflecting cultural values and scripts and its potentially powerful role as a socializing agent of the culture. Analysis of research on role of individual differences among members of a culture as mediators of the impact of the media.

M155. Information Superhighway. (4) (Formerly numbered 155.) (Same as Policy Studies CM110.) Lecture, three hours. Information Superhighway seen from a non-American viewpoint, considering its meanings, potentials, structures, applications, policy implications, economic, social, and cultural impacts, and public perceptions in a number of countries. Special emphasis on Western Europe, Canada, and Australia, with a look at Japan and China also. Opportunities for Africa and Latin America suggested, especially education, health, and other public services.

156. Human/Computer Communication. (4) Preparation: completion of the seven preparation for the major courses. Limited to communication studies majors. Survey of behavioral, design, and evaluation issues in human/computer communication. Readings from disciplines of psychology, sociology, computer science, communication, and library and information science. Students perform several on-line assignments in learning to use different technologies. Term paper required.

M157. Culture, Identity, and Media. (4) (Same as Policy Studies M111.) Discussion, three hours. Interplay of national culture and identity with electronic media, both "old" and "new." Examination of how national mythologies, constructive or pernicious, are reinforced through the media in several countries: U.K., France, Germany, Canada; analysis of how media manipulation, especially of radio and television, increasingly paves the way to war: Bosnia, Rwanda, Somalia.

160. Political Communication. (4) Requisites: courses 100, 101. Study of nature and function of communication in the political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns.

M161. Electoral Politics: Mass Media and Elections. (4) (Same as Political Science M141D.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 160. Designed for juniors/seniors. Assessment of manner in which Americans' political beliefs, choices, and actions are influenced by mass media presentations, particularly during election campaigns. Topics include processes of political attitude formation and change, different types of media "effects," and role of the media in the American political process.

165. Agitational Communication. (4) Requisites: courses 100, 101. Theory of agitation; agitation as a force for change in existing institutions and policies in a democratic society. Intensive study of selected agitational movements and the technique and content of their communications.

170. Legal Communication. (4) Requisites: courses 100, 101. Study of trial and appellate processes as systems of communication. Analysis of elements of the juridical process as they affect the quality of communication content. Study of rules of evidence, jury behavior, and structure of legal discourse.

171. Seminar: Theories of Freedom of Speech and Press. (4) Requisite: course 101. 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 the significance of these values examined in connection with issues such as obscenity, defamation, access to media, and control of commercial, corporate, and government speech.

175. Criticism and the Public Arts. (4) Requisite: course 10. Introduction to methods and problems of criticism in the 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.

177. Libel and Freedom of Expression. (4) Lecture, two hours; discussion, two hours. Requisite: course 101. Intensive study of law of defamation and its relationship to the free flow of information in a democracy. Examination of rationale, scope, and effects of libel laws. Topics include application of libel laws to public official, public figure, and private plaintiffs and media and nonmedia defendants; group libel, privileged libel, and libelous fiction.

180. Politics of Censorship. (4) Discussion, two hours; simulation teaching, three hours. Requisite: course 101. Examination of the process and substance of debates over government and private censorship by having students become active participants in a term-long simulated battle over a current issue such as book censorship, pornography, or UNESCO's proposed "New World Information Order."

185. Field Studies in Communication. (2 to 4) Requisite: course 10. 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 two units of credit. May be taken for a maximum of four units per term. P/NP grading.

187. Ethical and Policy Issues in Institutions of Mass Communication. (4) Requisites: courses 10, 101. 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, the Presidency, schools, churches, political action groups, advertisers, and audiences).

189. Multicultural Television and Society. (4) Study and evaluation of cross-cultural, social, and psychological characteristics of selected national and international television programs and their implications for social learning in children. Designed to systematically study multicultural attributes related to sociocultural images and portrayals of television programs using various evaluation models and techniques.

191H. Research Methods in Communication (Honors). (4) Seminar, three hours. Requisite: course 150. Provides a working understanding of research methods in communication studies, particularly related to study of mass media effects, to give students the background necessary to design, implement, and report their own research projects. Letter grading.

196H. Undergraduate Honors Proseminar. (4) Preparation: 3.5 grade-point average in communication studies major, 3.3 grade-point average overall. Limited to seniors. Limited enrollment. Variable topics course involving specialized study of selected aspects of the field of human communication.

197A-197Z. Special Topics in Communication Studies. (4 each) Lecture, three hours. Preparation: completion of preparation for the major courses. Variable topics courses; consult *Schedule of Classes* for topics to be offered in a specific term. **197A.** Mass Communication Theory; **197B.** Systems, Institutions, and Policies; **197C.** Media Content/Criticism and History; **197D.** American Studies; **197E.** Language/Interaction Structures; **197F.** Social Systematics; **197G.** Interpersonal Communication Theory; **197J.** Heterogeneous Groups Communication; **197K.** Communication Policy; **197N.** Humanistic Approaches to Mass Communication; **197R.** Political Factors in Mass Communication; **197T.** Technology in Communication.

199. Special Studies. (2 to 8) To be arranged with faculty member who directs the study. Limited to seniors. Independent studies for seniors who desire intensive or specialized investigation of selected research topics.

199H. Special Studies for Honors Candidates. (2 to 8) To be arranged with faculty member who directs the study. Limited to senior honors program students. Independent studies for honors undergraduates who desire intensive or specialized investigation of selected research topics.

COMMUNITY HEALTH SCIENCES

School of Public Health

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Donald E. Morisky, Sc.D., M.S.P.H., *Vice Chair*

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Emil Berkanovic, Ph.D.
Linda B. Bourque, Ph.D.
E. Richard Brown, Ph.D.
Osman M. Galal, M.D., Ph.D.
Michael S. Goldstein, Ph.D., *Associate Dean for Student Affairs*
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Susan B. Sorenson, Ph.D.

Professors Emeriti

Roslyn B. Alfin-Slater, Ph.D.
Isabelle F. Hunt, Dr.P.H., R.D.
Edward B. Johns, Ed.D.
Alfred H. Katz, D.S.W., M.S.
Alfred K. Neumann, M.D., M.A., M.P.H., F.A.B.P.M.
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Daniel M. Wilner, Ph.D.

Associate Professors

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Steven P. Wallace, Ph.D.
Dawn M. Upchurch, Ph.D.

Assistant Professors

Kim Gregory, M.D., M.P.H., *in Residence*
Marjorie Kagawa-Singer, Ph.D.
Michael Lu, M.D., M.P.H.

Lecturers

Marianne Parker Brown, M.P.H.
Susan Edelstein, M.S.W., L.C.S.W.
Jonathan Freedman, M.P.H.
Lynn Kersey, M.A., M.P.H.
Wendy Lazarus, M.S.
Michael Prelop, D.P.A., M.P.H., C.H.E.S., *Associate Field Program Supervisor*

Adjunct Professors

Neal Kaufman, M.D., M.P.H.
Steve Rottman, M.D.

Adjunct Associate Professors

Martin Anderson, Ph.D.
 Carol Archie, M.D.
 Marion Taylor Baer, Ph.D., R.D.
 Daniel H. Ershoff, Dr.P.H.
 Joanne Leslie, Ph.D.
 C. Kevin Malotte, Ph.D.

Adjunct Assistant Professors

Helen DuPlessis, M.D., M.P.H.
 Vicki Ebin, Ph.D.
 Janet Frank, Ph.D.
 Ronald Halbert, M.D.
 Kimberley Shoaf, Dr.P.H.
 Bonnie Taub, Ph.D.
 Antronette K. Yancey, M.D., M.P.H.

Scope and Objectives

The Department of Community Health Sciences focuses on the determinants of health within the context of the social structure, community, health care systems, and family units. Of particular interest is how health-related behaviors of individuals are influenced by and interact with conditions in the social, cultural, physical, and biological environment to influence health status, with particular emphasis on identifying, evaluating, and discouraging health-damaging behaviors and facilitating health-promoting behaviors. The curriculum seeks to integrate basic and applied public health theories and methods in applying them to real problems of human populations. Assessment, planning, and evaluation are common themes in the department's educational programs, which provide concentrations in the areas of health education/promotion, international family health, public health nutrition, public health policy, and sociocultural aspects of health. Students specializing in maternal and child health complete one of these concentrations as well as additional coursework.

The department offers both professional (M.P.H. and Dr.P.H.) and academic (M.S. and Ph.D.) degree programs. Graduates of the professional programs generally assume positions in the planning, administration, and evaluation of public health programs and policies, both in the U.S. and abroad, which have as their objective the maintenance and improvement of the health of individuals, families, communities, and populations. Graduates of the doctoral programs assume teaching and research positions in a wide variety of settings, including universities, government agencies, nongovernmental organizations, international health agencies, and research centers.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Community Health Sciences offers the Master of Science (M.S.) degree in Community Health Sciences. For information on the Master of Public Health (M.P.H.) degree, see Public Health Schoolwide Programs.

Admission

Admission requirements for the M.S. program in Public Health are the same as for the M.P.H. See the admission section under Public Health Schoolwide Programs for information on the M.P.H. program.

Areas of Study

Consult the graduate adviser.

Course Requirements

Students must complete at least one year of residence in graduate status at the University of California and a minimum of 10 full courses, at least five of which must be graduate courses in the 200 or 500 series. Only one 596 course (four units) and one 598 course (four units) may be applied toward the total course requirement; only four units of either course may be applied toward the minimum graduate course requirement. Community Health Sciences 597 may not be applied toward the degree requirements. No more than 18 full courses are required for the degree.

Mandatory core courses include Biostatistics 100A, 100B, and Epidemiology 100. Each core course may be waived for students who have taken a similar course elsewhere and can pass the waiver examination.

Community Health Sciences 210, 211A-211B, 212, 213, Biostatistics 406, and four to six department courses (selected from an approved list) are required. Elective courses, selected in consultation with an adviser, must include the Community Health Sciences 270 series, 283 and research methods courses. Normal program length is six quarters.

Only courses in which a grade of C- or better is received may be applied toward the requirements for a master's degree. Students must maintain an average of no less than 3.0 (B) in all courses required or elected during graduate residence at the University of California.

Comprehensive Examination Plan

If the comprehensive examination/report option is approved, a guidance committee of three faculty members is appointed. A written comprehensive examination on the major area of study must be passed. Students who fail may be reexamined once.

The preparation of a major written research report is required, and it must be approved by the guidance committee which also must certify successful completion of all degree requirements.

Thesis Plan

If the thesis option is approved, a thesis committee is established. The committee approves

the thesis prospectus before students may file for advancement to candidacy. The thesis must be acceptable to the thesis committee.

Doctoral Degree

Admission

In addition to the University minimum requirements, the department requires for Ph.D. degree in Public Health (1) a master's degree in public health (either an M.P.H. or M.S.) or other appropriate degree in a related field with a grade-point average of at least 3.5 for graduate studies; (2) a combined Graduate Record Examination (GRE) score of 1,200 for the verbal and quantitative sections; equivalent scores on the Medical College Admission Test (MCAT) or the Law School Admission Test (LSAT) may be substituted at the discretion of the department; (3) a score of at least 600 on the Test of English as a Foreign Language (TOEFL) for students whose undergraduate degree is from an institution whose primary language of instruction is not English; (4) an example of published or other written work; and (5) acceptance by an initial doctoral adviser in the department.

It is recommended that applicants contact one or more members of the faculty whom they are considering as advisers in order to ensure acceptance by a faculty mentor as the initial adviser. The applicant should have favorable recommendations from teachers and employers concerning past performance and potential as a doctoral student in public health. The statement of purpose must be clear, outlining goals and career objectives as they relate to the focus of the doctoral program.

Major Fields or Subdisciplines

Faculty in the department represent a range of disciplines and focus their research and curriculum in five areas of specialization: public health policy, health education/promotion, sociocultural aspects of health, public health nutrition, and international family health. Ph.D. students may design their programs in one or more of these areas.

Course Requirements

The following courses are required if students have not already taken them or their equivalents in the course of the master's degree or other postgraduate work: Biostatistics 100A, 100B, and 406; Community Health Sciences 210, 211A-211B, 212; Epidemiology 100; Health Services 100; Environmental Health Sciences 100. These courses do not count toward the minimum course requirements for the doctoral degree.

In addition to any of the above courses not already taken, students must take a minimum of 48 units in residence in the doctoral program, to include Community Health Sciences 270A - 270B. No more than four units may be individual studies (Community Health Sciences 596). Community Health Sciences 242 or 286 (Doctoral Roundtable) is required every quarter from the first year of residency until advancement to candidacy. The Doctoral Roundtable

does not fulfill any of the 48 units required for the doctorate.

Students must complete a minor in a Ph.D. granting department outside the School of Public Health, in a discipline relevant to community health sciences. Four graduate-level courses (16 units) are required.

Written and Oral Qualifying Examinations

Before advancement to candidacy, all coursework must have been completed, and students must pass a written examination administered by the department and an oral qualifying examination in the major field. The written examination may be repeated only once. Additionally, students must complete the requirements for the minor field and pass an examination administered by the minor department or the minor member of the guidance committee.

After students pass the written qualifying examination and complete the minor requirements, and at least one month prior to taking the University Oral Qualifying Examination, a doctoral committee is nominated. The doctoral committee consists of at least four faculty members including the chair, who hold professorial appointments at UCLA. Two of the faculty must be tenured. Two of the four must hold appointments in the Department of Community Health Sciences; one must be an outside member who holds no appointment in the School of Public Health; one of the four must be from the minor field. Eligible faculty are those in the tenure-eligible series, the in-residence series, and acting or emeriti in these series. The composition of the committee must be approved by the department chair. The doctoral committee guides the student's progress toward completion of the dissertation.

Students are advanced to candidacy and commences work on a dissertation by passing the University Oral Qualifying Examination, which is administered by the doctoral committee. Only the student and the committee members attend this examination; all committee members must be present. The examination may be repeated once if a majority of the committee so recommends.

Community Health Sciences

Lower Division Courses

19. Peer Health Counselor Training. (4) Lecture, four hours. Limited to students in Peer Health Counselor Program. Analysis of student health care issues as related to campus health care delivery system and to health care consumer. Identification of health needs, determination of appropriate resources, delivery of preventive and self-care education, and delineation of peer health counselor's role. P/NP or letter grading.

88. Lower Division Seminar: Special Topics in Community Health Sciences. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in community health sciences approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member. Letter grading.

Upper Division Courses

100. Introduction to Community Health Sciences. (4) Lecture, three hours; discussion, one hour. Development of broad appreciation of community, cultural, developmental, and psychosocial factors as they affect health, health-related behavior, and implications for public health. Review of theories, models, and modalities of interventions and policies for health promotion and disease prevention. Letter grading.

130. Nutrition and Health. (2) Lecture, two hours. Preparation: one biology course, one chemistry course. Not open for credit to nutrition majors. Basic and clinical nutrition theory and practice for students in health sciences curricula. 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.

M140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4) (Formerly numbered M197.) (Same as Asian American Studies M129A.) 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.

190. Aging Frontier: Public Health Perspective. (4) Lecture, three hours; discussion, one hour. Introduction to gerontology from public health perspective, emphasizing prevention of illness and promotion of healthy aging. Special attention to health and aging among women and racial/ethnic minorities. Letter grading.

195. Field Studies in Cancer Control. (4) Lecture, two hours; discussion, one hour; fieldwork, four hours. Requisite: Molecular, Cell, and Developmental Biology 30. Designed for juniors/seniors. Opportunity for students to become involved in cancer control through classroom discussion, lectures, service in the field, and guided research. Biology of cancer, its prevention, early detection, treatment, and rehabilitation. Letter grading.

196A. Introduction to Health Promotion Fieldwork. (4) Lecture, two hours; discussion, one hour; laboratory, six hours. Designed for juniors/seniors. Training and experience in health promotion and health education in selected ethnic communities, including participation in supervised fieldwork at sites throughout Los Angeles. Letter grading.

196B. Advanced Health Promotion Fieldwork. (4) Lecture, two hours; discussion, one hour; laboratory, six hours. Requisite: course 196A. Application of skills and experience gained in course 196A to development and provision of additional health education and health promotion in selected ethnic communities. Letter grading.

199. Special Studies. (2 to 4) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only four units may be taken each term. P/NP or letter grading.

Graduate Courses

200. Global Health Problems. (4) Lecture, two hours; discussion, two hours. Overview of health profile of the world in the 20th century. Global health problems and methods by which they have been dealt in context of the Alma Ata goal of "health for all by year 2000." Letter grading.

210. Community Health Sciences. (4) Lecture, three hours. Preparation: one social sciences course. Basic concepts, relationships, and policy issues in the 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-211B. Program Planning, Research, and Evaluation in Community Health Sciences. (4-4) 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.

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 which explores problems of planning and implementing evaluation research in context of local demonstration projects. S/U or letter grading.

M216. Qualitative Research Methodology. (4) (Same as Anthropology M284.) Discussion, 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. S/U or letter grading.

218. Questionnaire Design and Administration. (4) Lecture, two hours; discussion, one hour; laboratory, one hour; outside assignments. Requisites: courses 211A-211B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

219. Strategies for Multivariate Data Analysis. (4) Discussion, three hours. Preparation: one multivariate statistics course. Designed for graduate students. Translation of theory into a data analytic plan, with special emphasis on social epidemiology; application of this analytic plan to real data; and interpretation of results obtained through multivariate analysis. Letter grading.

220. Demography of Women. (4) Lecture, four hours. Overview of demography of women, with focus on the U.S. Areas include trends and differentials in fertility, marital patterns and living arrangements, educational attainment, and labor force participation. Letter grading.

221. Introduction to Sociocultural Aspects of Health. (4) Lecture, three hours; discussion, one hour. Examination of how social stratification and culture relate to health and health-related behavior. Consideration of four major status characteristics: age, ethnicity, gender, and socioeconomic status. Description of epidemiological patterns and discussion of social meaning of the four characteristics. Letter grading.

228. Drug Abuse Prevention. (4) Discussion, three hours. Identification and discussion of strategies for prevention of drug abuse at individual and community levels, particularly in minority populations. 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 a 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. S/U or 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.

M232. Determinants of Health. (4) (Same as Health Services 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. Requisite: course 231 or 443. 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 and Nutrition: Multidisciplinary Perspective. (2) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: admission to UCLA postdoctoral fellowship training program in obesity and nutrition, or graduate public health or biological sciences student. Multidisciplinary introduction at advanced graduate level to research methods and topics on obesity and related conditions in humans and in relevant animal and in vitro models. S/U or letter grading.

235. The Family and Mental Health. (4) Lecture, two hours; discussion, two hours; assignments, eight hours. Emphasis on how social organization of the family, relationships among family members, and extrafamilial roles of family members contribute to or detract from psychological well-being of spouses, parents, and children. S/U or letter grading.

M236. Human Resources and Economic Development. (4) (Same as Education M252C.) Lecture, four hours. Examination, in context of the developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments. S/U or letter grading.

237. Evolving Paradigms of Prevention: Interventions in Early Childhood. (4) 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. Designed for graduate students. Introduction to organizing principles which underlie health assessment and intervention in adolescent populations (identity formation, access to care, knowledge/attitudes/behavior influences) and provide a basis for understanding pivotal issues in health enhancement, morbidity, and mortality. Letter grading.

M239. Race and Ethnicity as a Concept in Practice and Research. (4) (Formerly numbered 239.) (Same as Asian American Studies M239.) Discussion, three hours. Integration of cross-cultural findings in health care with current American (U.S.) health care system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

242. Advanced Seminar: Population and Family Health. (2) Seminar, two hours. Designed for doctoral students. Current research in population and family health. May be repeated for credit. S/U grading.

243A-243B-243C. Seminars: Public Health Practice (2 units each). Seminar, one hour; laboratory, one hour. Three-term sequence devoted to analysis of current issues, practices, research literature, and policy and trends in public health practice. Discussion of administrative, epidemiologic, and clinical methods. S/U or letter grading.

M244. Advanced Seminar: Medical Anthropology. (4) (Same as Anthropology M263Q, Nursing M273, and Psychiatry M273.) 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.

M245A-M245B-M245C. Child Abuse and Neglect (2-2-1). (Same as Dentistry M300.5A-M300.5B-M300.5C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M290E-M290F-M290G.) Lecture, two hours. Course M245A is requisite to M245B, which is requisite to M245C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. S/U or letter grading.

246. Women's Roles and Family Health. (4) Lecture, two hours; discussion, one hour. Rapidly changing roles of women throughout the 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. S/U or 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. Women's Mental Health. (4) Discussion, three hours. Designed for graduate students. Prevalence of psychological distress and psychiatric disorder among women, with emphasis on impact of social and cultural factors, including gender roles and socialization, stratification and inequality, work and family roles, diagnosis, help-seeking behavior, and treatment. Letter grading.

M249L. Ethical Issues in Public Health. (4) (Same as Health Services M249L.) Lecture, four hours. Requisites: Health Services 200A-200B-200C. 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.

M252. Health Policy Analysis. (4) (Same as Health Services M233.) Lecture, three hours. Requisites: Health Services 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy. Letter grading.

M255. Keeping Children Safe: Causes and Prevention of Pediatric Injuries. (2) (Same as Epidemiology M255.) Lecture, two hours. Injuries have been leading killer of children in the U.S. for decades. Children have specific risk factors for injuries, many of which are preventable. Presentation of approaches to research and prevention of pediatric injuries. 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. Requisites: courses 211A-211B, 295. Overview of interagency disaster management. How different agencies work together to respond to impact of disasters on public's health. Discussion of difficulties inherent in emergency management, as well as policy and program strategies. Letter grading.

270A-270B. Foundations of Community Health Sciences. (4-4) Lecture, four hours. Requisite: course 210. Course 270A is requisite to 270B. Designed for 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) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. 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. S/U or letter grading.

273. Social Epidemiology of Chronic Disease. (4) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of chronic diseases. Topics include hypertension, coronary heart disease, and cancer. Emphasis on lifestyles and other socioenvironmental factors associated with chronic diseases. S/U or letter grading.

M274. Health Professions. (4) (Same as Sociology M249A.) Lecture, three hours. Requisite: course 210. Sociological examination of concepts "health" and "illness" and role of various health professionals, especially physicians. Attention to meaning of professionalization and professional/client relationships within a range of organizational settings. S/U or letter grading.

M275. Health and Illness Behavior. (4) (Same as Sociology M249B.) Lecture, four hours. Requisites: course 210, Epidemiology 100. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick-role behavior. S/U or letter grading.

277. Advanced Community Health Education. (4) Lecture, two hours; discussion, two hours. Requisite: course 210. Before planning the educational components of a health program, one must assess behaviors and factors influencing the health problem. Conceptual, theoretical, and evaluative skills developed and applied in constructing a community-based educational program. Letter grading.

280. International Health Education: Training and Development. (4) Lecture, four hours. Preparation: one upper division research methods or epidemiology course. Requisite: course 210. Introduction to an international perspective of health education and health promotion. Survey of current developments in health education in both developed and developing countries. Letter grading.

282. Communication in Health Promotion and Education. (4) Lecture, two hours; discussion, two hours. Requisite: course 210. Design, implementation, and evaluation of interpersonal communication strategies for health promotion programs. Equal emphasis on communication theories, models, and empirical research literature and on specific applications in health programs and case studies. Letter grading.

283. Aging and Health Behavior. (4) Discussion, three hours. Requisite: course 210. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among the aged. Letter grading.

284. Sociocultural Aspects of Mental Health. (4) Discussion, three hours. 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.

285. Aging, Health, and Society. (4) Lecture, three hours; discussion, one hour. General introduction to major social issues affecting health of the elderly in America. Leading gerontological theories and major issues that affect the aged, showing how those theories and issues influence health status, health promotion, and illness among the elderly. S/U or letter grading.

286. Seminar: Behavioral Sciences and Health. (2 to 4) Seminar, two hours. Recent significant contributions of behavioral sciences to understanding health and illness, with selected and varying topics each term. May be repeated for credit. S/U grading.

M287. Politics of Health Policy. (4) (Same as Health Services M287.) Lecture, three hours; discussion, one hour. Requisites: course 210 or Health Services 200A-200B. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading.

288A-288B. Current Problems in Health Education. (4-4) Lecture, one hour; discussion, three hours. Preparation: three public health and/or social sciences courses. Requisite: course 210. Current problems and findings in health education content areas, such as nutrition, mental health, family health, consumer health, safety, and communicable and chronic diseases. In Progress and S/U grading.

289. Drug Abuse in Pregnancy: Special Focus on Adolescents and Utilizing Secondary Data Sources. (4) (Formerly numbered 298A.) Lecture, three hours; clinical placement. Designed for graduate students. Multidisciplinary graduate seminar combining didactic material on substance abuse in pregnancy, participation in ongoing research, and clinical experience in on- and off-campus settings. Medical, social, economic, and legal issues affecting pregnant substance abusers. 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 the nation. Exploration of cultural and structural influences on health and lived experiences of those elders. Letter grading.

291. Health Policy and the Aged. (4) Lecture, three hours; discussion, one hour. Examination of political, economic, and social forces that shape health policy for the aged, identifying failings in those policies within framework of broader health policy problems. Letter grading.

292. Communication and Media Development in Health Promotion/Education. (4) Lecture, three hours; field practice, one hour. Requisites: course 210 or prior social sciences courses. Selected aspects of communications planning, social marketing, mass media, and communications evaluation theory and practice. Letter grading.

293. Social and Behavioral Research in AIDS: Roundtable Discussion. (2) Discussion, 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 AIDS/HIV: A Global Perspective. (4) Lecture, four hours. Requisites: course 100 and Epidemiology 100 or prior social sciences courses. Overview of social and behavioral factors which influence both the transmission as well as prevention of HIV/AIDS throughout the world. Letter grading.

295. Selected Topics in Disaster Relief and Humanitarian Assistance. (2) (Formerly numbered 298.) Lecture, two hours. Designed for graduate students. Overview of broad interdisciplinary issues which necessarily converge in fields of disaster preparedness and humanitarian assistance. Introduction to both theoretical and problem-solving strategies. Letter grading.

296. Advanced Research Topics in Community Health Sciences. (2 to 4) (Formerly numbered 296A-296L and 296M-296Z.) 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 grading.

M299. Intervention to Reduce HIV and Its Consequences. (4) (Same as Psychiatry M289.) Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for a variety of high-risk populations. Letter grading.

400. Field Studies in Public Health. (2 or 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 M.S. minimum course requirement; four units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

M411. Issues in Cancer Prevention and Control. (4) (Formerly numbered 411.) (Same as Health Services M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of the cancer epidemic, cancer control goals for the nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

M420. Children with Special Health Care Needs: Systems Perspective. (4) (Same as Social Welfare M290I.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices which 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.

425. Child Advocacy: Skills for Effective Action. (4) (Formerly numbered M298C.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Use of case method approach to involve students both in classroom discussions and in fieldwork projects about which they update classmates. Highly respected leaders for children in the community share experiences and offer insight. Letter grading.

426. School-Linked Services: Integrated Health, Education, and Social Services for Children in Communities. (4) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Examination of school services in context of other dramatic changes, scope of problems facing youth, roles that schools may serve as organizers/delivery sites for comprehensive services, and factors that influence development of appropriate school service models. Letter grading.

430B. Advanced Issues in International Health. (4) Lecture, two hours; discussion, two hours. In-depth focus on major health care issues confronting recipient less-developed countries and donors of technical and financial assistance. S/U or letter grading.

431. Research in Women's Health: Theories and Methods. (4) Lecture, four hours. 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.

432. Perinatal Health Care: Principles, Programs, and Policies. (4) Lecture, three hours; discussion, one hour. Comprehensive examination of perinatal health care, 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.

433. Reproductive Health: Demographic Applications. (4) Lecture, four hours. Introductory aspects of population dynamics; reproductive biology (male and female); contraceptive methods; fertility-related behaviors and STDs; methods to measure contraceptive (life tables) and program (evaluation) effectiveness. 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.

434B. Recent Developments in Maternal and Child Health in Disadvantaged Countries. (2) Seminar, two hours. Requisite: course 231. Analytic in-depth consideration of recent advances in the field of international maternal and child health, with special reference to developing countries. S/U or letter grading.

435. Seminar: Advanced Issues in Women's Health. (2) Seminar, two hours. Requisite: course 246 or 431. Provides a more advanced and in-depth understanding of ways in which scientists "know" and considerations of women's place in scientific discourse. Examination of a series of case studies as a starting point for discussion. Letter grading.

M436A-M436B. Child Health, Programs, and Policies. (4-4) (Formerly numbered 436A-436B.) (Same as Health Services M449A-M449B.) Lecture, four hours. Requisite: Health Services 100. 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.

437. Principles and Practice of Preventive Medicine. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Comprehensive review and evaluation of scientific background and application of principles of preventive medicine, with primary focus on the family and the disadvantaged. Letter grading.

438. Research Seminar: Community Child Health Services. (2) Seminar, one hour; laboratory, one hour; field trips, two hours. Examination and development of evaluation strategies for existing community child health services at the local level and development of evaluation strategies for selected topics in programmatic areas. Emphasis on collaborative research and consultation skills, with participation of local health department personnel. S/U or letter grading.

441. Advanced Program Planning and Evaluation in International Health. (4) Lecture, two hours; discussion, two hours. Theory, guidelines, and team exercise for planning community health/family planning projects in the 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.

443. Assessment of Family Nutrition. (4) Lecture, four hours. Requisite: course 231. Assessment of nutritional status of families in developing countries, with special reference to limited resources, terrain, and cross-cultural considerations, stressing anthropometric methods and techniques. S/U or letter grading.

444. Anthropometric and Dietary Aspects of Nutritional Assessment. (4) Lecture, two hours; laboratory, two hours. Requisite: course 443. Practical skills in anthropometric and dietary assessment, including selection of appropriate methods, data gathering and handling, and analysis and presentation. Letter grading.

445. Food and Nutrition Planning: Policies and Programs in World Context. (4) Lecture, two hours; discussion, two hours. Requisite: course 434A. Discussion of policies regarding improvement of food supplies and their global impact on health of disadvantaged families, including review of effect of many factors, with emphasis on need for multidisciplinary action, food and nutrition planning, and external assistance. S/U or 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 health care services, mass media, communications, and governmental and international interventions. S/U or letter grading.

447. Health Issues in the Middle East. (4) Lecture, four hours. Requisite: course 200 or 231 or 434A. Recommended: background in Islamic or Middle Eastern studies. Current health issues and problems of countries in the Middle East and implications for socioeconomic development. Review of economic, demographic, and cultural variation of the region to provide background for discussion of trends and patterns of health and nutritional status of population in the 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 the 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. Preparation: one graduate or undergraduate course each in chemistry or biochemistry, physiology, and nutritional sciences, or M.D. degree. 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. Requisite: course 295. 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 a post-disaster environment. Letter grading.

M470. Introduction to Occupational and Environmental Health Education. (4) (Formerly numbered 470.) (Same as Urban Planning M470.) Lecture, four hours. Preparation: at least three social sciences courses. Designed to provide students with understanding of problem areas of occupational and environmental health and health education interventions which can be applied. Letter grading.

474. Self-Care and Self-Help in Community Health. (4) Lecture, two hours; discussion, two hours. Review of background, principles, concepts, programs, and research concerning the emerging field of self-care in health. S/U or letter grading.

480. Health Education in Clinical Settings. (4) Lecture, two hours; discussion, two hours. Requisites: courses 271, 282, Health Services 100. Analysis of role, methods, and techniques of health education pertaining to hospitals, clinics, and patient education. Observation and discussion of clinical activities in the medical center in relation to the process of health education. 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.

483. Leadership Development and Empowerment for Health Promotion and Health Education. (4) Lecture, three hours; discussion, one hour. Requisites: courses 210, 211A-211B. Development of basic understanding of and competency in leadership development and empowerment support for health promotion in multicultural and distressed communities (e.g., south-central Los Angeles). Letter grading.

485. Resource Development for Community Health Programs. (4) Lecture, three hours; fieldwork, one hour. 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.

490. Professional Writing for Public Health. (2) Lecture, two hours. Practice in writing reports, grant proposals, abstracts, and article-length research papers. Analyzing rhetorical and stylistic features of essays in various professional journals to help participants improve both their prose style and their editorial abilities. S/U or letter grading.

495. Teacher Preparation in Public Health. (2) Lecture, 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 eight 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 four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. Only four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

COMPARATIVE LITERATURE

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Scope and Objectives

Standing at the forefront of innovative literary analysis and criticism, comparative literature is one of the most exciting fields in the humanities. As a discipline it requires exceptional linguistic ability and high intellectual caliber. UCLA's graduate interdepartmental program offers students the opportunity to work with faculty in any of the University's language and literature departments as well as with the Comparative Literature Department faculty.

Comparative literature at UCLA focuses on those elements which define literature in general, such as genre, period, theme, language, and theory. Courses are designed to provide students with a historical understanding of the concepts of genre and period by studying specific genres and periods or literary movements. Paradigmatic or thematic courses offer another way of examining literature synchronically or diachronically regardless of language boundaries.

Courses in literary criticism and theory inquire into the premises of specific critical approaches, and of criticism itself, in order to provide further insight into the intellectual and moral concerns of literature and the world it reflects. Thus, through the study of these various assumptions and aspects of literature and criticism, students learn not only to cross linguistic boundaries, but to join them — to compare and to contrast, to analyze and, finally, to synthesize the text and the subtext, the structure and the history which define, undermine, and transcend the text and its reader.

Undergraduate Study

Comparative Literature B.A.

Preparation for the Major

Required: Two courses from the Comparative Literature 1 or 2 series or comparable lower division courses in other departments; completion of the college English Composition requirement; literary proficiency in at least one language other than English, to be demonstrated by successful completion of (1) two years of the college language sequence or its equivalent or (2) an upper division literature course in the original language.

The Major

Required: Thirteen courses, of which (1) a minimum of four must be from comparative literature offerings, including Comparative Literature 100, 197, and at least two additional comparative literature courses selected from M101 through C195B; (2) four upper division literature courses using original language texts in the major language area; (3) three upper division literature courses using original language texts in the minor language area (students may petition the undergraduate adviser to take three upper division literature courses in translation if their major area is in a language other than English); (4) two upper division electives in a third language or a field such as anthropology, art, art history, classics, East Asian languages and cultures, film, folklore, history, music, philosophy, or political theory, to be selected in consultation with the undergraduate adviser.

Comparative Literature Minor

The Comparative Literature minor offers students interested in literature and the humanities the opportunity to gain insight into the criti-

cal problems and theories addressed by comparative literature and to apply that knowledge in literature and comparative literature courses.

To enter the minor students must have fulfilled the English Composition requirement, have completed 40 units with an overall grade-point average of 2.0 or better, have taken at least one year or equivalent of a language other than English, and file a petition with either the faculty or staff undergraduate adviser, 212 Royce Hall, (310) 825-4620.

Required Courses (28 units): (1) Four upper division comparative literature courses (one course from Comparative Literature 1A through 2D may be substituted); (2) two upper division courses in one literature (e.g., Arabic, Chinese, English, French, German, Korean, Russian, Spanish) in the original language; and (3) one upper division course in a second literature in the original language (one level six foreign language course may be substituted). If students complete two upper division courses in a language other than English, they may petition to take one upper division course taught in English translation to fulfill the third requirement.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Comparative Literature offers the Master of Arts (M.A.) degree in Comparative Literature.

Admission

A bachelor's degree in literature, ancient or modern, is a requisite for admission to the M.A. program. Applicants whose B.A. program lacks a literature major are required to demonstrate the equivalent knowledge and comprehension of one literature before being considered a graduate student in good standing. Applicants are expected to have at least a 3.4 grade-point average in upper division literature courses, take the Graduate Record Examination (GRE), and submit three letters of recommendation. Literary proficiency in one foreign language and at least an elementary knowledge of a second one are expected.

Areas of Study

Each student's study plan should combine the work in the major and minor literatures by focusing on a limited area in which these literatures may be explored. The area may be a literary period such as Romanticism, a genre such as the novel, or a theoretical problem.

The major literature is the area of primary concentration. Students specialize in one historically defined period (such as medieval, Renaissance and baroque, neoclassicism and 18th century, Romanticism to modern), but a general knowledge of the major literature is a prerequisite for the specialization.

In the minor literature, students focus on a period comparable to the area of specialization in the major literature, although they may not have as much historical depth and breadth as in the major literature.

Course Requirements

The following 12 courses are the minimal course requirements. Some students take extra courses to make up deficiencies.

(1) Four courses in comparative literature: Comparative Literature 200; one course whose primary focus is theory, for example, Comparative Literature 290, 291, 292, or 293; two courses that deal with primary texts in a comparative context (courses on genre, period, or a special topic that examines primary texts).

(2) Five courses (a minimum of three must be graduate courses; the other two may be upper division) in the major literature.

(3) Three courses, at least one of which must be graduate, in the minor literature. Periods, genres, or problems in the minor literature which lend themselves to comparison with similar elements in the major literature should be studied.

Of the above required courses, eight units at most may be in the 500 series. Course 596 or 597 may be applied toward the minimum course requirement, but only one of the courses may be applied toward the graduate course requirement.

Comprehensive Examination Plan

The examination for the M.A. is both written and oral, testing both historical knowledge and comprehension of methodology. There are three possible results of the examination: the student receives an M.A. degree and is allowed to progress toward the Ph.D., the student is granted a terminal M.A., or the student fails the examination altogether. The program allows a maximum of two attempts to pass the M.A. examinations.

The written examinations test skill in literary analysis and detailed knowledge of specified works in the major and minor literatures. The examinations are based on reading lists from the works of at least 15 authors in the major literature and the works of at least 10 authors in the minor literature. Normally, the reading list consists of approximately 24 to 30 works in the

major literature and 12 to 15 works in the minor literature. For more details on the reading list, contact the department office.

Thesis Plan

None.

Doctoral Degree

Admission

For entrance into the program leading to the Ph.D. degree in Comparative Literature, an M.A. degree in Comparative Literature is normally required. Applicants who have an M.A. degree in one national literature, extensive knowledge of a second, and the ability to read literary texts in a third language may be considered for admission. Three letters of recommendation should be submitted. Those entering with any degree other than an M.A. in Comparative Literature from UCLA are required to pass a permission to proceed examination before being allowed to continue toward the Ph.D. They should be taken within the first year of residence.

The two written examinations (two hours each) are based on reading lists of approximately 10 to 12 items in the major field and 8 to 10 items in the minor field. Students who transfer from another department at UCLA are not required to take a permission to proceed examination in the area of their M.A. They are, however, required, to complete an examination in their minor field. Permission to proceed examinations should be passed by the end of the first year of residence.

Major Fields or Subdisciplines

The study plan for the Ph.D. should combine the work in one major and two minor literatures by focusing on a limited area in which these literatures may be explored. This area may be a literary period or a particular aspect common to several literatures (for example, a genre like tragedy or the novel, or a phenomenon like neoclassicism or the baroque). It may also be a critical or theoretical problem, involving analyses of styles or modes of interpretation; comparisons of classical and modern genres and themes; questions about the artistic process in different art forms; or problems in literary aesthetics or epistemology. A related field such as art history, film, or gender studies may be substituted for one minor literature after program approval of a student's petition.

Course Requirements

All students entering with an M.A. must take a minimum of six graduate courses, and often up to 12 courses. If the M.A. is not in Comparative Literature at UCLA, students must take three of the required six courses in comparative literature and one from each of the major and minor literatures. Other relevant or necessary courses are determined in consultation with a graduate adviser. None of the minimum required courses may be in the 500 series. Although only six courses are required, students are strongly advised to take at least two and

usually three courses in each chosen literature.

For those who have taken the M.A. in Comparative Literature at UCLA, the following courses are required: two courses in comparative literature, one of which should be theoretically oriented; two to three courses in the second minor; two courses in the major, preferably in the period of emphasis, plus whatever additional courses might be required by the comparative literature committee and/or graduate advisers. None of the minimum required courses may be in the 500 series.

Written and Oral Qualifying Examinations

The examinations are both written and oral and may be taken over a period of two to three quarters. The written examinations are based on reading lists for the major and two minor literatures.

Ph.D. qualifying examinations should be taken at the end of the second year after the M.A. However, they must be taken by the end of the third year after the M.A. (ninth quarter). The examinations are composed of written and oral sections.

There is one three-hour historical examination in the major area. The reading list for the examination consists of 40 items chosen in consultation with the examining professor and with the approval of a core member of the comparative literature committee. No more than 20 of the items may be in the approximately 100-year period of emphasis.

For the minor fields, there are two options:

(1) Students take one three-hour written examination in each minor field, based on approved reading lists of 25 to 30 items or

(2) Students take one three-hour written examination in the minor field not included in the M.A. examinations and, with the approval of the program chair and the agreement of the examining professor, in lieu of the written examinations in the minor literature originally presented for the M.A., may arrange with the examining professor to write a paper of 20 to 30 pages on a topic or topics to be chosen in consultation with the examining professor. The paper would also be based on approved reading lists.

Students submit a detailed dissertation prospectus (approximately 20 pages) for the University Oral Qualifying Examination. The two-to three-hour oral qualifying examination raises questions pertaining to all written examinations as well as any questions concerning the dissertation prospectus. All three of the candidate's fields should be included in the discussion.

The University Oral Qualifying Examination must be taken within 60 days after the last written examination is passed. The department allows a maximum of two attempts to pass the Ph.D. examinations.

Comparative Literature

Lower Division Courses

1A. World Literature: Antiquity to Early Middle Ages. (4) (Formerly numbered Humanities 1A.) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2A. 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 the Bible, Virgil, Petronius, St. Augustine, and others such as *Gilgamesh* or *Tristan and Iseult*. P/NP or letter grading.

1B. World Literature: Late Middle Ages to the 17th Century. (4) (Formerly numbered Humanities 1B.) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2B. Study of major texts in world literature, with emphasis on Western civilization. Texts include works and authors such as Chaucer's *Canterbury Tales*, Dante's *Divine Comedy*, Boccaccio's *Decameron*, Cervantes' *Don Quixote*, Shakespeare, Calderón, Molière, and Racine. P/NP or letter grading.

1C. World Literature: Age of Enlightenment to the 20th Century. (4) (Formerly numbered Humanities 1C.) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 2C. 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 the World at Large. (4) (Formerly numbered Humanities 1D.) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Study of major literary texts usually overlooked in courses that focus only on the canon of Western literature. Texts from at least three of the following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. P/NP or letter grading.

1E. Introduction to Classical Traditions of East Asia. (4) (Formerly numbered Humanities 1E.) Lecture, three hours; discussion, one hour. Through analysis of selected texts, presentation of some main currents in literatures of China, Korea, and Japan. Emphasis and readings vary. P/NP or letter grading.

2A. Survey of Literature: Antiquity to Early Middle Ages. (5) (Formerly numbered Humanities 2A.) Lecture, two hours; discussion, two hours; outside study, 11 hours. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 1A. Study of selected texts from antiquity to the Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as *Iliad*, *Gilgamesh*, Greek tragedies, *Aeneid*, Petronius, St. Augustine, or *Tristan and Iseult*. P/NP or letter grading.

2B. Survey of Literature: Late Middle Ages to the 17th Century. (5) (Formerly numbered Humanities 2B.) Lecture, two hours; discussion, two hours; outside study, 11 hours. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 1B. Study of selected texts from the Middle Ages to the 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, Calderón, Molière, and Racine. P/NP or letter grading.

2C. Survey of Literature: Age of Enlightenment to the 20th Century. (5) (Formerly numbered Humanities 2C.) Lecture, two hours; discussion, two hours; outside study, 11 hours. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 1C. Study of selected texts from the Age of Enlightenment to the 20th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Swift, Voltaire, Diderot, Rousseau, Goethe, Flaubert, Ibsen, Strindberg, Dostoevsky, Kafka, and James Joyce or Wallace Stevens. P/NP or letter grading.

2D. Survey of Literature: Great Books from the World at Large. (4) (Formerly numbered Humanities 2D.) Lecture, two hours; discussion, two hours; outside study, 11 hours. Preparation: satisfaction of Subject A requirement. Not open for credit to students with credit for course 1D. Study of major literary texts usually overlooked in courses that focus only on the canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of the following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. P/NP or letter grading.

Upper Division Courses

100. Introduction to Comparative Literature: Histories, Theories, Practices, and Perspectives. (4) Lecture, three hours. Preparation: satisfaction of Subject A and English Composition 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 a series of texts illustrative of its formation and practice.

M101. Hebrew Literature in English — Literary Traditions of Ancient Israel: Bible and Apocrypha. (4) (Formerly numbered Humanities M101.) (Same as Jewish Studies M150A.) Lecture, three hours. Study of literary culture of ancient Israel through examination of principal compositional strategies of the Hebrew Bible and the Apocrypha (read in translation). P/NP or letter grading.

102. Classical Tradition: Epic. (4) (Formerly numbered Humanities 102.) Seminar, three hours. Designed for upper division literature majors. Analysis of *Iliad*, *Odyssey*, *Aeneid*, *Gerusalemme Liberata*, 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. Classical Tradition: Tragedy. (4) (Formerly numbered Humanities 103.) Seminar, three hours. Designed for juniors/seniors. Analysis of selected Greek dramas and their re-creations in Rome, in the Renaissance, and in the modern period. P/NP or letter grading.

C104. Satire. (4) (Formerly numbered Humanities C104.) Lecture, three hours. Designed for juniors/seniors. Examination of satire both in texts generally recognized as models of the genre as well as in others, including examples of satirical discourse. Special attention to two important literary problems: role played by authors and narrators in relation to treatment of characters before possible audiences and importance of contextual values in interpretation of satire. Concurrently scheduled with course C204. Undergraduates read all texts in translation. P/NP or letter grading.

C105. Comic Vision. (4) (Formerly numbered Humanities C105.) 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. Undergraduates read all works in translation. P/NP or letter grading.

106. Archetypal Heroes in Literature. (4) (Formerly numbered Humanities 106.) 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 the modern period. All works read in translation. P/NP or letter grading.

C108. Saints' Lives as Literature. (4) (Formerly numbered Humanities C108.) Lecture, three hours; outside study, nine hours. Designed for juniors/seniors. Examination of genre of the saint's life as it develops in Western European tradition from late classical to early modern period; connections between the saint's life and other forms of literature; comparative considerations (e.g., the Western European saint's life and classical Greek and Roman biography, Islamic traditions, and Buddhist traditions). Concurrently scheduled with course C208. P/NP or letter grading.

C109. Love, Deceit, and Truth: Tristan and Isolde Legend in Literary Tradition. (4) Lecture, three hours; outside study, nine hours. Tracing of history and literary treatment of one of most enduring "myths" of medieval and modern storytelling: tale of ill-fated love triangle as exemplified in figures of Tristan, Isolde, and Mark. Literary texts to be read in translation, but comparative literature students encouraged to read texts in original language. Concurrently scheduled with course C209. P/NP or letter grading.

120. The Individual and Society in the Renaissance. (4) (Formerly numbered Humanities 120.) Lecture, three hours; discussion, one hour. Requisite: one course from 1A, 1B, 1C, 2A, 2B, 2C, or English Composition 3. Explorations of a change in Western man's relationship to his world, himself, and his art; reading of such works as *Don Quixote*, Montaigne's *Essays*, *Gargantua and Pantagruel*, *The Praise of Folly*, *Utopia*. P/NP or letter grading.

C122. Renaissance Drama. (4) (Formerly numbered Humanities C122.) Lecture, three hours. Designed for upper division literature majors. Broad introduction to subject matter and types of plays in the Renaissance, with consideration of historical and literary influences on the plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C222. Undergraduates read all works in translation. P/NP or letter grading.

C140. Dramatic Theory and Criticism in German and English Romanticism. (4) (Formerly numbered Humanities C140.) Seminar, three hours. Designed for upper division literature majors. Generic conception of drama in critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt, with emphasis on role of the actor and the idea of dramatic action as discussed by the critics. May be concurrently scheduled with course C240. Undergraduates read all works in translation. P/NP or letter grading.

C150. The 19th-Century Novel. (4) (Formerly numbered Humanities C150.) Seminar, three hours. Designed for upper division literature majors. Comparative study of the 19th-century novel in England and on the continent. Novels selected so as to allow seminar to concentrate on a particular tradition or critical problem. May be concurrently scheduled with course C250. Undergraduates read all works in translation. P/NP or letter grading.

C151. Crisis of Authority. (4) (Formerly numbered Humanities C151.) Seminar, three hours. Designed for juniors/seniors. Darwin's *Origin of Species* undermines the notion of a traditional fatherly God and reflects a major transition between the 19th and 20th centuries. Threat to, or collapse of, a divinely author(iz)ed and male-dominated society appears in writers such as G. Eliot, Zola, Ibsen, Strindberg, Conrad, Hardy, Woolf, and Camus. May be concurrently scheduled with course C251. P/NP or letter grading.

C152. Symbolist Tradition in Poetry. (4) (Formerly numbered Humanities C152.) Seminar, three hours. Designed for upper division literature majors. Study of symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with course C252. Undergraduates read all works in translation. P/NP or letter grading.

C153. Poetry and Poetics of Post-Symbolist Period. (4) (Formerly numbered Humanities C153.) Lecture, three hours. Designed for juniors/seniors. Study of poetic trends, such as surrealism or imagism, and poets in first half of the 20th century. Texts may include poets such as W.B. Yeats, E. Pound, T.S. Eliot, Marianne Moore, Paul Valery, Stefan George, R.M. Rilke, Gunnar Ekelof, or Wallace Stevens. May be concurrently scheduled with course C253. Undergraduates read all works in translation. P/NP or letter grading.

154. Adventures of the Avant-Garde. (4) Seminar, three hours; outside study, nine 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, Bunuel, Lispector, Warhol, Orlan. Emphasis on cross-fertilization among different kinds of aesthetic expression. P/NP or letter grading.

158. Colonial Encounters. (4) (Formerly numbered Humanities 158.) Seminar, three hours. Discussion of how a Western textual system restricts cultures of colonized peoples to an encounter with the European. As a means of understanding limits to a European frame of reference, reading of English literary works alongside their postcolonial counterparts. Investigation of how reversal of perspective affects the telling of a tale. P/NP or letter grading.

159. Four Modern Dramatists. (4) (Formerly numbered Humanities 159.) Lecture, three hours. Study of several works by four major modern dramatists, focusing on understanding specific elements in each work and authors' possible interrelations. Pirandello, Beckett, and Pinter are read; fourth author is selected from Ionesco, Giraudoux, Cocteau. P/NP or letter grading.

C160. Topics in Literature and Visual Arts. (4) (Formerly numbered Humanities C160.) Lecture, three hours; outside study, nine 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. Undergraduates read all works in translation. P/NP or letter grading.

C161. Fiction and History. (4) (Formerly numbered Humanities C161.) Seminar, three hours. Designed for upper division literature majors. Analysis of use of historical events, situations, and characters in literary works of the 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.

C163. Crisis of Consciousness in Modern Literature. (4) (Formerly numbered Humanities C163.) Seminar, three hours. Designed for upper division literature majors. Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of human beings and their society, focusing on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C263. Undergraduates read all works in translation. P/NP or letter grading.

C164. The Modern Continental Novel. (4) (Formerly numbered Humanities C164.) Seminar, three hours. Designed for upper division literature majors. Study of the modern novel's development from naturalism toward a mythic or symbolic level. Use of authors such as Gide, Proust, Mann, Joyce, Nabokov, and Grass to focus on development of themes such as primitivism vs. authority, change vs. stability, and the self-conscious narrative. Concurrently scheduled with course C264. Undergraduates read all works in translation. P/NP or letter grading.

M165. The Holocaust in Literature. (4) (Formerly numbered Humanities M165.) (Same as Jewish Studies M187.) Lecture, three hours. Requisite: History 191E or 191F or 191G. Investigation of how the Holocaust informs a variety of literary and cinema works and raises a wide range of aesthetic and moral questions. P/NP or letter grading.

C167. Theory and Texts of the Fantastic. (4) (Formerly numbered Humanities C167.) Seminar, three hours. Designed for upper division literature majors. Attempt to define the fantastic as a theoretical genre separate from the wider genre of fantasy. Critical texts by Todorov and Brooke-Rose. Primary texts by Hoffmann, Nerval, James, Poe, Borges, Casares, Cortazar, Landolfi, and Calvino. May be concurrently scheduled with course C267. Undergraduates read all works in translation. P/NP or letter grading.

M168. Korean American Literature. (4) (Formerly numbered Humanities M168.) (Same as Asian American Studies M132A.) Seminar, three hours. Comprehensive introduction to Korean American literature, with emphasis on Korean American experience, problems of gender, race, and class, nationalism, generational relationships, and impact of traditional Korean culture on Korean American literature. P/NP or letter grading.

169. Continental African Authors. (4) (Formerly numbered Humanities 169.) Lecture, three hours. Requisite: one course from 1A, 1B, 1C, 2A, 2B, 2C, or English Composition 3. Introduction to new set of African authors and attempt to discern similarities or differences they may have with major authors such as Achebe, Ngugi, Armath, Soyinka, etc. P/NP or letter grading.

C170. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (4) (Formerly numbered Humanities C170.) 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 a cross-cultural perspective. Common themes, problems, and techniques. May be concurrently scheduled with course C270. Undergraduates read all works in translation. P/NP or letter grading.

M171. Chinese Immigrant Literature and Film. (4) (Formerly numbered Humanities M171.) (Same as Asian American Studies M132B and Chinese M153.) Lecture, two hours; discussion, one hour; outside study, nine hours. 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. The Postmodern Novel. (4) (Formerly numbered Humanities C172.) Seminar, three hours. Designed for upper division literature majors. Study of the 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. Undergraduates read all works in translation. P/NP or letter grading.

C173. Postmodernism and the Third World. (4) (Formerly numbered Humanities C173.) Seminar, three hours. Exploration of intersection between concepts of postmodernism and Third World culture and politics, including topics such as post-Marxism and revolution; historical thought; gender, ethnicity, imperialism, and their relationship to cultural politics; and recent Latin American literary production. Concurrently scheduled with course C273. P/NP or letter grading.

M174. Film and Literature of the Spanish-Speaking World. (4) (Formerly numbered Humanities M174.) (Same as Spanish M161.) Lecture, three hours. Exploration of perceptions of reality offered by different authors from Spain, Latin America, and the Chicano community. P/NP or letter grading.

190. Semiotics of Story and Film. (4) (Formerly numbered Humanities 190.) Seminar, three hours. Designed for upper division literature majors. Investigation of theoretical aspects of semiotics and their application to specific narratives in prose and film. P/NP or letter grading.

192. Walter Benjamin's Literary Criticism. (4) (Formerly numbered Humanities 192.) Seminar, three hours. Designed for juniors/seniors. Some knowledge of German desirable but not required, as all texts are available in English translation. Walter Benjamin has emerged in recent years as one of the most influential critics of the 20th century. Course approaches his work primarily through a reading of his specifically literary criticism which occupies a central place in his work. P/NP or letter grading.

194. Variable Topics. (4) (Formerly numbered Humanities 197.) Seminar, three hours. Designed for juniors/seniors. Study 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. Consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading.

C195A. Heidegger, Language, and Literature. (4) (Formerly numbered C195.) Seminar, three hours; outside study, nine hours. Knowledge of German not required. Close reading of essays contained in the collection *Poetry, Language, and Thought*, including "The Origin of the Work of Art," "The Thing," and "Language." Concurrently scheduled with course C295A. P/NP or letter grading.

C195B. Derrida as a Reader of Heidegger. (4) (Formerly numbered C196.) Seminar, three hours; outside study, nine hours. Retracing of certain of Derrida's attempts to read Heidegger, beginning with the essay, "Restitutions," in *Truth and Painting*. Other writings include *Of Spirit: Heidegger and the Question* and *Geschlecht*. May be concurrently scheduled with course C295B. P/NP or letter grading.

197. Senior Essay. (4) Lecture, three hours. Limited to senior Comparative Literature majors. Research essay on a comparative topic selected by the student and written under supervision of a core faculty member. P/NP or letter grading.

199. Special Studies in Comparative Literature. (2 to 4) Requisite: course 100. May be repeated for credit with consent of chair. P/NP or letter grading.

202. Classical Tradition: Epic. (4) Seminar, three hours. Preparation: reading knowledge of Greek, Latin, or Italian. Analysis of *Iliad*, *Odyssey*, *Aeneid*, *Jerusalem Liberata*, and *Paradise Lost* both in relation to their contemporary societies and to literary traditions. Emphasis on how poets build on work of their predecessors. S/U or letter grading.

203. Classical Tradition: Tragedy. (4) Seminar, three hours. Preparation: knowledge of one appropriate foreign language, usually Greek or French. Analysis of selected Greek dramas and their re-creations in Rome, in the Renaissance, and in the modern period. S/U or letter grading.

C204. Satire. (4) Lecture, three hours. Examination of satire both in texts generally recognized as models of the genre as well as in others, including examples of satirical discourse. Special attention to two important literary problems: role played by authors and narrators in relation to treatment of characters before possible audiences and importance of contextual values in interpretation of satire. Concurrently scheduled with course C104. Graduate students required to prepare papers based on texts read in original languages whenever possible and may meet as a group one additional hour each week. 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 a 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 the modern period. S/U or letter grading.

207. Allegory and Some Allegories. (4) Seminar, three hours. Preparation: reading knowledge of French, German, Italian, Latin, Greek, or Chinese. Designed for graduate students. Historical perspective on topic of allegory, with readings from texts traditionally held to be examples of the genre. Defining allegory is simple; saying which works count as examples of allegory, and why, is much harder. Authors include Prudentius, Augustine, Dante, Spenser, Donne, Tung Yueh, Hegel, Baudelaire, and Mallarmé. S/U or letter grading.

C208. Saints' Lives as Literature. (4) Seminar, three hours; outside study, nine hours. Preparation: reading knowledge of one appropriate foreign language. Designed for graduate students. Examination of genre of the saint's life as it develops in Western European tradition from late classical to early modern period; connections between the saint's life and other forms of literature; comparative considerations (e.g., the Western European saint's life and classical Greek and Roman biography, Islamic traditions, and Buddhist traditions). Concurrently scheduled with course C108. S/U or letter grading.

C209. Love, Deceit, and Truth: Tristan and Isolde Legend in Literary Tradition. (4) Lecture, three hours; outside study, nine hours. Preparation: reading knowledge of one appropriate foreign language. Tracing of history and literary treatment of one of most enduring "myths" of medieval and modern storytelling: tale of ill-fated love triangle as exemplified in figures of Tristan, Isolde, and Mark. Literary texts to be read in translation, but comparative literature students encouraged to read texts in original language. Concurrently scheduled with course C109. S/U or letter grading.

Graduate Courses

200. Methodology of Comparative Literature. (6) Seminar, four hours. Study of methodology of comparative literature and theory of literature.

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 the Renaissance, with consideration of historical and literary influences on the 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 a group one additional hour each week. S/U or letter grading.

C240. Dramatic Theory and Criticism in German and English Romanticism. (4) Seminar, three hours. Preparation: reading knowledge of German. Generic conception of drama in critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt, with emphasis on role of the actor and the idea of dramatic action as discussed by the critics. May be concurrently scheduled with course C140. S/U or letter grading.

C250. The 19th-Century Novel. (4) Seminar, three hours. Preparation: reading knowledge of French or German. Comparative study of the 19th-century novel in England and on the continent. Novels selected so as to allow seminar to concentrate on a particular tradition or critical problem. May be concurrently scheduled with course C150. S/U or letter grading.

C251. Crisis of Authority. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Designed for graduate students. Darwin's *Origin of Species* undermines the notion of a traditional fatherly God and reflects a major transition between the 19th and 20th centuries. Threat to, or collapse of, a divinely author(iz)ed and male-dominated society appears in writers such as G. Eliot, Zola, Ibsen, Strindberg, Conrad, Hardy, Woolf, and Camus. May be concurrently scheduled with course C151. Graduate students required to prepare papers based on texts read in original languages and may meet as a group one additional hour each week. S/U or letter grading.

C252. Symbolist Tradition in Poetry. (4) Seminar, three hours. Preparation: reading knowledge of either French or German. Study of symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with course C152. Graduate students required to prepare papers based on texts read in original languages and may meet as a group one additional hour each week. S/U or letter grading.

C253. Poetry and Poetics of Post-Symbolist Period. (4) Lecture, three hours. Study of poetic trends, such as surrealism or imagism, and poets in first half of the 20th century. Texts may include poets such as W.B. Yeats, E. Pound, T.S. Eliot, Marianne Moore, Paul Valery, Stefan George, R.M. Rilke, Gunnar Ekelof, or Wallace Stevens. May be concurrently scheduled with course C153. S/U or letter grading.

C260. Topics in Literature and Visual Arts. (4) Lecture, three hours; outside study, nine hours. Preparation: reading knowledge of one appropriate foreign language. 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 the 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.

262. The Psychological Novel. (4) Seminar, three hours. Preparation: major in literature, reading knowledge of French. Comparative study of French and English novels which both precede and follow development of psychoanalysis. Selected readings of Freud, in addition to the required fiction. S/U or letter grading.

C263. Crisis of Consciousness in Modern Literature. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of modern European and American works which are concerned both in subject matter and artistic methods with the growing self-consciousness of human beings and their society, focusing 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 a group one additional hour each week. S/U or letter grading.

C264. The Modern Continental Novel. (4) Seminar, three hours. Preparation: reading knowledge of at least one appropriate foreign language. Study of the modern novel's development from naturalism toward a mythic or symbolic level. Use of authors such as Gide, Proust, Mann, Joyce, Nabokov, and Grass to focus on development of themes such as primitivism vs. authority, change vs. stability, and the self-conscious narrative. Concurrently scheduled with course C164. Graduate students required to prepare papers based on texts read in original languages and to meet as a group one additional hour each week. S/U or letter grading.

265. Intertextuality in Literature and Film. (4) Discussion, three hours. Study of relationships between literature and film from perspective of intertextuality grounded in theorists Mikhail Bakhtin and Jacques Derrida and elaborated by critics Barthes, Chatman, and Kristeva. Focus on processes of inscription, reiteration, transformation, filiation, and dissemination during consideration of representative types of intertextuality. S/U or letter grading.

266. Writing and the Photographic Image. (4) Seminar, three hours; outside study, nine 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 a 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.

C267. Theory and Texts of the Fantastic. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Attempt to define the fantastic as a theoretical genre separate from the wider genre of fantasy. Critical texts by Todorov and Brooke-Rose. Primary texts by Hoffmann, Nerval, James, Poe, Borges, Casares, Cortazar, Landolfi, and Calvino. May be concurrently scheduled with course C167. Graduate students required to prepare papers based on texts read in original languages and may meet as a group one additional hour each week. S/U or letter grading.

C270. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Investigation of narrative texts by contemporary French, German, English, American, Spanish-American, African, and Asian women writers from a cross-cultural perspective. Common themes, problems, and techniques. May be concurrently scheduled with course C170. Graduate students required to prepare papers based on texts read in original languages whenever possible. 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 incarnations in modern African American, Anglo-American, Asian American, European, Native American, and Spanish-American literatures. Particular emphasis on position of women in the cultures and ideology of the authors. S/U or letter grading.

C272. The Postmodern Novel. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of the 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 a group one additional hour each week. S/U or letter grading.

C273. Postmodernism and the Third World. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Exploration of intersection between concepts of postmodernism and Third World culture and politics, including topics such as post-Marxism and revolution; historical thought; gender, ethnicity, imperialism, and their relationship to cultural politics; and recent Latin American literary production. Concurrently scheduled with course C173. S/U or letter grading.

M274. Theorizing the Third World. (4) (Same as Asian American Studies M261.) Seminar, three hours; outside study, nine hours. Investigation of politics of power, gender, and race in complex relationships between the 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; outside study, nine hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Literary and social discourses on issues of nationalism, immigration, and the 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.

M276. Reading Modern Bodies. (4) (Same as Japanese M276.) Seminar, three hours; outside study, nine 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.

280. Latin American Literature in Comparative Contexts. (4) Seminar, three hours; outside study, nine hours. Preparation: reading knowledge of one appropriate foreign language. In-depth study of one topic of Latin American literature in a comparative context. May be repeated for credit. S/U or letter grading.

284. Theories of Translation. (4) Seminar, three hours; outside study, nine 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. Theory and practice of literary translation. Analyses of significant theoretical contributions to the field. Weekly exercises in translation technique with genres, periods, and authors at discretion of participants. S/U or letter grading.

290. Contemporary Theories of Criticism. (4) Seminar, three hours. Requisite: course 200. 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. Problems of the Sign in Literature. (4) Seminar, three hours. Inquiry into theoretical bases and implications of the sign as metaphysical, logical, and grammatical categories. Many texts central to Western thinking dwell on the sign as a concept-tool in order to focus on the relationship between words and things, language and reality, the linguistic medium in its meaning-producing functions. Excerpts from Plato, Aristotle, Augustine, Locke, Vico, and Hegel lead to a discussion of "sciences" envisioned by Saussure (semiology) and Peirce (semiotics) and propounded by contemporary theorists such as Barthes, Hjelt, and Greimas. S/U or letter grading.

293. Psychoanalytic Approaches to Literature. (4) Seminar, three hours. Requisite: course 200 or equivalent criticism course in English. Study of development of modern psychoanalytic approaches to literature, with particular stress on affective theories of criticism. Readings include Freud and early psychoanalytic critics, contemporary psychoanalytic critics of literature, and modern British and American psychoanalytic theorists (Winnicott, Schafer) whose work is applicable to literary theory. S/U or letter grading.

C295A. Heidegger, Language, and Literature. (4) (Formerly numbered C295.) Seminar, three hours; outside study, nine hours. Knowledge of German not required. Close reading of essays contained in the collection *Poetry, Language, and Thought*, including "The Origin of the Work of Art," "The Thing," and "Language." Concurrently scheduled with course C195A. S/U or letter grading.

C295B. Derrida as a Reader of Heidegger. (4) (Formerly numbered C296.) Seminar, three hours; outside study, nine hours. Retracing of certain of Derrida's attempts to read Heidegger, beginning with the essay, "Restitutions," in *Truth and Painting*. Other writings include *Of Spirit: Heidegger and the Question* and *Geschlecht*. May be concurrently scheduled with course C195B. S/U or letter grading.

297. Death and the Limits of Representation. (4) Seminar, three hours; outside study, nine hours. Preparation: reading knowledge of one appropriate foreign language. Examination of fundamental shifts in the relationship that obtains between thinking and death which are closely tied to rethinking of the status and structure of representation. May be repeated once for credit. S/U or letter grading.

299. Analytic Philosophy and Literary Theory. (4) (Formerly numbered 294.) Seminar, three hours; outside study, nine 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.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Preparation for Teaching Literature and Composition. (4) Lecture, three hours. Seminar on problems and methods of presenting literary texts as exemplary materials in the 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 M.A. course requirements. S/U grading.

596. Directed Individual Study or Research. (2 to 12) 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 grading.

596X. Directed Individual Study. (2 to 4) Preparation for foreign language examination. S/U grading.

597. Preparation for M.A. and Ph.D. Examinations. (2 to 12) Limited to graduate students. Preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. May be repeated for credit. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Limited to Ph.D. students. Research for and preparation of Ph.D. dissertation. May be repeated for credit. S/U grading.

COMPUTER SCIENCE

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Scope and Objectives

Computer science is concerned with the design, modeling, analysis, and applications of computer-related systems. Its study at UCLA provides education at the undergraduate and graduate levels necessary to understand, design, implement, and use the software and hardware of digital computers and digital systems. The programs provide comprehensive and strongly related studies of subjects in computer system architecture, computer network modeling and analysis, distributed computer systems, programming languages and systems, artificial intelligence, computer science theory, and scientific computing.

The undergraduate and graduate studies and research projects in computer science are supported by extensive computing resources. In addition to the departmental computing facility, there are nearly a dozen laboratories specializing in areas such as distributed systems, multimedia computer communications, VLSI systems, VLSI CAD, and artificial intelligence. The Cognitive Systems Laboratory is engaged in studying computer systems which emulate or support human reasoning. The Biocybernetics Laboratory is devoted to multidisciplinary research involving the application of engineering and computer science methods to problems in biology and medicine.

The Bachelor of Science degree may be attained either through the Computer Science and Engineering major or through the Computer Science major described below.

The School of Engineering and Applied Science offers M.S. and Ph.D. degrees in Computer Science, as well as minor fields for graduate students seeking engineering degrees. In cooperation with the John E. Anderson Graduate School of Management, the Computer Science Department offers a concurrent degree program which enables students to obtain the M.S. in Computer Science and the M.B.A. (Master of Business Administration).

Undergraduate Study

Computer Science and Engineering B.S.

The ABET-accredited computer science and engineering curriculum at UCLA provides the education and training necessary to design, implement, test, and utilize the hardware and software of digital computers and digital systems. This curriculum has major components

from the Computer Science and Electrical Engineering Departments. Within the curriculum students study all aspects of computer systems from electronic design through logic design, MSI, LSI, and VLSI concepts and device utilization, machine language design, implementation and programming, operating system concepts, system programming, networking fundamentals, higher-level language skills, and application of these to systems. Students are prepared for employment in the high-technology industries that employ information and digital systems.

The Major

Course requirements are as follows (185 minimum units required):

- (1) Four core courses: Computer Science 31, 32, 33, M51A (or Electrical Engineering M16).
- (2) Computer Science 111, 118, 131, M151B (or Electrical Engineering M116C), 180, 181, Electrical Engineering 10, 102, 103, 110, 115A, 115C, Statistics 110A; six laboratory units from Computer Science M152A (or Electrical Engineering M116L) and M152B (or Electrical Engineering M116D); one computer science/electrical engineering elective (excluding Electrical Engineering 100).
- (3) Four upper division elective courses from the Computer Science Department. Course 199 may normally be taken only as a free elective; however, students may petition for exceptions in extraordinary situations.
- (4) Chemistry and Biochemistry 20A; Electrical Engineering 1, 2, Physics 1A, 1B, 4AL, 4BL; Mathematics 31A, 31B, 31C, 32A, 32B, 33A, 61.
- (5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details. Computer Science and Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements.

Computer Science B.S.

The computer science curriculum is designed to accommodate students who want professional preparation in computer science but do not necessarily have a strong interest in computer systems hardware. The curriculum consists of major components in computer science, a minor or technical support area, and a core of courses from the social sciences, life sciences, and humanities. Within the curriculum, students study subject matter in software engineering, principles of programming languages, data structures, computer architecture, theory of computation and formal languages, operating systems, distributed systems, computer modeling, computer networks, compiler construction, and artificial intelligence. Majors are prepared for employment in a wide range of industrial and business environments.

The program is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation (CORPA).

The Major

Course requirements are as follows (181 minimum units required):

- (1) Four core courses: Computer Science 31, 32, 33, M51A (or Electrical Engineering M16).
- (2) Computer Science 111, 112, 118, 131, 132, M151B (or Electrical Engineering M116C), 180, 181, Statistics 110A; one course from Computer Science 161 or 163; Mathematics 151A or Electrical Engineering 103; six laboratory units from Computer Science M152A (or Electrical Engineering M116L) and M152B (or Electrical Engineering M116D).
- (3) Two elective upper division computer science courses.
- (4) A minor or technical support area composed of a coherent group of three upper division courses selected from astronomy, atmospheric sciences, biology, chemical engineering, chemistry and biochemistry, civil and environmental engineering, Earth and space sciences, economics, electrical engineering, information studies, linguistics, management, materials science and engineering, mathematics, mechanical and aerospace engineering, molecular biology, physics.
- (5) Electrical Engineering 1, 2, Physics 1A, 1B, 4AL, 4BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61.
- (6) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details. Computer Science majors must also select two additional humanities/social sciences courses and one additional life sciences course and are required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements. Chemistry 20A may be substituted for one of the life sciences courses.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Computer Science offers the Master of Science (M.S.) degree in Com-

puter Science and participates in a concurrent degree program with the John E. Anderson Graduate School of Management.

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE). In addition, applicants are required to take the Subject Test in Mathematics or Computer Science.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.cs.ucla.edu>. Forms are also available by writing to the Computer Science Department, UCLA, 4732 Boelter Hall, Box 951596, Los Angeles, CA 90095-1596.

M.B.A./M.S. Computer Science

The John E. Anderson Graduate School of Management and the Department of Computer Science in the School of Engineering and Applied Science offer a concurrent degree program which enables students to complete the requirements for the M.S. in Computer Science and the M.B.A. in three academic years. Contact the Anderson School for details.

Areas of Study

Artificial intelligence; computer science theory; computer system architecture; programming languages and systems; foundation of programming and database and knowledge-based systems; computer network modeling and analysis; scientific computing (biological systems, physical systems).

Course Requirements

Course Requirement. A total of nine courses is required for the M.S. degree, including a minimum of five graduate courses. No specific courses are required, but a majority of both the total number of formal courses and the total number of graduate courses must consist of courses offered by the Computer Science Department.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Breadth Requirement. Candidates for the M.S. in Computer Science must satisfy the computer science breadth requirement by the end of the fourth quarter in graduate residence at UCLA. The requirement is satisfied by mastering the contents of six undergraduate courses in computer science chosen from the following two groups:

Group I: Four required courses or equivalent from Computer Science M51A, 143 or 180, M151B, 181.

Group II: Two required courses or equivalent from Computer Science 111, 112 or 118, 131 or 132, 161 or 163, 171 or 174, 270A.

In addition, for each degree students must complete at least one class per quarter for three quarters of Computer Science 201 with grades of Satisfactory.

Competence in any or all courses may be demonstrated in one of three ways:

(1) Satisfactory completion of the course at UCLA with a grade of B– or better.

(2) Satisfactory completion of an equivalent course at another university with a grade of B– or better.

(3) Satisfactory completion of a final examination in the courses at UCLA.

Comprehensive Examination Plan. In the comprehensive examination plan, at least five of the nine courses must be 200-series courses. The remaining four courses may be either 200-series or upper division courses. No units of 500-series courses may be applied toward the comprehensive examination plan requirements.

Thesis Plan. In the thesis plan, seven of the nine courses must be formal courses, including at least four from the 200 series. The remaining two courses may be 598 courses involving work on the thesis.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

The thesis is a report on the results of the investigation of a problem in the major field of study under the supervision of the thesis committee, which approves the subject and plan of the thesis and reads and approves the complete manuscript. While the problem may be one of only limited scope, the thesis must show a significant style, organization, and depth of understanding of the subject. Students should normally start to plan the thesis at least one year before the award of the M.S. degree is expected. There is no examination under the thesis plan.

Doctoral Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. degree in Computer Science are required to take the General Test of the Graduate Record Examination (GRE). In addition, applicants are required to take the Subject Test in Mathematics or Computer Science.

Applicants normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and have demonstrated creative ability. Normally the M.S. degree is required for admission to the

Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having the M.S. degree.

For information on completing the Engineer degree, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.cs.ucla.edu>. Forms are also available by writing to the Computer Science Department, 4732 Boelter Hall, Box 951596, Los Angeles, CA 90095-1596.

Major Fields or Subdisciplines

Artificial intelligence; computer science theory; computer system architecture; programming languages and systems; foundation of programming and database and knowledge-based systems; computer network modeling and analysis; scientific computing (biological systems, physical systems).

Course Requirements

Course Requirement. There is no formal course requirement for the Ph.D. degree, and students may theoretically substitute examinations for coursework. Normally, however, the student takes courses to acquire the knowledge needed for preparation for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one major field and two minor fields; the major and at least one minor must be in computer science. The major field corresponds to a body of knowledge contained in six courses, at least four of which are graduate courses, plus the current literature in the area of specialization. A detailed syllabus for each major field can be obtained from the Student Affairs Office in the Computer Science Department. Each minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. Grades of B– or better, with a grade-point average of at least 3.33 in all courses included in the minor field, are required. By petition and administrative approval, a minor field may be satisfied by examination.

Breadth Requirement. Candidates for the Ph.D. degree in Computer Science must satisfy the computer science breadth requirement by the end of the fourth quarter in graduate residence at UCLA. The requirement is satisfied by mastering the contents of six undergraduate courses in computer science chosen from the following two groups:

Group I: Four required courses or equivalent from Computer Science M51A, 143 or 180, M151B, 181.

Group II: Two required courses or equivalent from Computer Science 111, 112 or 118, 131 or 132, 161 or 163, 171 or 174, 270A.

In addition, for each degree students must complete at least one class per quarter for three quarters of Computer Science 201 with grades of Satisfactory.

Competence in any or all courses may be demonstrated in one of three ways:

(1) Satisfactory completion of the course at UCLA with a grade of B– or better.

(2) Satisfactory completion of an equivalent course at another university with a grade of B– or better.

(3) Satisfactory completion of a final examination in the courses at UCLA.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the three fields and passing the breadth requirement, students take a written preliminary examination in the major field. When the examination is passed and all coursework is completed, students may be required to take an oral preliminary examination that encompasses the major and minor fields. The examination may be waived by the faculty on the recommendation of the major field committee for students deemed to be making strong progress toward the degree. Students may not take a preliminary examination more than twice.

After passing the preliminary examination, the student should form a doctoral committee and prepare to take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee but ordinarily include a broad inquiry into the student's preparation for research. The doctoral committee also reviews the prospectus of the dissertation at the oral qualifying examination.

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are "inside" members and must hold appointments at UCLA in the student's major department in the School of Engineering and Applied Science. The "outside" member must be a UCLA faculty member outside the student's major department.

Computer Science

Lower Division Courses

1. Principles of Computer Science. (4) Lecture, four hours; laboratory, two hours; other, six hours. Not open for credit to Computer Science majors. Introduction to fundamental scientific principles of computation. Programming in LISP. Systems software, including interpreters, and operating systems. Computer hardware design and implementation. Theory of computation, including computability and complexity. Applications, including artificial intelligence and scientific computing. P/NP or letter grading.

2. Great Ideas in Computer Science. (4) Lecture, four hours; outside study, eight hours. Broad coverage for liberal arts and social sciences students of computer science theory, technology, and implications, including artificial and neural machine intelligence, computability limits, virtual reality, cellular automata, artificial life, programming languages survey, and philosophical and societal implications. P/NP or letter grading.

10C. Introduction to Programming. (4) Lecture, four hours; discussion, four hours; outside study, four hours. Exposure to computer organization and capabilities. Basic principles of programming: algorithmic, procedural problem solving. Program design and development. Control structures and data structures. Character strings and word processing. Letter grading.

10F. Introduction to Programming/FORTRAN. (4) Lecture, four hours; discussion, two hours. Open to Mathematics and Computer Science majors; open to graduate students on S/U grading basis only. Description and use of FORTRAN programming language. Selected topics in programming techniques. Programming and running of several problems. Letter grading.

11. Introduction to PASCAL. (4) Lecture, four hours; discussion, two hours; other, six hours. Limited to majors in Computer Science and Engineering and Computer Science majors. Open to graduate students on S/U grading basis only. Not open to students with credit for course 10C, 10F, or Program in Computing 10A. Human factors in programming and program design. Exposure to computer organization and capabilities, data representation, professional ethics. Principles of programming (using PASCAL as example language): algorithm design and procedural abstraction. Program design and development. Control structures and data structures. Letter grading.

31. Introduction to Computer Science I. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Limited to majors in Computer Science and Engineering and Computer Science majors. Introduction to computer science via theory, applications, and programming. Operators and control structures. Functions, parameters, scope rules. Recursion. Arrays, strings, pointers. Object-oriented programming, classes, data abstraction. Input/output. 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. Requisite: course 31. Limited to majors in Computer Science and Engineering and Computer Science majors. Not open to students with credit for former course 23. Object-oriented programming, overloading, inheritance, polymorphism. Object-oriented view of data structures: lists, stacks, queues. Memory management. Sorting and searching algorithms and their performance. Trees, graphs, and associated algorithms. Case studies and exercises from computer science applications. Letter grading.

33. Systems Programming. (5) Lecture, four hours; discussion, two hours; outside study, nine hours. Requisite: course 32. Limited to majors in Computer Science and Engineering and Computer Science majors. Not open to students with credit for former course 24. Introductory course on 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.

M51A. Logic Design of Digital Systems. (4) (Formerly numbered 51A.) (Same as Electrical Engineering M16.) Lecture, four hours; recitation, two hours; outside study, six hours. Requisite: Physics 1C. 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.

Upper Division Courses

111. Operating Systems Principles. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 32, 33. Introduction to design and performance evaluations of modern operating systems. Mapping and binding of addresses. Organization of multiprogramming and multiprocessing systems; interrupts, process model, and interlocks. Resource allocation models and problem of deadlocks. Scheduling, synchronization. Memory management, virtual memory. input/output (I/O) control, file systems. Letter grading.

112. Computer System Modeling Fundamentals. (4) Lecture, four hours; outside study, eight hours. Requisite: Statistics 110A. Designed for juniors/seniors. Basic tools necessary for performance evaluation and design of distributed computer systems, including such topics as combinatorics, generating functions, probability theory, transforms, Markov chains, baby queueing theory. Presentation of this set of tools in a fashion that is rich with examples from computer systems field. Letter grading.

118. Computer Network Fundamentals. (4) Lecture, four hours; discussion, two hours. Designed for juniors/seniors. Investigation of functions required to operate computer communications networks. Development of methodology for implementing these functions in procedures called protocols. Organization around ISO-OSI seven-layer architecture, with review of each layer. Specific functions defined and available alternatives studied. Presentation of several applications and case studies based on existing public and private networks. Letter grading.

130. Software Engineering. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisite: course 32. 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. Requisites: courses 32, 33. Study, comparison, and evaluation of alternative strategies for language specification, data description, data control, program modularity, instruction sequencing, and language implementations. Use of a few languages selected from FORTRAN 77, ADA, SNOBOL 14, LISP, MODULA 2, and PROLOG to illustrate particular implementations of some of above features. Letter grading.

132. Compiler Construction. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 32, 131, 181. 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. Requisites: courses 111 (may be taken concurrently), 131. 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.

143. Introduction to Database Systems. (4) Lecture, four hours; discussion, two hours; laboratory, two hours; outside study, four hours. Requisite: course 32. Information systems and database systems in enterprises. File organization and secondary storage structures. Relational model and relational database systems. CODASYL and other data management approaches. Database design principles. Transactions, concurrency, and recovery. Integrity and authorization. Letter grading.

M151B. Computer Systems Architecture. (4) (Formerly numbered 151B.) (Same as Electrical Engineering M16C.) Lecture, four hours; recitation, two hours; outside study, six hours. Requisites: courses 33, and M51A or Electrical Engineering M16. Recommended: course M152A or Electrical Engineering M16L. Machine organization and design, formal descriptions, comparative study of machine instruction sets and formats, data representation and floating-point, addressing structures, mechanization of procedure calls, memory organization and management, microprogramming, input/output (I/O) processing and interrupts, and reliability aspects. Letter grading.

151C. Design of Digital Systems. (4) Lecture, four hours; discussion, two hours. Requisites: courses M51A, M151B, M152A. Design of complex digital systems using hierarchical approaches and regular structures. Combinational, sequential, and algorithmic systems. Microprogramming and firmware engineering. Cost/performance measures and technology constraints. Use of design tools. Design project. Letter grading.

M152A. Introductory Digital Design Laboratory. (2) (Formerly numbered 152A.) (Same as Electrical Engineering M16L.) Laboratory, four hours; outside study, two hours. Requisite: course M51A or Electrical 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.

M152B. Digital Design Project Laboratory. (4) (Formerly numbered 152B.) (Same as Electrical Engineering M16D.) Laboratory, four hours; recitation, two hours; outside study, six hours. Requisite: course M151B or Electrical Engineering M16C. 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. Requisite: course 23. 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.

163. Introduction to Natural Language Processing. (4) Lecture, four hours; laboratory, two hours. Requisite: course 130 or 131. Role of syntax, semantics, and pragmatics in human language processing by computers. Natural language generators and parsers, inference, and conceptual analysis. Modeling conceptual processes and representing semantic knowledge by means of computer problems. Letter grading.

170A. Introduction to Scientific Computing. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Designed for senior Computer Science majors. Introduction to scientific modeling and simulation, using the very high-level computer languages MATHEMATICA and MAPLE. Extensive coverage of programming in MATHEMATICA, with applications involving engineering modeling; simulation term project required. Letter grading.

171. Real-Time Computer Systems. (4) Lecture, four hours; outside study, eight hours. Designed for seniors. Survey of fundamentals, with emphasis on hardware and systems concepts. Adapting digital computers to interfaces, including multiprogramming, bus structure, interrupt, and time-sharing considerations. Digital communication, remote consoles, sampling, quantizing, multiplexing, analog-digital conversion, and data reconstruction. Letter grading.

171L. Data Communication Systems Laboratory. (2 to 4) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: courses M152A, 171. Limited to seniors. 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 (and CRT cameras), pulse and function generators, baseband spectrum analyzers, desktop analog computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

174. Elements of Computer Graphics. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisite: course 32. Hardware and software elements of computer graphics systems. Graphics languages. Graphic workstations and specialized input/output (I/O) devices. Design and development of interactive graphics programs. Letter grading.

180. Introduction to Algorithms and Complexity. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32, Mathematics 61. Limited to 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. Introduction to Formal Languages and Automata Theory. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 61. Designed for junior/senior Computer Science majors. Grammars, automata, and languages. Finite-state languages and finite-state automata. Context-free languages and pushdown story automata. Unrestricted rewriting systems, recursively enumerable and recursive languages, and Turing machines. Closure properties, pumping lemmas, and decision algorithms. Introduction to computability. Letter grading.

190. Computer Science Design Project. (4) Lecture, four hours; outside study, eight hours. Preparation: adequate background in hardware, software, and computer applications. Limited to senior Computer Science and Engineering majors and senior Computer Science majors. Basic concepts of design of projects in computer science, including interpretation of specifications, subtasking, design of experiments, data analysis and performance evaluation, cost engineering, reliability, and societal and safety considerations. Letter grading.

196A. Introduction to Bioengineering and Cybernetics. (2) Lecture, two hours; outside study, six hours. Preparation: calculus. Strongly recommended for students with potential interest in bioengineering or cybernetics as a major. Introductory survey of topics in bioengineering and cybernetics disciplines. Lectures presented by faculty currently performing research in one of the areas; some sessions include laboratory tours. P/NP grading.

M196B. Modeling and Simulation of Biological Systems. (5) (Same as Medicine M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, eight hours. Requisite: Electrical Engineering 102 or Mathematics 115A. Introduction to dynamic system modeling, compartmental modeling, and computer simulation methods for studying biomedical systems. Basics of numerical simulation algorithms, translating biomodeling goals and data into mathematic models and implementing them for simulation and analysis. Modeling software exploited for class assignments in PC laboratory. Letter grading.

CM196L. Biomedical Systems/Biocybernetics Research Laboratory. (4) (Formerly numbered C196L.) (Same as Neuroscience M174.) Lecture, one hour; laboratory, three hours; outside study, eight hours. Requisite: course M196B. Special laboratory techniques and experience in biocybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Concurrently scheduled with course C296L. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

Graduate Courses

201. Computer Science Seminar. (2) (Formerly numbered 201A-201B-201C.) 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 the specialized area. May be repeated for credit. S/U or 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. $M/E/1$, $E/M/1$. 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. S/U or letter grading.

212B. Queueing Applications: Scheduling Algorithms and Queueing Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 212A. Priority queueing. Applications to time-sharing scheduling algorithms: FB, Round Robin, Conservation Law, Bounds. Queueing networks: definitions; job flow balance; product form solutions — local balance, $M \rightarrow M$; computational algorithms for performance measures; asymptotic behavior and bounds; approximation techniques — diffusion — iterative techniques; applications. S/U or letter grading.

214. Data Transmission in Computer Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112. Limited to graduate computer science students. Discrete data streams, formats, rates, transductions; digital data transmissions via analog signaling in computer communication; media characteristics, systems methodologies, performance analysis; modem designs; physical interfaces in computer communication links; national/international standards; tests and measurements. S/U or letter grading.

215. Computer Communications and Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112. Resource sharing; computer traffic characterizations; multiplexing; network structure; packet switching and other switching techniques; ARPANET and other computer network examples; network delay and analysis; network design and optimization; network protocols; routing and flow control; satellite and ground radio packet switching; local networks; commercial network services and architectures. Optional topics include extended error control techniques; modems; SDLC, HDLC, X.25, etc.; protocol verification; network simulation and measurement; integrated networks; communication processors. S/U or letter grading.

216. Distributed Multiaccess Control in Networks. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 212A, 215. Topics from the field of distributed control and access in computer networks, including terrestrial distributed computer networks; satellite packet switching; ground radio packet switching; local network architecture and control. S/U or letter grading.

217. Advanced Topics in Internet Research. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of Internet development history and fundamental principles underlying TCP/IP protocol design. Discussion of current research topics, including multicast routing protocols, multicast transport protocols (e.g., real-time, transport protocol, RTP, and SRM), support for integrated services, World Wide Web, multimedia applications on Internet. Fundamental issues in network protocol design and implementations. Letter grading.

218. Advanced Computer Networks. (4) Lecture, four hours; outside study, eight 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. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in an area of computer system modeling analysis in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. S/U or letter grading.

M222. Control and Coordination in Economics. (4) (Same as Economics M222A.) Lecture, three hours. Recommended preparation: appropriate mathematics course. Designed for graduate economics and engineering students. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models. Bayesian approach to price and output rate adjustment. S/U or letter grading.

232A. Operational Semantics of Programming Languages. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131, 181. Introduction to formal semantics. Interpreter-based operational definitions. Induction and structural operational semantics. Proving equivalence between structural and interpreter-based operational definitions. Static and dynamic semantics. Example operational definitions of functional, imperative, concurrent, logic, and object-oriented programming languages. Letter grading.

232B. Semantics of Programming Languages. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131, 181. Denotational semantics of programming languages. Notation and foundations. Expressions, commands, declarations, and other constructs. Environments, stores, and continuations. Examples. Relations between semantic definitions of programming languages. Applications of current research interest. S/U or letter grading.

233A. Parallel Programming. (4) Lecture, four hours; outside study, eight hours. Prerequisites: 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. S/U or letter grading.

233B. Verification of Concurrent Programs. (4) Lecture, four hours; outside study, eight hours. Prerequisite: 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. S/U or letter grading.

234A. Correctness Proofs. (4) Lecture, four hours; outside study, eight hours. Theoretical and practical aspects of correctness proofs. Partial correctness, total correctness, and termination. Axiomatic semantics and proof systems. Abstraction and correctness of implementations. Formulation, execution, and assessment of correctness proofs. Topics of current research interest. S/U or letter grading.

235A. Logic Programming and PROLOG. (4) Lecture, four hours; outside study, eight hours. Limited to graduate computer science students. Logic programming; PROLOG as an approximation thereof; PROLOG programming techniques; translation and definite clause grammars; rewriting and interpreters; implementation of PROLOG; constraint logic programming and other proposed extensions to PROLOG; parallel logic programming systems. Letter grading.

239. Current Topics in Computer Science: Programming Languages and Systems. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in an area of computer science programming languages and systems in which instructor has developed special proficiency as a consequence of research interests. May be repeated for credit with topic change. S/U or letter grading.

240A. Databases and Knowledge Bases. (4) Lecture, four hours; outside study, eight hours. Prerequisite: course 143. Theoretical and technological foundation of Intelligent Database Systems, which 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. Letter grading.

241A. Object-Oriented and Semantic Database Systems. (4) Lecture, three and one-half hours; recitation, 30 minutes; laboratory, one hour; outside study, eight hours. Prerequisite: course 143. Object and database principles. Data models and accessing. Database systems architecture and functional components. Extended relational systems. Object and semantic systems. Systems comparison. Database design, organization, indexing, and performance. Other topics at discretion of instructor. Letter grading.

241B. Pictorial and Multimedia Database Systems. (4) Lecture, three and one-half hours; recitation, 30 minutes; outside study, nine hours. Prerequisites: courses 143, 241A. Pictorial and multimedia information system requirements. Data models and accessing; alternatives. Database systems. Visual languages and communication. Hypertext. Database design and organization, logical and physical. Database heterogeneity and distribution. Other topics at discretion of instructor. Letter grading.

243B. Abstract Data Types and Program Specification. (4) Lecture, four hours; outside study, eight hours. Prerequisites: courses 32, 181. Notions of abstract data type and abstract program specification permit one to understand how programs manipulate data, independently of their implementations. These notions also give powerful techniques for program structuring and verification. Programming exercises. S/U or letter grading.

244A. Distributed Database Systems. (4) Lecture, four hours; outside study, eight hours. Prerequisites: courses 215 and/or 241A. 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.

245A. Intelligent Information Systems. (4) Lecture, four hours; outside study, eight hours. Prerequisites: courses 241A, 255A. Knowledge discovery in database, knowledge-base maintenance, knowledge-base and database integration architectures, and scale-up issues and applications to cooperative database systems, intelligent decision support systems, and intelligent planning and scheduling systems; computer architecture for processing large-scale knowledge-base/database systems. Letter grading.

249. Current Topics in Data Structures. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in an area of data structures in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. S/U or letter grading.

251A. Advanced Computer Architecture. (4) Lecture, four hours; outside study, eight hours. Prerequisites: courses M51A, 111, M151B. Functional and structural models of computer systems. Architecture and organization at microprogramming, machine language, and operating system level. Processor organization and system control. Arithmetic processors: algorithms and implementation. Storage system organization: hierarchy and management. Communication organization and control. S/U or letter grading.

251B. Parallel Computer Architectures. (4) Lecture, four hours; outside study, eight hours. Prerequisite: course 251A. Parallel algorithmic structures and computer organizations. Effect of sequencing mechanisms, granularity, coupling, and locality. Organizations of control, memory, interconnection, and processing elements. Performance evaluation measures. Detailed discussion of system organization and performance of vector computers, array computers, loop-level multiprocessors, process-level multiprocessors, and dataflow computers. S/U or letter grading.

252A. Arithmetic Algorithms and Processors. (4) Lecture, four hours; outside study, eight hours. Prerequisite: 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. On-line 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.

253A. Design of Fault-Tolerant Systems. (4) Lecture, four hours; outside study, eight hours. Prerequisite or corequisite: course 251A. Fundamental concepts of dependable computing. Design methodology for fault-tolerant systems. Analytic models and measures, modeling tools. Design for critical applications: long-life, real-time, and high-availability systems. Tolerance of design faults: design diversity and fault-tolerant software. Letter grading.

253B. Advanced Topics in Fault-Tolerant Computing. (4) Lecture, four hours; outside study, eight hours. Prerequisite: course 253A. Fault tolerance in distributed systems: protocols and network redundancy. Design of fault-tolerant software: N-version programming and recovery blocks. Relationship between fault tolerance and system security. Case studies of contemporary fault-tolerant systems. Review of recent research results. Letter grading.

253C. Testing and Testable Design of VLSI Systems. (4) Lecture, four hours; outside study, eight hours. Prerequisite: course M51A. Detailed study of various problems in testing and testable designs of VLSI systems, including fault modeling, fault simulation, testing for single stuck faults and multiple stuck faults, functional testing, design for testability, compression techniques, and built-in self-test. Letter grading.

254A. Computer Memories and Memory Systems. (4) Lecture, four hours; outside study, eight hours. Prerequisite: course 251A. Generic types of memory systems; control, access modes, hierarchies, and allocation algorithms. Characteristics, system organization, and device considerations of ferrite memories, thin film memories, and semiconductor memories. S/U or letter grading.

255A. Distributed Processing Systems. (4) Lecture, four hours; outside study, eight hours. Prerequisites: courses 215 and/or 251A. Task partitioning and allocation, interprocess communications, task response time model, process scheduling, message passing protocols, replicated file systems, interface, cache memory, actor model, fine grain multicomputers, distributed operating system kernel, error recovery strategy, performance monitoring and measurement, scalability and maintainability, prototypes and commercial distributed systems. Letter grading.

256A. Advanced Scalable Architectures: Systems, Building Blocks, and Technology. (4) Lecture, four hours; outside study, eight hours. Prerequisite: course 251A. State-of-the-art scalable multiprocessors and multicomputers. High-performance VLSI building blocks. Capabilities and limitations of VLSI technology. Interdependency among implementation technology, packaging, chip microarchitecture, and system architecture. Mechanisms for exploiting parallelism. Current research areas. Examples of chips and systems. Letter grading.

M258A. LSI in Computer System Design. (4) (Same as Electrical Engineering M216A.) Lecture, four hours; laboratory, four hours. Limited to graduate computer science and electrical engineering students. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on a chip. S/U or letter grading.

M258B-M258C. LSI in Computer System Design. (4-4) (Same as Electrical Engineering M216B-M216C.) Lecture, four hours; laboratory, four hours. Prerequisite: course M258A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. In Progress and S/U or letter grading.

258D. VLSI CAD Techniques. (4) Lecture, four hours; outside study, eight hours. Designed for graduate computer science and electrical engineering students. In-depth study of latest advances in computer-aided VLSI design techniques, including building block layout, placement and routing algorithms, simulation, design verification and timing, analog/digital synthesis techniques, testing, silicon compilation, expert system applications, and automatic performance optimization. S/U or letter grading.

258E. Foundations of VLSI CAD Algorithms. (4) Lecture, four hours; outside study, eight hours. Preparation: one course in analysis and design of algorithms. Basic theory of combinatorial optimization for VLSI physical layout, including mathematical programming, network flows, matching, greedy and heuristic algorithms, and stochastic methods. Emphasis on practical application to computer-aided physical design of VLSI circuits at high-level phases of layout: partitioning, placement, graph folding, floorplanning, and global routing. S/U or 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 a number of important optimization techniques, such as network flows, Steiner trees, simulated annealing, and generic algorithms. S/U or 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. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in an area of computer science system design in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. S/U or letter grading.

261A. Problem Solving and Search. (4) Lecture, four hours; outside study, eight hours. Requisite: course 23. Examination in depth of that part of artificial intelligence concerned with problem-solving behavior, including problem spaces, brute-force search, heuristic search, two-player game searches, planning, subgoaling, GPS, macro-operators, and abstraction. Emphasis on mathematical rigor and complexity analyses of search algorithms. S/U or letter grading.

262A. Reasoning with Partial Beliefs. (4) Lecture, four hours; outside study, eight 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. S/U or letter grading.

262B. Knowledge-Based Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 262A. Machine representation of judgmental knowledge and uncertain relationships. Inference on inexact knowledge bases. Rule-based systems — principles, advantages, and limitations. Signal understanding. Automated planning systems. Knowledge acquisition and explanation producing techniques. S/U or letter grading.

262C. Computer Methods of Data Analysis and Model Formation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112. Techniques of using computers to interpret, summarize, and form theories of empirical observations. Mathematical analysis of trade-offs between computational complexity, storage requirements, and precision of computerized models. S/U or 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 which 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. S/U or letter grading.

263A. Language and Thought. (4) Lecture, four hours; outside study, eight hours. Recommended preparation: understanding of LISP. Introduction to natural language processing. Representation and manipulation of conceptualizations underlying processes of thought for natural language comprehension and generation. Process models of story comprehension, question answering, paraphrasing, machine translation. Conceptual dependency theory, scripts, plans, goals, expectation-based parsing. S/U or letter grading.

263B. Language and Memory. (4) Lecture, four hours; outside study, eight hours. Preparation: knowledge of LISP or PROLOG. Requisite: course 263A. Recommended: course 264A. Advanced natural language processing. Emphasis on organization of human memory for language comprehension. Episodic and semantic memory. Subjective understanding and modeling ideologies. Language acquisition, processes of generalization during comprehension. Cross-contextual reminders and thematic abstraction. S/U or letter grading.

264A. Artificial Intelligence Programming I. (4) Lecture, four hours; outside study, eight hours. Recommended preparation: knowledge of LISP or PROLOG. Introduction to tools, techniques, and issues in artificial intelligence programming. Functional programming for artificial intelligence applications. Review of LISP and introduction to lexically scoped LISPs (e.g., T, SCHEME). Lambda calculus, closures, data-driven and object-oriented programming, flavors, d-nets, resolution-based deductive systems. S/U or letter grading.

264B. Artificial Intelligence Programming II. (4) Lecture, four hours; outside study, eight hours. Requisite: course 264A. Techniques of logic programming. Artificial intelligence programming languages (e.g., PROLOG, AMORD, DUCK, CONNIVER, PLANNER, QA4, KRL, ACTORS, etc.) and artificial intelligence features (e.g., nonmonotonic logics, data-dependencies for truth maintenance, meta-rules, semantic networks, frame-based systems). S/U or 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. S/U or letter grading.

267A. Neural Models. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Review of major neurophysiological milestones in understanding brain architecture and processes. Focus on brain theories that are important for modern computer science and, in particular, on models of sensory perception, sensory-motor coordination, and cerebellar and cerebral structure and function. Students required to prepare a paper analyzing research in one area of interest. S/U or letter grading.

267B. Artificial Neural Systems and Connectionist Computing. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Analysis of major connectionist computing paradigms and underlying models of biological and physical processes. Examination of past and current implementations of artificial neural networks along with their applications to associative knowledge processing, general multisensor pattern recognition including speed and vision, and adaptive robot control. Students required to prepare a paper analyzing research in one area of interest. S/U or letter grading.

268. Machine Perception. (4) Lecture, four hours; outside study, eight 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.

268CN. Computational Neuroscience. (4) Lecture, four hours; discussion, two hours; outside study, eight hours. Computational neuroscience as a paradigm of formal analysis and demonstrations of how to correctly interpret sensory data by discovering constraints from the natural world. Neural networks and connectionist models as a paradigm for parallel and concurrent computation and application to problem of vision, multimodal sensory interpretation, and learning. S/U or letter grading.

268S. Seminar: Computational Neuroscience. (2) Seminar, two hours; outside study, six hours. Designed for students undertaking thesis research. Discussion of advanced topics and current research in computational neuroscience. Neural networks and connectionism as a 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. (2 to 4) Seminar, to be arranged. Review of current literature and research practicum in an area of artificial intelligence in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. S/U or letter grading.

270A. Computer Methodology: Advanced Numerical Methods. (4) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 103 or Mathematics 151B or comparable experience with numerical computing. Designed for graduate computer science and engineering students. Principles of computer treatment of selected numerical problems in algebraic and differential systems, transforms and spectra, data acquisition and reduction; emphasis on concepts pertinent to modeling and simulation and the applicability of contemporary developments in numerical software. Computer exercises. Letter grading.

271A. Modeling and Simulation of Lumped Parameter Systems. (4) Lecture, eight hours. Recommended preparation: course 270A. Characterization of electrical, electromechanical, and other engineering problems by systems of nonlinear ordinary differential equations. Survey of integration algorithms. Digital simulation languages for continuous systems. Real-time simulation using array processor and multiprocessor computer systems. S/U or letter grading.

271B. Modeling and Simulation of Distributed Parameter Systems. (4) Lecture, eight hours. Recommended preparation: course 270A. Mathematical formulation of engineering field problems governed by partial differential equations. Finite difference and finite element approximations. Principal algorithms for solving elliptic, parabolic, and hyperbolic partial differential equations. Supercomputers, vector processors, multiprocessors, and array processors. S/U or letter grading.

271C. Seminar: Advanced Simulation Methods. (2) Seminar, two hours; outside study, six hours. Requisite: course 271A. Discussion of advanced topics in simulation of systems characterized by ordinary and partial differential equations. Topics include (among others) simulation languages, dataflow machines, array processors, and advanced mathematical modeling techniques. Topics vary each term. May be repeated for credit. S/U grading.

272. Advanced Discrete Event Simulation and Modeling Techniques. (4) Lecture, four hours; outside study, eight hours. In-depth study in discrete event simulation and modeling techniques, including building valid and credible simulation models, output analysis of systems, comparisons of alternative system configurations. Variance reduction techniques, simulation models of computer systems and manufacturing systems. Letter grading.

273A. Digital Processing of Engineering and Statistical Data. (4) Lecture, four hours; outside study, eight hours. Computer methods for processing engineering and statistical data. Algorithms to evaluate recursive filter functions, Fourier series, power spectral, analysis correlation computations, and statistical testing. Letter grading.

276A. Pattern Analysis and Machine Intelligence. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Fundamentals of pattern recognition, feature extraction and selection, autonomous learning, clustering, and machine intelligence. S/U or letter grading.

276B. Structured Computer Vision. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Methods for computer processing of image data. Systems, concepts, and algorithms for image analysis, radiologic and robotic applications. S/U or letter grading.

276C. Speech and Language Communication in Artificial Intelligence. (4) Lecture, four hours; outside study, eight hours. Requisite: course 276A or 276B. Topics in human-computer communication: interaction with pictorial information systems, sound and symbol generation by humans and machines, semantics of data, systems for speech recognition and understanding. Use of speech and text for computer input and output in applications. S/U or letter grading.

279. Current Topics in Computer Science: Methodology. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in an area of computer science methodology in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. S/U or letter grading.

280A-280ZZ. Algorithms. (4 each) 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 with 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. S/U or letter grading.

281D. Discrete State Systems. (4) Lecture, four hours; outside study, eight hours. Recommended requisite: course 181. Finite-state machines, transducers, and their generalizations; regular expressions, transduction expressions, realizability; decomposition, synthesis, and design considerations; topics in state and system identification and fault diagnosis, linear machines, probabilistic machines, applications in coding, communication, computing, system modeling, and simulation. S/U or letter grading.

284A-284ZZ. Topics in Automata and Languages. (4 each) 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 with topic change. S/U or letter grading.

287A. Theory of Program Structure. (4) Lecture, four hours; outside study, eight hours. Requisite: course 181. Models of computer programs and their syntax and semantics; emphasis on programs and recursion schemes; equivalence, optimization, correctness, and translatability of programs; expressive power of program constructs and data structures; selected current topics. S/U or 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-289ZZ. Current Topics in Computer Theory. (2 to 12 each) Lecture, four hours; outside study, eight hours. Review of current literature in an area of computer theory in which instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. S/U or letter grading.

M296A. Modeling Methodology for Biomedical Systems. (4) (Same as Medicine M270C.) Lecture, four hours; outside study, eight hours. Recommended preparation: course M196B, some intermediate knowledge of linear systems analysis or linear algebra (e.g., Mathematics 115A, Electrical Engineering 141, 142, Mechanical and Aerospace Engineering 171A). Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems, including dynamic system experiment/model development, 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. S/U or letter grading.

M296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Biomathematics M270 and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course M296A. Estimation methodology and model parameter estimation algorithms for quantifying (fitting) dynamic system models to real-world data. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on data sampling schedule design. Exploration in PC laboratory of applications software for model building and optimal experiment design. S/U or letter grading.

M296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Medicine M270E.) Lecture, four hours; outside study, eight hours. Requisite: course M296A. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of the literature. Research problem searching and formulation. Approaches to solutions. Individual M.S.- and Ph.D.-level project training. S/U or letter grading.

C296L. Biomedical Systems/BioCybernetics Research Laboratory. (4) Lecture, one hour; laboratory, three hours; outside study, eight hours. Requisite: course M196B. Special laboratory techniques and experience in bioCybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Concurrently scheduled with course CM196L. S/U or letter grading.

298. Research Seminar: Computer Science. (2 to 4) (Formerly numbered 209AA-209ZZ.) Seminar, 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.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, six hours. Limited to graduate Computer Science Department students. Seminar on communication of computer science materials in classroom: preparation, organization of material, presentation, use of visual aids, grading, advising, and rapport with students. S/U grading.

497D-497E. Field Projects in Computer Science. (4-4) Fieldwork, to be arranged. Students are divided into teams led by instructor; each team is assigned an external company or organization which they investigate as a candidate for possible computerization, submitting a team report of their findings and recommendations. In Progress and S/U or letter grading.

596. Directed Individual or Tutorial Studies. (2 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 M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate computer science students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. S/U grading.

597C. Preparation for Ph.D. 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 M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate computer science students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. 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.

COMPUTING, PROGRAM IN

See Mathematics

CYBERNETICS

*Interdepartmental Program
College of Letters and Science*

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<http://www.cs.ucla.edu/~cyber/Cybernetics/cybernetics.html>

Joseph J. DiStefano III, Ph.D., *Chair*

Professors

Joseph J. DiStefano III, Ph.D. (*Computer Science, Medicine*)
Michael G. Dyer, Ph.D. (*Computer Science*)
Jack L. Feldman, Ph.D. (*Physiological Science*)
C.R. Gallistel, Ph.D. (*Psychology*)
Richard E. Korf, Ph.D. (*Computer Science*)
James A. Lake, Ph.D. (*Molecular, Cellular, and Developmental Biology*)
Elliot M. Landaw, M.D., Ph.D. (*Biomathematics*)
Jason Speyer, Ph.D. (*Mechanical and Aerospace Engineering*)

Professors Emeriti

Jack W. Carlyle, Ph.D. (*Computer Science*)
John Hanley, M.D. (*Psychiatry and Biobehavioral Sciences*)

Associate Professor

Richard K. Vance, Ph.D. (*Biology*)
Todd O. Yeates, Ph.D. (*Chemistry and Biochemistry*)

Assistant Professor

Stephen A. Engel, Ph.D. (*Psychology*)
Valeriy I. Nenov, Ph.D. (*Neurosurgery*)

Adjunct Associate Professor

Vivek Dixit (*Medicine*)

Scope and Objectives

The major in Cybernetics is designed primarily for highly motivated undergraduates interested in interdisciplinary activities in life sciences, behavioral sciences, and engineering and computer sciences. Preparation for the major consists of a broad foundation in basic sciences — chemistry, biology, physics, and mathematics, plus introduction to psychology and computing. The major itself provides an introduction to modeling, information processing, control and system analysis, with emphasis on quantitative ideas and methodologies. Mathematical and other analytical skills are essential in the major.

Cybernetics majors have four options for in-depth studies: life sciences, behavioral sciences, engineering and applied mathematical sciences, or an integration of courses from these areas that form a coherent cybernetics curriculum. The major is appropriate prepara-

tion for employment or for graduate studies in any of these areas, with emphasis on interdisciplinary activities. It is also appropriate preparation for professional school studies in medicine, public health, management, dentistry, and engineering.

Undergraduate Study

Cybernetics B.S.

Precybernetics Major

Students may apply for the precybernetics major via petition if they are sophomores and have taken at least three of the premajor mathematics courses with a 2.7 grade-point average or better and three other premajor courses. Together, all preparation for the major courses, including mathematics, must be completed with at least a 3.0 GPA and a minimum grade of C in all courses. Transfer students must meet the same academic requirements, based on all courses transferred from another institution which satisfy premajor requirements, and must have completed one 12-unit term of residence in regular session at UCLA.

Preparation for the Major

Required: A minimum of 76 to 81 units, including Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L; Life Sciences 1, 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 115A; Physics 1A, 1B, and 1C or Electrical Engineering 1, or 2AH and 2BH; Program in Computing 10A; Psychology 10.

The Major

Admission to the major is by petition only and is based on successful completion of all preparation for the major courses and requirements (2.7 grade-point average in mathematics, 3.0 GPA overall, and a minimum grade of C in all preparation for the major courses).

The major consists of a methodology core (five and one-half courses), a specialization area (seven courses), and a cybernetics breadth requirement (three courses). Each course in the major must be passed with a grade of C or better.

Methodology Core

Required: Four subject areas as follows:

- (1) One overview course: Computer Science 196A.
- (2) Two courses in probability and statistics from one of the following groups: (a) Statistics M100A and 100B, or (b) Mathematics M170A and Statistics 100B, or (c) Electrical Engineering 131A and Statistics 100B.
- (3) Two courses in signals and control systems (one from each group): (a) Electrical Engineering 102 and (b) Electrical Engineering 141 or Mechanical and Aerospace Engineering 171A.
- (4) One course in modeling and computer simulation: Computer Science M196B.

Applications/Specialization Areas

Required: A minimum of seven courses in either life sciences, behavioral sciences, engineering and applied mathematics, or an integration of courses from these areas. A continually updated and approved list of courses in each specialization area is available in the program office and the College Counseling Service.

With few exceptions, courses in the life sciences area are in biology, microbiology, chemistry, and biochemistry, as well as in departments of the School of Medicine. Courses in the behavioral sciences area are in physiological or cognitive psychology. And courses in the engineering and applied mathematics area are in engineering, computer science, and mathematics.

Cybernetics Breadth Requirement

Required: One course from each of the applications/specialization areas selected from the current approved list.

Honors Program

Junior and senior majors who have completed all preparation for the major courses and have an overall grade-point average of 3.0 or better and a 3.5 or better in required major courses may apply for admission to the honors program, in which honors-designated sections of selected courses are required. Students pursuing highest honors must, in addition, complete a senior thesis based on an approved research topic. Those who successfully complete the program (3.0 GPA or better overall, 3.5 or better in major coursework, and a grade of B or better in required honors courses) are awarded a degree with honors. At the discretion of the faculty sponsor and the interdepartmental committee, students demonstrating exceptional ability on the senior research thesis are awarded highest honors.

Computing Specialization

Students may select this area as an option in the existing applications/specialization areas. Program in Computing 10B, 10C, 30, and 60 are required, in addition to six courses selected from an approved list. Students graduate with a bachelor's degree in cybernetics and a specialization in Computing.

Cybernetics

Upper Division Course

195H. Honors Thesis. (4) Limited to Cybernetics honors majors. Honors thesis preparation and submission, under direction of a faculty sponsor on Cybernetics Interdepartmental Committee. P/NP grading.

DANCE

See World Arts and Cultures

DENTISTRY

School of Dentistry

UCLA
A3-042 Dentistry
Box 951668
Los Angeles, CA 90095-1668

(310) 825-6401
<http://www.dent.ucla.edu/>

No-Hee Park, D.D.S., M.S.D., Ph.D., *Dean*

Scope and Objectives

The UCLA School of Dentistry offers one lower division and two upper division courses for pre-dental students, plus several graduate courses. Dentistry 199 and 199H are individual special studies courses for UCLA undergraduates with definitive research interests and abilities applicable to dentistry. The subject areas include oral biology, clinical research, and dental health policy. Interested students should contact the associate dean of research at (310) 825-6401 to obtain the names and areas of interest of participating School of Dentistry faculty.

Dentistry

Lower Division Course

88. Lower Division Seminar: Special Topics in Dentistry. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in dentistry approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

199. Individual Special Studies. (2 to 8) Studies in dentistry and related subject areas appropriate for the training of particular students, with required reading assignments or laboratory work leading to a final oral or written examination. P/NP or letter grading.

199H. Individual Special Studies (Honors). (2 to 8) Studies in dentistry and related subject areas appropriate for the 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). P/NP or letter grading.

Graduate Courses

M300.5A-M300.5B-M300.5C. Child Abuse and Neglect (2-2-1). (Same as Community Health Sciences M245A-M245B-M245C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M290E-M290F-M290G.) Lecture, two hours. Course M300.5A is requisite to M300.5B, which is requisite to M300.5C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. S/U or letter grading.

M422. Health Policy Issues for Dental Professionals. (2) (Same as Health Services M448.) Lecture, two hours. Requisites: Biostatistics 100A, Epidemiology 100, Health Services 100. Current public health policy issues in dental health, including cost, financing, role of government, and quality assurance. S/U grading.

M433A. Case Studies in Dental Practice. (2) (Same as Health Services M448D.) Lecture, two hours. Provides students with practice methodology for evaluation of dental care settings. Didactic and field experience, providing foundation for evaluation of programs. S/U grading.

441C. Introduction to Health Care. (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

School of the Arts and Architecture

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<http://www.arts.ucla.edu/departments/design/design.html>

Victoria Vesna, Ph.D., *Chair*

Professors

Rebecca Allen, M.S.
James W. Bassler, M.A.
Lionel March, Sc.D.
Vasa Mihich
Victoria Vesna, Ph.D.

Professors Emeriti

William C. Brown, M.A.
Jack B. Carter, M.A.
Thomas Jennings, M.A.
J. Bernard Kester, M.A.
Alice E. McCloskey, M.A.
John A. Neuhart
Nathan Shapira, Dottore in Architettura
Madeleine Sunkees, B.Ed

Associate Professor

Mitsuru Kataoka, M.A.

Scope and Objectives

The Department of Design offers the Bachelor of Arts and Master of Fine Arts degrees, which focus on visual communication design with emphasis on digital media. These uniquely challenging programs invite students to bal-

ance aesthetic sensibility with logical reasoning, formal theories with practical application, and contemporary thought with historical perspective.

The undergraduate program begins with the study of basic design elements and processes: form, color, drawing, letterforms and typography, visual technologies, and the manipulation of photography and video through image-capture technologies. Historical perspectives and social issues are also introduced. At the upper division level, studio courses explore current uses of interactive media and new directions in visual communication design, including the study of time and motion, as well as virtual form and space in computer-generated environments.

Through a balance of courses in theory, criticism, and practice, students develop an understanding of design principles. Most courses are taught as studios of no more than 20 students, which encourages individual growth and fosters a sense of community within the department.

The two-year Master of Fine Arts (M.F.A.) degree fosters mature, professional-quality work utilizing the most current technologies in the field of media design. The exploration of visual communication in a digital format leads to new concepts and understanding that address the role of design in the rapidly evolving area of digital media. The program focuses on developing an individual thesis project that incorporates in-depth research and theoretical exploration of a topic, culminating in a final exhibition of work. Students have the opportunity to participate in ongoing research projects that may form the basis of their thesis work. Sample topics include design of the interface and design of virtual environments and information spaces that integrate visual elements with sound, movement, time, and space.

Facilities and equipment in the department enable students to create visual designs in two, three, and even four dimensions. The newly created Center for Digital Arts expands opportunities for students to develop interactive media applications in a networked environment, as well as advanced computer graphics involving virtual reality and three-dimensional form. The center's equipment combines high-end PC and Macintosh computers with facilities for music and nonlinear video editing.

Undergraduate Study

Design B.A.

Preparation for the Major

Required: Design 10, 21, 22, 23, 24, 25, 26, and one course from Art 31 or Art History 50 through 57.

The Major

Required: Thirteen upper division courses, including a minimum of three courses from comparative and theoretical studies (Design 101 through C106) and seven courses from area

studies (courses 153 through 160). Three additional upper division courses must be selected from the courses listed above and/or from major electives (courses C121 through C143 and 182 through 199). In consultation with and with approval of the faculty adviser, other nonmajor courses may be applied toward major credit.

It is recommended that students have each term's program approved by the departmental adviser.

Note: Consult the *Schedule of Classes* for courses restricted to majors only.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Design offers a Master of Arts (M.A.) degree and a Master of Fine Arts (M.F.A.) degree in Design.

Master of Arts

The Design Department is not accepting applications for admission to the M.A. program for Fall Quarter 1999.

Admission

Applicants for admission to the M.A. program are expected to hold a bachelor's degree from an accredited institution. The bachelor's degree need not be in design. A minimum grade-point average of 3.0 overall in undergraduate upper division work is required. The application dossier must include (1) three letters of recommendation; (2) transcripts of academic record; (3) statement of purpose; (4) sample of work related to studies in design and computation; (5) Graduate Record Examination (GRE) scores; (6) proof of competence in English for applicants whose native language is not English (minimum score of 550 on the Test of English as a Foreign Language).

Acceptance is by a majority vote of the design faculty. Formal faculty review of graduate applicant dossiers takes place toward the end of the Winter Quarter. Students are admitted for the Fall Quarter only.

Areas of Study

Consult department.

Course Requirements

Although a new curriculum is approved for this degree, to date the courses that comprise this curriculum have not been submitted or approved.

Comprehensive Examination Plan

The written comprehensive examination is offered each quarter. A committee of at least three members appointed by the department administers the comprehensive examination. The comprehensive examining committee may conduct an oral query after reviewing the written examination. In case of failure, reexamination may be conducted once only with the consent of the departmental graduate adviser.

Thesis Plan

None.

Master of Fine Arts

Admission

Applicants for admission to the M.F.A. program in Design are expected to hold a bachelor's degree from an accredited institution. The bachelor's degree need not be in design. A minimum grade-point average of 3.0 overall in undergraduate upper division work is required. Applicants are expected to have working knowledge of graphics software. Additional experience with video, interactive media, and/or three-dimensional modeling and animation is preferred. A portfolio is required in the form of slides (maximum 20) and/or videotape of no more than five minutes in length. A statement of purpose is also considered. A minimum score of 620 on the Test of English as a Foreign Language is required for applicants whose native language is not English. Formal faculty review of graduate applicant portfolios takes place toward the end of the Winter Quarter. Students are admitted for the Fall Quarter only.

Areas of Study

Media Design: interfaced design, interactive media, time-based work, virtual environments, and information spaces.

Course Requirements

A minimum of 72 quarter units of upper division and graduate design courses is required. No fewer than 24 quarter units in the Design 200 series are to be completed: Design C206, 254, and 256 must be taken during the first two quarters in residence, Design 258 during the first year in residence, and the graduate seminar, Design 269, is to be taken twice (eight units). A further 32 units are to be taken from the Design 400 series, at least eight units in the first year in residence, and 16 units of electives of which eight units of Design 596 may be applied toward the requirements for the degree.

Comprehensive Examination Plan

The comprehensive examination consists of an oral examination and a concentrated body of work which is presented as the master's statement. Also required is an accompanying record of the project, consisting of documentation in the form of slides of physical work, research material, and other visual material, and may include a written statement as determined by the graduate guidance committee.

Thesis Plan

None.

Design

Lower Division Courses

10. Nature of Design. (4) Lecture, three hours. Open to nonmajors. Understanding the design process, with emphasis on development of a visual language; study of historic, scientific, technological, economic, and cultural factors influencing design in our physical environment. P/NP or letter grading.

21. Color. (4) Studio, six hours. Introduction to theories of color to understand interdependence and interaction of color and form, color and quantity, color and placement, and the after-image. P/NP or letter grading.

22. Form. (4) Studio, six hours. Interrelation of two-dimensional surfaces and three-dimensional forms with traditional and experimental materials as a foundation for creativity; origination and solution of problems. P/NP or letter grading.

23. Drawing. (4) Studio, six hours. Translation of perception through delineation, drawing, and other descriptive media. Emphasis on development of students' motor control by means of freehand and mechanical drawing and by development of analytical and objective observation from life and three-dimensional objects. P/NP or letter grading.

24. Visual Technologies. (4) Lecture/studio, four hours; laboratory, two hours. Introduction and integration of traditional design tools, the camera, and digital technologies for application to visual thinking and fundamentals of design. P/NP or letter grading.

25. Letterforms and Typography. (4) Lecture/studio, four hours; laboratory, two hours. Requisite: course 24. Introduction to typography as basic element of information design and as it applies to various forms of media; historical basis for development of letterform design and its architecture. P/NP or letter grading.

26. Image Capture. (4) Lecture/studio, four hours; laboratory, two hours. Requisite: course 24. Introduction to image capture technologies through understanding of photography and video. Studio and field exercises include equipment operation, lighting techniques, and digital image manipulation. P/NP or letter grading.

35B. Introduction to Tools and Processes. (4) Lecture, two hours; studio, four hours. Introductory design shop course to develop necessary skills with traditional tools and power equipment, including fundamentals of joining, fastening, and finishing both natural and industrial materials, and their appropriate application in fabrication of design prototypes.

Upper Division Courses

101. Introduction to Study of Design. (4) Lecture, three hours. Preparation: completion of preparation for the major courses. Historical introduction to principles of design, theories about design process, and culture of artifacts from classical times to the present day. P/NP or letter grading.

102. Introduction to Design and Computation. (4) Lecture, three hours. Preparation: completion of preparation for the major courses. Introduction to use of computational methods in representation, creation, and study of designs. Discussion of spatial algorithms, recursive procedures, and formal grammars and languages. Presentation of elementary applications in design. P/NP or letter grading.

103. Introduction to Visual Communication. (4) (Formerly numbered C103.) Lecture, three hours. Preparation: completion of preparation for the major courses. Designed for juniors/seniors. Introduction to methodology of design in context of visual communication, with focus on integrative themes and representative case studies that encourage independent student investigation. Letter grading.

104. Design and Society: Society and Design. (4) Lecture, three hours. Preparation: completion of preparation for the major courses. Open to nonmajors with consent of instructor. Historical and thematic examination of how design affects society from classical antiquity to the 20th century in order to understand historically how each type and application of design related to sociological context in which it existed. Consideration of how various design practices and techniques related to each other. P/NP or letter grading.

C106. Media Studies. (4) (Not the same as course 106 prior to Fall Quarter 1998.) Lecture, three hours. Preparation: completion of preparation for the major courses. Overview and contextual understanding of influences and origins of media, communication paradigms, and technologies of past 150 years through reading and discussion of theoretical and historical works. Concurrently scheduled with course C206. Letter grading.

C121. Fundamentals of Architectonics: Proportion. (4) Lecture, three hours; outside study, nine hours. Preparation: completion of preparation for the major courses. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. Concurrently scheduled with course CM221. P/NP or letter grading.

C122. Fundamentals of Architectonics: Symmetry. (4) Lecture, three hours; outside study, nine hours. Preparation: completion of preparation for the major courses. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. Concurrently scheduled with course CM222. P/NP or letter grading.

C123. Fundamentals of Architectonics: Composition and Order. (4) Lecture, three hours; outside study, nine hours. Preparation: completion of preparation for the major courses. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. Concurrently scheduled with course CM223. P/NP or letter grading.

C141. Programming Computer Applications in Architecture and Urban Design. (4) Lecture, three hours; outside study, nine hours. Introductory course in logic of computing through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. Concurrently scheduled with course CM241. P/NP or letter grading.

C142. Introduction to Geometric Modeling. (4) Lecture, three hours; outside study, nine hours. Requirement: course C141 or Computer Science 141. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. Concurrently scheduled with course CM242. P/NP or letter grading.

C143. User Interaction Techniques in Design. (4) Lecture, three hours; outside study, nine hours. Requirement: course C141 or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. Concurrently scheduled with course CM243. P/NP or letter grading.

153. Design for Video. (4) (Formerly numbered 165C.) Studio, six hours. Preparation: completion of preparation for the major courses. 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.

154. Design for Print Media. (4) Studio, six hours. Preparation: completion of preparation for the major courses. Requirement: course 103 or C106. Introduction to procedures to create, plan, and produce visual communication design. Emphasis on acquiring and working with visual vocabulary to gain mastery of conceptual and creative procedures by learning technical skills to translate ideas and concepts into visual design and graphic imagery. P/NP or letter grading.

155. Design for Print and Digital Media. (4) Studio, six hours. Preparation: completion of preparation for the major courses. Requirements: courses 103 or C106, 154. Integration of print and digital information technology, with continued emphasis on fully integrating visual vocabulary with mastery of conceptual and creative procedures. P/NP or letter grading.

156A. Three-Dimensional: Design of Virtual Form. (4) Studio, six hours. Preparation: completion of preparation for the major courses. Requirement: course 103 or C106. Through lectures, discussions, and studio work, introduction to basic elements of three-dimensional computer visualization, including modeling, image mapping, lighting, project construction, and rendering. P/NP or letter grading.

156B. Three-Dimensional: Time and Motion in Virtual Space. (4) Studio, six hours. Preparation: completion of preparation for the major courses. Requirements: courses 103 or C106, 156A. Extension of study of virtual three-dimensional form to include motion, time, and rhythm. Storyboard development, modeling of articulated characters and objects, virtual camera movement, and motion capture. P/NP or letter grading.

157A. Design for Interactive Media. (4) (Formerly numbered 157.) Studio, six hours. Preparation: completion of preparation for the major courses. Requirements: courses 103 or C106, 154. Emphasis on graphic and information design for interactive media applications. Introduction to multimedia and hypertext. Focus on communicative role of conceptual designer as visual communicator and design manager. P/NP or letter grading.

157B. Advanced Interactive Media. (4) Studio, six hours. Preparation: completion of preparation for the major courses. Requirements: courses 103 or C106, 154, 157A. Extension of study of interactive media design. Focus on development of advanced conceptual skills in interface design and nonlinear narrative utilizing programming techniques such as lists and objects. Builds on skills and concepts acquired in course 157A. P/NP or letter grading.

158. Design for Environmental Communication. (4) Studio, six hours. Preparation: completion of preparation for the major courses. Requirements: courses 103 or C106, 154. Introduction to environmental communication design through experience in the design studio. Focus on aesthetic issues concerning creation of design elements incorporating concepts of spatial dimension, human/environmental scale, motion, and time. Overview of history, technologies, and future of environmental graphics. P/NP or letter grading.

159. Senior Project. (4) Lecture, two hours; discussion, two hours; laboratory, two hours. Preparation: completion of preparation for the major courses. Requirements: courses 103, C106, three courses from 153 through 158. Limited to seniors. Individual studies organized and conceptualized by senior students. Proposal for research and development of design and production of a body of work. May be repeated once for credit.

160. Special Topics in Area Studies. (2 to 8) Hours to be arranged. Preparation: completion of preparation for the major courses. Requirement: course 103 or C106. Selected topics in design and media arts explored through variety of approaches which may include projects, readings, discussion, research papers, and oral presentations. Topics to be announced in advance. May be repeated for a maximum of eight units.

182. Design Processes: World Cultures. (4) Studio, six hours. Introduction to early development of tools, cloth, shelters, symbols, and embellishments in world cultures. P/NP or letter grading.

183. Material Processes: Fiber Structure. (4) Studio, six hours. Use of basic hand methods of construction to develop both two- and three-dimensional forms, utilizing pliable materials but not to exclude other media. P/NP or letter grading.

184. Material Processes: Surface Pattern. (4) Studio, six hours. Use of hand processes and a variety of materials to develop simple to complex surface pattern systems as a means for creative expression. P/NP or letter grading.

189. Topics in Design. (2 to 8) Hours to be arranged. Examination by faculty members of specific problems relevant to design theory and performance. Topics announced in advance. May be repeated for a maximum of 16 units.

193. Proseminar: Design. (4) Proseminar, three hours. Open to senior and advanced students. Examination in seminar format of specific problems relevant to design theory and performance. Topics announced in advance.

197. Honors Course. (4) Hours to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Limited to juniors/seniors. Individual studies for majors. May be repeated once for credit.

199. Special Studies in Design. (2 to 8) Hours to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual studies for majors. May be taken for a maximum of eight units.

Graduate Courses

C206. Media Studies. (4) Lecture, three hours. Designed for graduate design students. Overview and contextual understanding of influences and origins of media, communication paradigms, and technologies of past 150 years through reading and discussion of theoretical and historical works. May be repeated for credit with consent of adviser. Concurrently scheduled with course C106. Letter grading.

207. Mathematical Techniques in Design and Computation I. (4) Lecture, three hours. Designed for graduate students. Survey of mathematical techniques used in design and computation theory. Sets, relations, posets, lattices, Boolean and Heyting algebras, formal languages and production systems. May be repeated for credit with consent of adviser. S/U or letter grading.

208. Mathematical Techniques in Design and Computation II. (4) Lecture, three hours. Designed for graduate students. Survey of mathematical techniques used in design and computation theory. Theory of descriptive geometry, spatial transformations, matrix representations, symmetry and groups, graphs, maps and triangulations. May be repeated for credit with consent of adviser. S/U or letter grading.

CM221. Fundamentals of Architectonics: Proportion. (4) (Same as Architecture and Urban Design M225A.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. Concurrently scheduled with course C121. S/U or letter grading.

CM222. Fundamentals of Architectonics: Symmetry. (4) (Same as Architecture and Urban Design M225B.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. Concurrently scheduled with course C122. S/U or letter grading.

CM223. Fundamentals of Architectonics: Composition and Order. (4) (Same as Architecture and Urban Design M225C.) Lecture, three hours; outside study, nine hours. Inquiry concerning architecture of spatial configurations from both a historical position and a mathematical viewpoint. May be repeated for credit with consent of adviser. Concurrently scheduled with course C123. S/U or letter grading.

229. Advanced Seminar: Architectonics. (4) Seminar, three hours. Requisites: courses CM221, CM222, CM223. Exploration in depth of an active research question in architectonics. Topics may focus on some aspect of proportion, symmetry, compartment, and order from historical and/or formal point of view. May be repeated for credit with consent of adviser. S/U or letter grading.

CM241. Programming Computer Applications in Architecture and Urban Design. (4) (Same as Architecture and Urban Design M227A.) Lecture, three hours; outside study, nine hours. Introductory course in logic of computing through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. May be repeated for credit with consent of adviser. Concurrently scheduled with course C141. S/U or letter grading.

CM242. Introduction to Geometric Modeling. (4) (Same as Architecture and Urban Design M227B.) Lecture, three hours; outside study, nine hours. Requisite: course CM241. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. May be repeated for credit with consent of adviser. Concurrently scheduled with course C142. S/U or letter grading.

CM243. User Interaction Techniques in Design. (4) (Same as Architecture and Urban Design M227C.) Lecture, three hours; outside study, nine hours. Requisite: course CM241 or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. May be repeated for credit with consent of adviser. Concurrently scheduled with course C143. S/U or letter grading.

249. Advanced Seminar: Computer Applications. (4) Seminar, three hours. Requisite: course C141 or Computer Science 141. Survey of various roles computers may play in design; development of new applications. Topics include representation, search, evaluation functions, and communication. May be repeated for credit with consent of adviser. S/U or letter grading.

254. Dynamic Media. (4) Lecture/studio, six hours. Designed for graduate design majors. Emphasis on creation of dynamic, digital, and linear works through integration of typography, photography, video, graphics, animation, and sound. May be repeated for credit with consent of adviser.

256. Interactive Environments. (4) Lecture/studio, six hours. Requisites: courses C206, 254. Designed for graduate design majors. Emphasis on comprehension of fundamental principles of interactivity and networked environments. May be repeated for credit with consent of adviser.

258. Current State of Technology. (4) Lecture/studio, six hours. Designed for graduate design majors. Introduction to state-of-the-art software programs and techniques necessary for design of interactive and multimedia applications. May be repeated for credit with consent of adviser.

269. Graduate Seminar. (4) Designed for graduate design majors. Survey of critical theories in media art and design. Critical examination of student work by peers, faculty, and expert guests. Must be taken twice for M.F.A. degree. May be repeated for credit with consent of adviser.

287. Form and Structure. (2 to 8) Studio or studio/seminar, to be arranged. Exploration of form, with emphasis on expressive experimentation in materials and processes. May be repeated for credit with consent of adviser.

289. Special Topics in Media Design. (2 to 8) Hours to be arranged. Examination of specific problems relevant to design theory and performance. Topics announced in advance. May be taken for a maximum of eight units.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

401. Design Studio I. (2 to 8) Limited to first-year graduate design students. Introduction to advanced experimentation and integration of media, technologies, and concepts, with emphasis on development of design work of individual graduate students. May be repeated for credit with consent of adviser.

402. Design Studio II. (2 to 8) Requisites: courses C206, 254, 256, four units of 401. Continuation of advanced design research based on experimentation integrated into a disciplined approach to design process. Focus on development of comprehensive body of work which forms basis of M.F.A. thesis exhibition. May be repeated for credit with consent of adviser.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

The Department of Design reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

DIVERSIFIED LIBERAL ARTS

*College of Letters and Science
Certificate Program*

UCLA
A316 Murphy Hall
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(310) 206-6661, 825-9315
<http://www.hup.ucla.edu/up/regulations/dlap.html>

Faculty Advisory Committee

Bruce Barbee, Ph.D. (*Education*)
Bruce Beiderwell, Ph.D. (*English Composition*)
Shelley Kriegler, Ph.D. (*Mathematics*)
James W. Trent Ph.D. (*Education*), *Director*

Scope and Objectives

The Diversified Liberal Arts Program (DLAP) is not a major, but a special certificate program through which students may waive the Multi-subject Assessment for Teachers (MSAT) in California. The MSAT examination must be passed (or the DLAP completed) before students in elementary school teaching credential programs may begin their student teaching. To earn an elementary school teaching credential, students must complete an accredited program offered through a graduate school of education.

Undergraduate Study

Diversified Liberal Arts Certificate Program

To earn the certificate in Diversified Liberal Arts, students must complete a major in the College of Letters and Science. (For eligibility of students in the professional schools, consult a DLAP counselor.) They must also complete DLAP requirements in four main areas: (1) language and literature, (2) mathematics and science, (3) history and social science, (4) arts and culture. Many program requirements can be satisfied by courses taken to fulfill general education requirements.

Students must petition for admission to the program and are advised to do so as soon as possible. Transfer students may petition to have suitable courses completed at other institutions applied toward the course requirements of this program. The college certifies completion of the program.

Students who do not complete the program prior to graduation must petition out of the program to be eligible to graduate.

For further information about the program and a complete list of courses that apply, contact a DLAP counselor in the College of Letters and Science, A316 Murphy Hall (310-206-6681; e-mail: dlap@hup.ucla.edu). For information regarding the Teacher Credential Program in the Graduate School of Education and Information Studies, see a counselor in 1009 Moore Hall (310-825-8328).

EARTH AND SPACE SCIENCES

College of Letters and Science

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T. Mark Harrison, Ph.D., *Chair*

Professors

Orson L. Anderson, Ph.D. (*Geophysics*)
Peter Bird, Ph.D. (*Geophysics, Geology*)
Friedrich H. Busse, Ph.D. (*Geophysical Fluid Dynamics*)
Jon P. Davidson, Ph.D. (*Geology, Geochemistry*)
Paul M. Davis, Ph.D. (*Geophysics*)
Wayne A. Dollase, Ph.D. (*Geology*)
Clarence A. Hall, Jr., Ph.D. (*Geology*)
T. Mark Harrison, Ph.D. (*Geochemistry*)
Raymond V. Ingersoll, Ph.D. (*Geology*)
David D. Jackson, Ph.D. (*Geophysics*)
Margaret G. Kivelson, Ph.D. (*Space Physics*)
Charles R. Marshall, Ph.D. (*Paleontology*)
Robert L. McPherson, Ph.D. (*Space Physics, Geophysics*)
William I. Newman, Ph.D. (*Planetary Physics*)

Bruce N. Runnegar, Ph.D. (*Paleontology*)
 Christopher T. Russell, Ph.D. (*Space Physics*)
 J. William Schopf, Ph.D. (*Paleobiology*)
 Gerald Schubert, Ph.D. (*Geophysics, Planetary Physics*)
 Didier Sornette, Ph.D. (*Geophysics*)
 John T. Wasson, Ph.D. (*Geochemistry, Chemistry*)
 An Yin, Ph.D. (*Geology*)

Professors Emeriti

Donald Carlisle, Ph.D.
 John M. Christie, Ph.D.
 Paul J. Coleman, Jr., Ph.D.
 Isaac R. Kaplan, Ph.D.
 William M. Kaula, M.S.
 Helen Tappan Loeblich, Ph.D.
 Arthur Montana, Ph.D.
 Clemens A. Nelson, Ph.D.
 Gerhard Oertel, Dr.rer.nat.
 John L. Rosenfeld, Ph.D.
 Ronald L. Shreve, Ph.D.

Associate Professors

Craig E. Manning, Ph.D. (*Geochemistry, Geology*)
 David A. Paige, Ph.D. (*Planetary Science*)
 Walter E. Reed, Ph.D. (*Geology*)
 Mary R. Reid, Ph.D. (*Geology, Geochemistry*)
 John E. Vidale, Ph.D. (*Geophysics, Seismology*)

Assistant Professors

Gary J. Axen, Ph.D. (*Geology*)
 Paul J. Tackley, Ph.D. (*Planetary Science*)

Adjunct and Visiting Professors

Paul M. Merifield, Ph.D., *Adjunct (Environmental Geology)*
 Floyd F. Sabins, Jr., Ph.D., *Adjunct (Geology)*

Adjunct Associate Professors

Heidi Houston, Ph.D. (*Geophysics, Seismology*)
 Frank Kyte, Ph.D. (*Geochemistry*)

Adjunct Assistant Professor

Tom Latourrette, Ph.D. (*Geochemistry*)

Scope and Objectives

The disciplines of geology, geochemistry, geophysics, paleobiology, and space physics are concerned with the structure and evolution of the solar system, Earth, and life: essentially, the physical environment and its interaction with biota. These studies entail the application of fundamental physics and chemistry to a broad subject area stretching from astronomy at one extreme to biology at the other. Areas which are emphasized at UCLA include isotope and trace element analyses, petrology and mineralogy, sedimentology, paleobiology and organic geochemistry, structural geology and tectonophysics, seismology, the Earth's interior, planetary physics, and space plasmas.

The variety of techniques applied lead to several concentrations within the five main disciplines. Students completing their studies with a B.S. or M.S. degree usually are employed by industry. Many are employed in environment-related activities; others are involved in mineral or oil exploration or in construction. Students attaining the Ph.D. degree are usually employed by universities or governmental and industrial research groups.

The Bachelor of Arts program in Earth Sciences is intended to provide a broad background in Earth sciences that is especially appropriate for students intending to become K through 12 teachers in Earth, physical, or life sciences. It may also be of interest to students

who plan careers in environmental sciences, law, government, business, journalism, public health, medicine, or dentistry. Those who intend to become professional geologists, geochemists, or geophysicists and/or to continue into graduate studies in Earth or space sciences are urged to pursue one of the B.S. degrees.

Undergraduate Study

Geology B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L; Life Sciences 1; Mathematics 31A, 31B, 32A; Physics 1A, 1B, 1C, 4AL, 4BL; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. All courses must be passed with a minimum grade of C–.

To be admitted as Geology majors, **transfer students** with 80 or more quarter units (54 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory, and one year of calculus. One introductory biology course with laboratory, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

The Major

Required: Earth and Space Sciences 103A, 103B, 103C, 111, 112, 116, 121A-121B, 133, 135, and three additional courses from C106, C107, C109, 119, 125, C126, 129, 133, 134, 136C, 137, 139, 141, 150, 152.

Students with an interest in nonrenewable natural resources are advised to take courses 136C, 137, 139, 141, and/or 150. Those interested in geochemistry are advised to take Earth and Space Sciences 103C, C107, C109, 119, 121A-121B, C126, and/or Chemistry and Biochemistry 110A, 110B, 114, 132A, 132B, 153A, 184.

Geology — Engineering Geology B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 33A; Physics 1A, 1B, 1C, 4AL, 4BL; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. *Recommended:* Mathematics 32B. All courses must be passed with a minimum grade of C–.

To be admitted as Geology — Engineering Geology majors, **transfer students** with 80 or more quarter units (54 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory, and one year of calculus. One introductory biology course with laboratory, one year of calculus-based physics with labo-

ratory, and one introductory computer programming course are recommended.

The Major

Required: Earth and Space Sciences 103A, 103B, 111, 112, 121A-121B, 135, 139; Civil and Environmental Engineering 108, 120, 121, 128L, 150; one course from Earth and Space Sciences 134, 136C, 137, 141, 150, Civil and Environmental Engineering 151, 155, Geography 100.

Geology — Paleobiology B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 16 or 17, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L; Life Sciences 2, 3, 4; Mathematics 31A, 31B, 32A; Physics 1A, 1B, and 4AL, or 6A and 6B. All courses must be passed with a minimum grade of C–.

To be admitted as Geology — Paleobiology majors, **transfer students** with 80 or more quarter units (54 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory, and one year of calculus. One introductory biology course with laboratory, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

The Major

Required: Earth and Space Sciences 103B, 111, 112, 116, CM118, 133; seven courses from Biostatistics 110A, 110B, Chemistry and Biochemistry 130A/130AL, 130B/130BL, 153A, 153L, Earth and Space Sciences C109, 119, 121A, 121B, 141, Organismic Biology, Ecology, and Evolution 101A, 101B, 102, 105, 110, 111, 117, 120, 121, 122, 123, 147, 148.

Geophysics — Applied Geophysics B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. All courses must be passed with a minimum grade of C–.

To be admitted as Geophysics — Applied Geophysics majors, **transfer students** with 80 or more quarter units (54 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory, and one year of calculus. A second year of calculus, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

The Major

Required: Earth and Space Sciences 111, 112, 136A, 136B, 136C, 152; Physics 105A, 105B, 110A, 110B, 114; two courses from Earth and Space Sciences 103A, 103B, C107, 134, 137, 139, 153, 154, 155, 205, 265, Physics 112, 115A, 116, 131, 132, Statistics M100A, 100B, or other courses with consent of adviser.

Geophysics — Geophysics and Space Physics B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 9; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, and 4BL (or 2AH, 2BH, 4AL, and 4BL), 17, 18L; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. All courses must be passed with a minimum grade of C–.

To be admitted as Geophysics — Geophysics and Space Physics majors, **transfer students** with 80 or more quarter units (54 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory, and one year of calculus. A second year of calculus, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

The Major

Required: Earth and Space Sciences 134, M140, 152, 153, 154, 155; Physics 105A, 105B, 110A, 110B, 112, 131; two upper division courses from the physical sciences, engineering, or mathematics (must be approved by the undergraduate adviser).

Students planning to do graduate work in specialized careers in Earth sciences should, when possible, take appropriate courses in departments outside the major in addition to those already specified. Suggested graduate programs for various fields of emphasis are available in the Student Affairs Office, 3683 Geology, and provide guidelines in selecting upper division courses.

Qualified undergraduate students may, with consent of their advisers and the instructor, take Earth and Space Sciences graduate courses numbered from 200A through 248.

Earth Sciences B.A.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 2, 9, 15, 51A, 51B, 61; Chemistry and Biochemistry 20A, 20B, 20L; Life Sciences 1; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 1A, 1B, 1C, and 4AL, or 2AH, 2BH, and 4AL, or 6A, 6B, and 6C. All courses must be passed with a minimum grade of C–.

To be admitted as Earth Sciences majors, **transfer students** with 80 or more quarter

units (54 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory, and one year of calculus. One year of calculus-based physics with laboratory, one biology course with laboratory, and either one introductory origin and evolution of the solar system course or one introductory oceanography course are recommended.

The Major

Required: Earth and Space Sciences 103A, 103B, 111, 112, 116; five additional upper division courses from Earth and Space Sciences other than 100 or 120, English Composition 129C, Geography 100/100A, 101/101A, 104, 105/105A, 106/106A, 107, 113, or other upper division physical sciences, life sciences, or engineering courses by petition.

Honors in Geology or Geophysics

The honors program in geology or geophysics is intended to provide exceptional students an opportunity for advanced research and study under the tutorial guidance of a member of the faculty. Requirements for admission to candidacy are the same as those required for admission to the Honors Programs of the College of Letters and Science. Qualified students wishing to enter the program must submit a completed application form to the departmental honors committee near the end of their junior year. Honors in geology or geophysics are awarded at graduation to those students who have a cumulative grade-point average of 3.5, have completed at least 90 graded units at the University of California, and have completed a minimum of two terms (eight units) of Earth and Space Sciences 199H leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability are awarded highest honors.

Geochemistry Minor

Geochemistry emphasizes use of minerals, magmas, elements, and isotopes to date events, determine rates, and track matter through its cycles in the planets and biosphere. These skills are valuable in environmental and natural-resource work and anthropology, as well as in studying the histories of the planets.

To enter the Geochemistry minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Earth and Space Sciences 1, 51A, 51B.

Required Upper Division Courses (20 to 26 units): Two courses from Earth and Space Sciences C106, C107, C109, and three courses from 103A, 103B, 103C, C106 or C107 or C109 (whichever course was not applied above), 152, 153.

All minor courses must be taken for a letter grade, with an overall grade-point average of

2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geology Minor

Geology is the study of the surface of the Earth and the rocks and processes which created it. Field methods, interpretation of rocks, and modern plate-tectonic models are emphasized, with the goals of finding valuable or hazardous materials and inferring geologic history. These skills are valuable in engineering, urban planning, and environmental and resource studies.

To enter the Geology minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Earth and Space Sciences 1, 2, 61.

Required Upper Division Courses (22 units): Earth and Space Sciences 112, 119, and three courses from 116, 129, 137, 139, 150.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geophysics and Planetary Physics Minor

Classical physics, supported by field data, mathematics, and computing, is used to understand diverse processes from ocean circulation and earthquakes to the formation of planets and the flow of particles and electromagnetic fields in space. These skills are valuable in environmental, engineering, and resource studies and more broadly in any kind of career which requires quantitative analysis.

To enter the Geophysics and Planetary Physics minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Earth and Space Sciences 1, 8, 9.

Required Upper Division Courses (20 units): Earth and Space Sciences 134, 135, and three courses from M140, 152, 153, 154, 155.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

The Department of Earth and Space Sciences offers programs leading to the M.S. and Ph.D. degrees in Geochemistry, in Geology, and in Geophysics and Space Physics.

Geochemistry

Master's Degree

Admission

A bachelor's degree in chemistry, geology, physics, or a related field is required for the Master of Science degree in Geochemistry. Applicants must have outstanding records in the basic sciences, physics, chemistry, and mathematics. Recent Graduate Record Examination (GRE) General Test and Subject Test scores are required; the Subject Test may be in any appropriate field of science. Students planning to work for the Ph.D. degree are not encouraged to obtain the M.S. degree.

Areas of Study

The program in geochemistry offers study in biogeochemistry, crystal chemistry, experimental petrology, isotopic studies of stable and radioactive elements, marine geochemistry, meteorite research, planetology, and lunar geochemistry.

Course Requirements

A minimum of nine courses is required for the degree, at least six of which must be graduate-level courses. Sixteen units of 500-series courses may be applied toward the total course requirement for the M.S. in Geochemistry. Twelve units may be applied toward the minimum graduate course requirement.

Each course of study is worked out individually by the advising committee in consultation with the student. Students are expected to attain, either through previous training or through prescribed coursework, a common mastery of the subject matter in Earth and Space Sciences 51A, 51B, C107, C109, 234, and Chemistry and Biochemistry 110A, 110B, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology (Earth and Space Sciences 61, 111G strongly recommended). Students are required to register in one of the following each quarter: Earth and Space Sciences 235A, 235B, 235C, or 295A, 295B, 295C.

Comprehensive Examination Plan

The advising committee prepares and administers the final examination (which normally is oral). In the preparation for the examination, the committee takes proper recognition of the fact that some students are better qualified in chemistry and others in geology. However, it is required that a distinct competence in one of these fields be matched by at least an adequate performance in the other. In most cases, a failed final examination can be repeated one additional time.

Thesis Plan

The thesis must be approved by the research director (who usually is the chair of the advis-

ing committee), as well as by the other members of the advising committee. If students choose the thesis plan, no examination is required.

Doctoral Degree

Admission

A bachelor's degree in chemistry, geology, physics, or a related field is required for the Ph.D. degree in Geochemistry. Applicants must have outstanding records in the basic sciences, physics, chemistry, and mathematics. Recent Graduate Record Examination (GRE) General Test scores are required; the Subject Test is optional and may be in any appropriate field of science. Students planning to work for the Ph.D. degree are not encouraged to obtain the M.S. degree.

Major Fields or Subdisciplines

The program in geochemistry offers study in biogeochemistry, crystal chemistry, experimental petrology, isotopic studies of stable and radioactive elements, marine geochemistry, meteorite research, planetology, and lunar geochemistry.

Course Requirements

Students are expected to complete at least the minimum number of courses required for the M.S. degree. Each course of study is worked out individually by the advising committee in consultation with the student. Students are expected to attain, either through previous training or through prescribed coursework, a common mastery of the subject matter in Earth and Space Sciences 51A, 51B, C107, C109, 234, and Chemistry and Biochemistry 110A, 110B, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology (Earth and Space Sciences 61, 111G strongly recommended). Students are required to register in one of the following each quarter: Earth and Space Sciences 235A, 235B, 235C or 295A, 295B, 295C.

Written and Oral Qualifying Examinations

Written Qualifying Examination. The examination must be taken before the end of the first year of the doctoral program if the student has a master's degree; otherwise, it must be taken before the end of the second year of enrollment. It may be given in either a question/answer format or in a proposal format, at the discretion of the student.

The question/answer format is a conventional written examination that covers the field of geochemistry and related areas of geology and chemistry. It may be followed by an oral part, at the discretion of the examining committee.

The proposal format is based on three written research proposals prepared by the student and submitted to the examining committee at least 10 days before the examination. The proposals must be concise and must entail three dissimilar projects; one of them should cover the intended dissertation topic. The proposals

are presented briefly to the examining committee orally, and the committee examines their originality and scientific merit. The oral examination is not necessarily limited to the topics of the proposals.

In case of failure, an examination of either format can be repeated at the discretion of the examining committee.

University Oral Qualifying Examination. After passing the written qualifying examination, students must consult their faculty adviser and the graduate adviser regarding nomination of the doctoral committee and arrange a time for the examination. At least a week before the examination, students must provide each member of the doctoral committee with a written prospectus of their proposed dissertation research. The subject matter covered in the examination includes, but is not limited to, the proposed research. Repetition of a failed examination is at the option of the doctoral committee.

Geology

Master's Degree

Admission

A bachelor's degree in geology, biology, chemistry, physics, or other science is required for the Master of Science in Geology. Applicants must have outstanding records in the relevant basic sciences and mathematics. Recent Graduate Record Examination (GRE) General Test scores are required. Subject Test scores are optional and may be in any appropriate subject.

Qualified students may proceed directly toward the Ph.D. degree without first obtaining an M.S. degree.

Areas of Study

The program in geology offers study in geomorphology, glaciology, micropaleontology, mineral deposits, mineralogy, organic geochemistry, paleobiology, petrology, paleontology, sedimentology, stratigraphy, structural geology, tectonophysics, and other fields.

Course Requirements

Each course of study is worked out individually by the advising committee in consultation with the student. It may include appropriate courses offered by other departments. Unless students have already passed Earth and Space Sciences 61 and 111, they are required to take either 195G or the sequence 61, 111G in their first year of residence. Depending on students' performance in course 195G, they may subsequently be required to take all or part of the undergraduate sequence. Students are required to register in one of the following each quarter: Earth and Space Sciences 235A, 235B, 235C, or 295A, 295B, 295C.

Courses applied toward the 36-unit minimum requirement must be from the 100, 200, or 500 series in the physical or life sciences. At least 24 units must be graduate-level courses, of which at least four units must be a geology

seminar (Earth and Space Sciences 251 through C260). Except for courses 597 and 598, those graded on an S/U basis are not applicable toward the requirements. The advising committees may require additional courses in light of individual educational objectives and backgrounds.

Eight units of 500-series courses may be applied toward the total course requirement for the M.S. in Geology. Four units may be applied toward the minimum graduate course requirement.

Comprehensive Examination Plan

This plan is recommended for those continuing to the Ph.D. degree. The examination is administered by the student's three-member advising committee and one additional member who is appointed by the graduate adviser following consultation with the student. It consists of a six-hour written part and a subsequent oral part. The written part covers the student's major field of study, whereas the oral part may be more general in scope. If the examination is failed, the committee may, on the basis of the student's academic performance, recommend either termination of graduate study or further coursework followed by another examination. Reexamination is not normally permitted more than once.

Thesis Plan

This plan is normally required for students not continuing to the doctorate. The thesis committee consists of the three-member advising committee, whose chair is the supervisor of the thesis research. One member of the committee may be from another department. The thesis subject may be selected at once and the research undertaken concurrently with coursework. In any event, it should normally be selected within the first year of residence. The completed thesis must be approved by the thesis committee. If it is not, the committee may, on the basis of the student's academic performance, recommend either termination of graduate study or further coursework or research or both, leading to submission of a revised thesis. Revision and resubmission is not normally permitted more than once.

Doctoral Degree

Admission

A bachelor's degree in geology, biology, chemistry, physics, or other science is required for the Ph.D. degree in Geology. Applicants must have outstanding records in the relevant basic sciences and mathematics. Recent Graduate Record Examination (GRE) General Test scores are required. Subject Test scores are optional and may be in any appropriate subject.

Qualified students may proceed directly toward the Ph.D. degree without first obtaining an M.S. degree.

Major Fields or Subdisciplines

The program in geology offers study in geomorphology, glaciology, micropaleontology,

mineral deposits, mineralogy, organic geochemistry, paleobiology, petrology, paleontology, sedimentology, stratigraphy, structural geology, tectonophysics, and other fields.

Course Requirements

Students are expected to complete at least the minimum number of courses required for the M.S. degree and must take a geology seminar each year. Each course of study is worked out individually by the advising committee in consultation with the student. It may include appropriate courses offered by other departments. Unless students have already passed Earth and Space Sciences 61 and 111, they are required to take either 195G or the sequence 61, 111G in their first year of residence. Depending on students' performance in course 195G, they may subsequently be required to take all or part of the undergraduate sequence. Students are required to register in one of the following each quarter: Earth and Space Sciences 235A, 235B, 235C, or 295A, 295B, 295C.

Written and Oral Qualifying Examinations

Written Qualifying Examination. The examination must be taken before the end of the first year of the doctoral program if the student has a master's degree; otherwise, it must be taken before the end of the second year of enrollment. It is administered by the advising committee augmented by a fourth member who is appointed by the graduate adviser in consultation with the student and serves as chair of the examining committee. It is given in either a question/answer format or a proposal/proposition format, which the student may select.

The question/answer format consists of a two-part examination. The first part is written and can cover any aspect of geology in which the student has had training. The second part is oral, is taken no later than a week after the first part, and can cover subjects from the written part and the field of the proposed dissertation, although it is not limited to these topics.

The proposal/proposition format consists of an oral examination based on three written research proposals or scientific propositions in any combination, which must be submitted to the examining committee at least 10 days before the examination. One of the essays must specify the intended dissertation research. The examination is concerned with the originality and soundness of the proposals and propositions, their scientific significance, and the quality of their elucidation and defense, although it is not limited to these topics.

University Oral Qualifying Examination. After passing the written qualifying examination, students must consult a faculty adviser and the graduate adviser regarding nomination of the doctoral committee and arrange a time for the examination. At least a week beforehand, students must provide each member of the doctoral committee with a written prospectus of the proposed dissertation research. The sub-

ject matter covered in the examination includes, but is not limited to, the proposed research. Repetition of a failed examination is at the option of the doctoral committee.

Geophysics and Space Physics

Master's Degree

Admission

A bachelor's degree in a physical science, engineering, mathematics, or other field is required for the Master of Science degree in Geophysics and Space Physics. Undergraduate work must include junior- or senior-level courses in mathematical methods, dynamics, electromagnetism, and thermodynamics. Recent Graduate Record Examination (GRE) General Test scores are required. Subject Test scores are desirable, preferably in Physics, although Mathematics or Geology are also acceptable.

Undergraduate preparation for admission to the program in geophysics and space physics with specialization in applied geophysics is the equivalent of the B.S. in Geophysics – Applied Geophysics, including a common mastery of the subject matter of Earth and Space Sciences 111, 112, 136A, 136B, 136C, 152, Physics 105A, 105B, 110A, 110B, and 114. Exceptions may be allowed, but in particular, deficiency in geophysical fieldwork must be made up.

Areas of Study

The program in geophysics and space physics offers study in Earth's interior (seismology, gravity, thermal regime, geomagnetism, tectonics), geophysical fluid dynamics (turbulence, rotating systems, stability, hydromagnetism), planetology (orbital dynamics, planetary interiors, surfaces and atmospheres, solar-system origin), space physics (magnetosphere, radiation belts, solar wind, magnetic fields, cosmic rays), and applied geophysics. Other comparable areas of study are also possible.

The objective of the program in geophysics and space physics with specialization in applied geophysics is to provide advanced technical training to students who plan to do detailed analysis of geophysical data in industry, mainly in petroleum exploration.

Course Requirements

Courses applied toward the 36-unit minimum requirement must include courses Earth and Space Sciences 200A, 200B, 200C and at least 12 additional units of 200-series (graduate) courses, of which at least half must fall within a single field of concentration (geophysics, geophysical fluid dynamics, planetology, or space physics) which students select with the advice and approval of their faculty adviser, and the remainder must contribute to their general competence in geophysics and space physics.

For the program in geophysics and space physics with specialization in applied geophysics, courses applied toward the 36-unit minimum requirement must include Earth and

Space Sciences 200A and 202, plus at least two courses from 204, 205, 222. Eight additional units of graduate-level courses are required; courses recommended are Earth and Space Sciences 200B, 208, M224A. Up to eight units of course 596 or 598 may count toward the graduate-level course requirements. Except for course 596 or 598, courses graded on a S/U basis do not apply toward the minimum requirement.

Comprehensive Examination Plan

Students may choose one of two options for this examination: (1) a written six-hour examination in question/answer format or (2) an examination in written proposal/oral format. The proposal format consists of an oral examination based on (but not restricted to) two written research proposals which, along with a written statement of their field, must be submitted to the examining committee before the examination. The breadth of the subject matter of the proposals must be approved by the examining committee.

In either format, the examination tests students' general knowledge of their field (e.g., Earth's interior, geophysical fluid dynamics, planetology, or space physics) as defined by students in a written statement to which they must get the examining committee's concurrence before arranging the examination. The examining committee consists of three or more faculty members, appointed by the graduate adviser in consultation with students, of whom at least three must be from the department and one must be from outside the student's field of concentration. Courses in the 500 series and courses graded on a S/U basis may not be applied toward the minimum requirement.

The comprehensive examination plan is not offered for the program in geophysics and space physics with specialization in applied geophysics.

Thesis Plan

At least three members of the thesis committee must be from the department. Eight units of 500-series courses (596, 598) may be applied toward the total course requirement.

A thesis is required for the program in geophysics and space physics with specialization in applied geophysics. A qualifying examination on the suitability of the proposed thesis should be taken by the fourth quarter of residence. A final examination must be taken on the adequacy of the completed thesis. The examining committee consists of three or more faculty members, appointed by the graduate adviser in consultation with the student, of whom at least three must be from the department.

Doctoral Degree

Admission

A bachelor's degree in a physical science, engineering, mathematics, or other field is required for the Ph.D. degree in Geophysics and Space Physics. Undergraduate work must in-

clude junior- or senior-level courses in mathematical methods, dynamics, electromagnetism, and thermodynamics. Recent Graduate Record Examination (GRE) General Test scores are required. Subject Test score are desirable, preferably in Physics, although Mathematics or Geology are also acceptable.

Qualified students may proceed directly toward the Ph.D. degree, although most obtain the M.S. degree in the process.

Major Fields or Subdisciplines

The program in geophysics and space physics offers study in Earth's interior (seismology, gravity, thermal regime, geomagnetism, tectonics), geophysical fluid dynamics (turbulence, rotating systems, stability, hydromagnetism), planetology (orbital dynamics, planetary interiors, surfaces and atmospheres, solar-system origin), space physics (magnetosphere, radiation belts, solar wind, magnetic fields, cosmic rays), and applied geophysics. Other comparable areas of study are also possible.

Course Requirements

Six courses are required, three in fundamental physics and three in the major geophysics disciplines. Students must attain a grade-point average of 3.3 or better, on a 4.0 scale in the six courses.

Courses in Fundamental Physics. Courses satisfying the fundamental physics requirement may be chosen from the following: Earth and Space Sciences 201, 202, Physics 210A, 210B, 215A, 220, 222A, 231A, Chemistry and Biochemistry C223A. Exceptions are that students may not obtain credit for both examinations in the following pairs due to overlap of subject matter: Earth and Space Sciences 201 and Physics 220; Earth and Space Sciences 203 and Physics 210A; Earth and Space Sciences 203 and Physics 210B; Physics 215A or Chemistry and Biochemistry C223A.

In addition to the above listed courses, students may petition to count toward this requirement either or both of Physics 221A and 221B. Approval of a petition depends on relevance of quantum mechanics to more advanced study planned by the student. Other substitutions may be petitioned in exceptional cases. Students who can demonstrate they have mastered the material elsewhere may petition for course credit. The three fundamental physics examinations must all be passed prior to undertaking the departmental written qualifying examination.

Courses in the Three Major Geophysics Disciplines. Earth and Space Sciences 200A, 200B, 200C, on solid Earth, oceans and atmospheres, and space plasma physics must be passed with an average grade of 3.3 or better. The examinations must be attempted by the fourth quarter of enrollment. Students not achieving the necessary level of achievement by the sixth quarter of enrollment are not eligible to continue in the Ph.D. program and may not attempt the departmental written qualifying examination. Exceptions to this requirement

may be granted by petition under extenuating circumstances.

Written and Oral Qualifying Examinations

Written Qualifying Examination. Students may choose one of two options for this examination: (1) a written six-hour examination in question/answer format or (2) an examination in written proposal/oral format. The proposal format consists of an oral examination based on (but not restricted to) two written research proposals which must be submitted to the examining committee at least 10 days before the examination. The breadth of the subject matter of the proposals must be approved by the examining committee.

The examination tests students' general knowledge of their field (Earth's interior, geophysical fluid dynamics, planetology, or space physics) as defined by students in a written statement to which they must get the examining committee's concurrence before arranging the examination. The examining committee consists of three or more faculty members, appointed by the graduate adviser in consultation with students, of whom at least three must be from the department and one must be from outside the students' field of concentration.

University Oral Qualifying Examination. After passing the field examination, students must consult their faculty adviser and the graduate adviser regarding nomination of the doctoral committee and arrange a time for the examination as soon as possible. The examination determines the suitability of the chosen problem for the Ph.D. dissertation and their capacity to pursue research on the problem, but it is not limited to these topics. A written prospectus on their topic must be handed to the committee at least 10 days before the examination. Repetition of a failed examination is at the option of the doctoral committee. If students do not pass this examination within five years after entering the program, they are subject to dismissal.

Earth and Space Sciences

Lower Division Courses

1. Introduction to Earth Science. (4) Lecture, three hours; laboratory, two hours. Not open to students with credit for or currently enrolled in course 1H or 100. Elements of Earth science; study of Earth materials; nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology.

1H. Fundamentals of Earth Science. (4) Lecture, three hours; laboratory, two hours; two field days. Not open to students with credit for or currently enrolled in course 1 or 100. Particularly recommended for future physical sciences majors with strong high school or some lower division preparation. Introduction to Earth materials, physical geology, and tectonics, with examples of geophysical and geochemical methods.

2. Earth History. (4) Lecture, three hours; laboratory, three hours; fieldwork. Enforced requisite: course 1 or 1H. Methods of historical science; consideration of special problems related to physical and biological evolution of Earth from earliest time to the present.

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 the 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.

8. Earthquakes. (4) Lecture, three hours; discussion, one hour. Causes and effects of earthquakes, with special emphasis on problems of living with earthquakes in Southern California. Topics include relationship between earthquakes and local and regional geology, types of earthquakes, past and future earthquakes in California, earthquake engineering, disaster preparedness, and prospects for predicting or controlling earthquakes.

9. Origin and Evolution of Solar System. (4) Lecture, three hours; discussion, one hour. Properties of sun, planets, asteroids, and comets. Astronomical observations relevant to understanding the solar system and its origin. Dynamical problems, including examination of fallacious hypotheses. Meteoritic evidence regarding earliest history of the solar system. Chemical models of solar nebula. Space exploration and its planning.

15. Introduction to Oceanography. (4) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for Organismic Biology 25. General introduction to geological, physical, chemical, and biological processes related to characteristics and evolution of ocean system. P/NP or letter grading.

16. Major Events in History of Life. (4) Lecture, three hours; laboratory, two hours. Designed for nonmajors. History of life on Earth as revealed through the fossil record. P/NP or letter grading.

17. Dinosaurs and Their Relatives. (4) 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.

20. Natural History of Southern California. (4) Lecture, one hour; laboratory, three hours; four field weekends; outside study, eight hours. 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.

51A. Mineralogy-Lithology. (4) Lecture, three hours; laboratory, six hours. Enforced prerequisite: course 1 or 1H. Recommended: completion of chemistry requirement. Mineralogic crystal chemistry; relation of physical properties to structure. Structural classification and petrogenesis of major minerals and rocks. Laboratory study of crystallography and identification of minerals and igneous, sedimentary, and metamorphic rocks in hand sample.

51B. Optical Mineralogy-Petrography. (4) Lecture, three hours; laboratory, six hours. Enforced prerequisite: course 51A. Preparation: one introductory high school or college physics course. Principles of optical crystallography. Utilization of optical properties to identify nonopaque minerals in immersion media and in thin section. Study of common igneous, sedimentary, and metamorphic rocks in thin section.

61. Elements of Field Geology. (4) Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Enforced prerequisite: course 1 or 1H. Majors must have completed or be concurrently enrolled in course 51B. Techniques of geologic mapping; preparation of geologic reports; methods of mapping faults and folds, sedimentary, igneous, and metamorphic terrains, and Quaternary deposits; introduction to field methods in engineering and environmental geology, petroleum geology, and mining geology and mineral exploration; interpretation of geologic maps; field exercises in pace-and-compass topographic and geologic mapping. P/NP or letter grading.

Upper Division Courses

100. Principles of Earth Science. (4) Lecture, three hours. Designed for nonmajors. Not open to students with credit for course 1 or 1H. 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.

102. Reflected Light Microscopy. (2 or 4) Lecture, 90 minutes; laboratory, three hours. Requisite: course 51B. Study of opaque and ore minerals in polished section using reflected light methods. Optical theory, qualitative and quantitative measurements, mineral identification, textures and assemblages of reflective metals, oxides, sulfides, and arsenides. Independent project required if taken for four units. P/NP or letter grading.

103A. Igneous Petrology. (6) Lecture, two to three hours; laboratory, six hours; field trips. Requisites: courses 51A, 51B, Chemistry 20B, 20L, Mathematics 31B. 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 the crust and mantle and its relation to seismology. Overview of petrological and chemical evolution of Earth, moon, and other planets from their origin to the present. P/NP or letter grading.

103B. Sedimentary Petrology. (6) Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 103A. 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. (6) Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 103B. 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; outside study, nine hours. Requisite: course 51B. 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. Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of the elements and their isotopes; distribution and chemistry of the 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, one day per week. Requisite: course 61. Principles of stratigraphy; geologic mapping of a selected area; preparation of a geologic report.

111G. Field Geology. (2 to 4) Designed for graduate students. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation.

112. Structural Geology. (6) Lecture, three hours; laboratory, six hours. Requisite: course 1. Recommended: course 51B. 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.

116. Paleontology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: Biology 5. Review of major groups of fossil organisms and their significance in geology and biology.

CM118. Advanced Paleontology. (4) (Same as Organismic Biology CM145.) Lecture, three hours. Requisite: course 116 or Organismic 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. Concurrently scheduled with course CM218. P/NP or letter grading.

119. Continental Drift and Plate Tectonics. (4) Lecture, three hours. Requisite: course 1 or 1H or 100. Designed for juniors/seniors. Classical concepts of sedimentation and tectonics. Alfred Wegener's theory of continental drift and ensuing controversy. Physiography of continents and oceans. Geophysical evidence regarding nature of ocean floor. Magnetic stratigraphy. Seafloor spreading. Plate tectonic model and its driving mechanisms. Tectonic, igneous, and metamorphic processes at plate boundaries.

120. Rubey Colloquium: Major Advances in Earth Science. (4) Lecture, three hours. Designed for juniors/seniors. Lectures on major advances in Earth science offered by distinguished authorities (including regular faculty). Supervision of continuity and assessment of student performance by a faculty member. Content varies from year to year. If laboratory work is required, course 199 must be taken concurrently.

121A-121B. Advanced Field Geology. (6-6) Fieldwork, four weeks each. Requisites: courses 61, 103B, 111. Problems in field geology; preparation of geologic maps and cross-sections; preparation of written geologic reports in the field and a final written summary geologic report of selected areas.

125. Volcanoes. (4) Lecture, three hours; laboratory, three hours; field trip(s). Requisites: courses 1, 61. Recommended: courses 51A, 51B, 103A. Origins of magmas and their properties. Physics of volcanism and characteristics of volcanic deposits. Monitoring volcanic hazards and understanding effects of volcanoes on life. Case studies of historical eruptions. P/NP or letter grading.

C126. Advanced Igneous Petrology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Understanding the genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C226. P/NP or letter grading.

129. Hydrogeology. (4) Lecture, three hours. Requisite: course 1 or 1H or 100. Designed for juniors/seniors. Hydrogeologic controls of groundwater occurrence, movement, quality, and management. Hydrologic equation, groundwater/surface water relationships, water wells, pumping tests, pollution, artificial recharge, seawater intrusion, safe yield of groundwater basins, groundwater models.

C132. Subsurface Fluid Flow and Geological Processes. (4) Lecture, three hours; laboratory, one hour. Requisite: Mathematics 32A. Quantitative basis for studying fluid flows in geologic processes. Groundwater problems and pore-fluid pressure evolution. Concurrently scheduled with course C232. P/NP or letter grading.

133. Historical and Regional Geology. (4) Lecture, three hours; discussion, two hours; field trips. Requisite: course 61. 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. Areas of investigation vary. P/NP or letter grading.

134. Computing in Earth and Space Sciences. (4) Lecture, three hours; laboratory, three hours. Requisite: Program in Computing 3 or 10A. Original programming and application of software to generate and test hypotheses with nonideal or incomplete data sets. Interpolation/extrapolation with graphics to generate hypotheses; forward modeling from fundamental equations to explore implications; probabilistic testing of models against data. Examples and exercises from the Earth and space sciences. Introduction to software used in research and industry.

135. Introduction to Applied Geophysics. (4) Lecture, three hours; laboratory, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH), 4AL, 4BL, Program in Computing 3 or 10A. Not open for credit to students with credit for course 136A. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals. P/NP or letter grading.

136A. Applied Geophysics. (4) Lecture, three hours; laboratory, three hours; field trips. Requisites: Mathematics 33A, Physics 1A, 1B, and 1C (or 2AH and 2BH), 4AL, 4BL, Program in Computing 3 or 10A. Not open for credit to students with credit for course 135. Seismic reflection and refraction, Fourier analysis and deconvolution, vibroseis, synthetic seismograms, marine seismics, seismic interpretation, gravity and magnetic fields, inversion uniqueness and depth rules. P/NP or letter grading.

136B. Applied Geophysics. (4) Lecture, three hours; laboratory/field trips, six hours. Requisites: course 136A, Program in Computing 3 or 10A. Principles and techniques of exploration for mineral deposits using natural and artificial electric and magnetic fields. Methods include self potential, resistivity, induced polarization, electromagnetics, magnetotellurics, magnetics.

136C. Field Geophysics. (6) Lecture, three hours; discussion, one hour; laboratory, two hours; fieldwork, 10 hours. Requisite: course 135 or 136A. 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. Fieldwork on unsolved problems (week-long field trip).

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.

139. Engineering and Environmental Geology. (4) Lecture, two and one-half hours. 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.

M140. Introduction to Fluid Dynamics. (4) (Same as Atmospheric Sciences CM120.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Rotating frame. Hydrostatic and geostrophic balance. Sound and shock waves. Viscous flow. Letter grading.

141. Basin Analysis. (4) Lecture, three hours; laboratory, six hours. Requisites: courses 103B, 111. Interpretation of sedimentary rock records in terms of tectonics and basin evolution. Sedimentary patterns in modern plate settings serve to focus interpretations of deformed rocks in complex structural regions.

150. Remote Sensing for Earth Sciences. (4) Lecture, three hours. 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.

152. Physics of the Earth. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH). Application of physics to structure and evolution of the solid Earth. Seismology, convection and heat flow, gravity, geomagnetism, rock magnetism, and relation of these topics to plate tectonics and other problems of current geophysical interest. P/NP or letter grading.

153. Oceans and Atmospheres. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH). Physics and chemistry of Earth's oceans and atmosphere; origin and evolution of planetary atmospheres; 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: Physics 110B. Particle and electromagnetic emissions from the sun under quiet and under disturbed conditions. Solar wind. Magnetospheres and ionospheres of Earth and other planets. Geomagnetic phenomena and the aurora.

155. Planetary Physics. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 2AH and 2BH). 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.

C160. Field Seminar. (2 to 6) Lecture, one to three hours; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum which varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. Concurrently scheduled with course C260. P/NP or letter grading.

195G. Field Geology for Graduate Students. (2 to 4) Lecture, two hours; four to five field trips. Requisite: course 121B. Required of new graduate students in geology program. Advanced techniques in field geologic mapping, exposing students to igneous, metamorphic, and sedimentary terranes with varying amounts of tectonism. May be repeated for credit. P/NP or letter grading.

199. Special Studies in Earth and Space Sciences. (2 to 8) May be repeated for credit.

199H. Honors Research in Earth and Space Sciences. (4) Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of Earth and space sciences.

Graduate Courses

200A. Introduction to Geophysics and Space Physics I: The Solid Earth and Planets. (4) Lecture, three hours. Requisites: Physics 105A, 110A, 112, 131. Geochemistry, cosmochemistry, and petrology; geotectonics; gravity field; seismology; heat transfer, thermal and mechanical evolution of the mantle; core and geomagnetism; lunar and planetary interiors.

200B. Introduction to Geophysics and Space Physics II: Oceans and Atmospheres. (4) Lecture, three hours. Requisites: Physics 105A, 110A, 112, 131. Evolution, chemistry, and heat balance of oceans and atmospheres; molecular spectra, radiative transfer, and planetary observations; dynamics of oceans and atmospheres.

200C. Introduction to Geophysics and Space Physics III: Plasmas — Aeronomy and the 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 the solar wind with Earth, magnetospheric phenomena.

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.

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.

204. Time-Series Analysis and Spectral Estimation. (4) Lecture, three hours. Preparation: intermediate courses in calculus (including linear algebra and complex variables) and computer programming (including FORTRAN). Basic methods in time-series analysis, including spectral estimation, prediction, and signal detection, in application to problems in geophysics, atmospheric physics, and space physics. Topics include Fourier transforms (continuous, discrete, FFT), time series (Z-transforms, deconvolution), maximum entropy spectral analysis, autoregressive and moving average methods (AR, MA, ARMA), and multichannel prediction and spectral analysis.

205. Inverse Theory and Data Interpretation. (4) Lecture, three hours. Requisites: Mathematics 115A, M150A-150B, 151. 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 a broad range of physical sciences.

C206. Physical Geochemistry. (4) Lecture, three hours; outside study, nine hours. Requisite: course 51B. 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. Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of the elements and their isotopes; distribution and chemistry of the 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.

208. Geothermics. (4) Lecture, two and one-half hours; discussion, 30 minutes. Requisite: Mathematics 33A. Basic concepts of heat transfer applied to solutions of geological and geophysical problems, including continental heat flow, cooling of oceanic lithosphere, solidification of magmas, thermal and subsidence history of sedimentary basins, frictional heating on fault zones, mantle geotherms, temperature in descending slabs, thermal convection in geothermal regions.

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, which 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 and 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.

M216. Evolutionary Biology. (4) (Same as Organismic Biology 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.

M217. Molecular Evolution. (4) (Formerly numbered M243C.) (Same as Organismic 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 the 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.

CM218. Advanced Paleontology. (4) (Same as Organismic Biology CM245.) Lecture, three hours. Requisite: course 116 or Organismic 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. Concurrently scheduled with course CM118. S/U or letter grading.

219. Planetary and Orbital Dynamics. (4) Planetary rotations, satellite orbits, and tidal dissipation; planetary orbital system; resonance effects and chaos; spin-orbit and orbit-orbit coupling; planetary rings.

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.

221. Field Geology. (4) Lecture, one hour; discussion, one hour; fieldwork, 10 days. Requisite: course 121B or 195G. 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.

222. Introduction to Seismology. (4) Lecture, three hours. Types of seismic waves; travel-time seismology; epicenter location; amplitude variations; seismograph theory; explosion seismology; seismicity; focal conditions; surface wave analysis; microseisms and tsunamis.

M224A. Elastodynamics. (4) (Same as Mechanical and Aerospace Engineering M257A.) Lecture, four hours; outside study, eight hours. Requisites: Mechanical and Aerospace Engineering 256A, 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.

225A. Physics and Chemistry of Planetary Interiors I. (4) 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.

225B. Physics and Chemistry of Planetary Interiors II. (4) Lateral inhomogeneities in Earth: seismic velocities, petrology, geothermal and gravitational variations; evidences of motion; remanent magnetism, seismic motions; postglacial rebound; plate tectonics; rheology of mantle; thermal convection.

C226. Advanced Igneous Petrology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Designed for graduate students. Understanding the 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.

229. Planetary Atmospheres. (4) Lecture, three hours. Requisite: course 200B. Planetary atmospheric structure, dynamics, and composition. Topics include spacecraft observations; origin and evolution of atmospheres; photochemistry, radiation mechanisms, and transport; atmospheric waves and general circulation; wave-mean flow and turbulence; remote sensing and inversion techniques.

230. X-Ray Crystallography. (4) Lecture, three hours; laboratory, three hours. Requisite: course 51B. 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.

231. Crystal Chemistry and Structure of Minerals. (4) Lecture, three hours; laboratory, three hours. Requisite: course 51B. 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.

C232. Subsurface Fluid Flow and Geological Processes. (4) Lecture, three hours; laboratory, one hour. Requisite: Mathematics 32A. Quantitative basis for studying fluid flows in geologic processes. Groundwater problems and pore-fluid pressure evolution. Concurrently scheduled with course C132. S/U or letter grading.

233. Mineral Physics and Equations 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.

234. Petrologic Phase Equilibria. (4) (Formerly numbered 234B.) Lecture, three hours; discussion, three hours. Requisites: course 51B, 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-235B-235C. Current Research in Geochemistry (1 unit each). (4) Limited to graduate Earth 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.

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.

239. Structural Petrology of Deformed Rocks. (4) Discussion, three hours; laboratory, three hours. Requisites: courses 51B, 112. Recommended: courses 245A-245B. Use of universal stage. Microscopic study of textures, structures, and preferred orientations of minerals in tectonites. Deformation mechanisms in crystals and aggregates. Theories of development of preferred orientation. Application of experimental data to interpretation of microfabrics.

240. Space Plasma Physics. (4) Lecture, three hours. Requisite: course 203 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.

241. Sedimentary Petrology. (4) Lecture, two hours; laboratory, six hours. Requisites: courses 51B, 103B. Texture, composition, structure, and modes of origin of sedimentary rocks. Content varies from year to year.

242. Sandstone Petrology. (4) Lecture, two hours; laboratory, four hours. Requisite or corequisite: course 141. Petrographic study of sandstones, with emphasis on provenance, petrofacies, and paleotectonic reconstructions.

244. Tectonics of Sedimentary Basins. (4) Lecture, two hours; discussion, two hours; field trips. Requisites: courses 103B, 119. Recommended: course 141. Plate-tectonic settings of sedimentary basins. Basin analysis, stratigraphy, paleoenvironments, sedimentology, and related subjects in context of plate-tectonic controls on basin evolution.

245A-245B. Stress and Deformation. (4-4) Lecture, three hours. Requisites: Mathematics 32A, 32B, Physics 1A or 2AH, 4AL. Recommended: Mathematics 33A. Scalars, vectors, tensors; subscript notation; rotation and inversion of axes, transformation matrix; stress; finite homogeneous strain, rotation; infinitesimal strain, strain rate; Mohr's circle construction and other graphical methods; flow laws. S/U or letter grading.

246. Stress in the Lithosphere. (4) Lecture, three hours. Requisite: course 202 or 245A or Civil Engineering 108. Overcoring, hydrofracture, fault plane solutions, seismic stress drops; effects of erosion, cooling, Earth ellipticity, topography, and density anomalies. State of stress in plate boundaries and interiors. Application of finite element and analytic methods to stress determination.

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.

250. Mars. (4) Lecture, three hours. Mars geology, geophysics, geochemistry. Cratering history, surface/atmosphere interaction, volatiles, polar caps, atmosphere, climate. 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.

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.

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 the mantle; element fractionation among coexisting phases; other current subjects in the field. S/U or letter grading.

254. Seminar: Sedimentology. (4) Seminar, three hours. Processes of sediment transport and deposition; deep sea sediments; deltas and estuaries; petrology of carbonates, sandstones, and lites; stratigraphy; paleoenvironmental studies.

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.

257. Seminar: Paleontology. (4) Seminar/discussion, three hours. Advanced topics in paleobiology, biostratigraphy, paleoecology, and paleobiogeography, with emphasis on relations to other disciplines.

259. Seminar: Paleotectonics. (4) Seminar, two hours; discussion, two hours. Requisite: course 244. Basin evolution and paleogeography, with emphasis on the Phanerozoic of the Western U.S.

C260. Field Seminar. (2 to 6) (Formerly numbered 260.) Lecture, one to three hours; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum which varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. Concurrently scheduled with course C160. S/U or letter grading.

261. Topics in Magnetospheric Plasma Physics. (4) 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.

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.

M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Atmospheric Sciences M272A-M272B-M272C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout the 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.

277. Concepts and Tools for Variability in Natural Sciences. (4) Lecture, three hours. Introduction to concepts and methods of nonlinearity, chaos theory, fractals, intermittency, self-organization, cooperativity, criticality, spatio-temporal chaos, turbulence, disorder, and fluctuations. Applications to tectonics, earthquakes, geomorphology, meteorology, evolution, biology. S/U or letter grading.

282. Seminar: Geophysics. (4) Seminar, two hours; discussion, two hours. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in Earth physics. Content varies from year to year. May be repeated for credit.

M285. Origin and Evolution of Solar System. (4) (Same as Astronomy M285.) 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-286B-286C. Seminars: Planetology (2 units each). (4) Problems of current interest concerning moon, planets, and meteorites. May be repeated for credit. S/U grading.

287A-287B-287C. Seminars: Seismology and Earth's Interior. (2-2-2) Problems of current interest in seismology and Earth's interior. May be repeated for credit. S/U grading.

M288A-M288B-M288C. Seminars: Space Physics. (2-2-2) (Same as Atmospheric Sciences M275A-M275B-M275C.) Seminar, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

289. Seminar: Fluid Dynamics. (2) (Formerly numbered 289A-289B-289C.) 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.

290. Seminar: Time-Series Analysis (2). Discussion, three hours. Discussion of recent research in spectral estimation, filtering, and signal detection applied to geophysical problems. S/U grading.

295A-295B-295C. Current Research in Earth and Space Sciences. (1-1-1) Limited to graduate Earth 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.

296A-296Z. Research Topics in Earth and Space Sciences (1 each). Discussion, one to three hours. Designed for graduate Earth and space sciences students. Advanced study and analysis of current topics in Earth and space sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

296A. Rock Deformation, Structural Geology, Tectonics.

296B. Volcanology and Geochemistry of Volcanic Rocks.

296C. Seismology and Solid Earth Physics.

296D. Thermal Evolution of Lithosphere.

296E. Sedimentation and Tectonics.

296F. Seismology.

296G. Planetary and Orbital Dynamics.

296H. Space Plasma Physics.

296I. Earthquakes.

296J. Metamorphic Petrology.

296K. Quantitative and Molecular Paleobiology.

296L. Magnetic Phenomena.

296M. Planetary Physics.

296N. Martian Surface and Atmosphere.

296O. Tectonics and Stratigraphy.

296P. Chemical Geodynamics.

296Q. Paleobiology.

296R. Planetary and Space Physics.

296S. Precambrian Paleobiology.

296T. Geophysical Fluid Dynamics.

296U. Geomorphology and Geological Physics.

296V. Cosmochemistry.

296W. Structural Geology, Tectonics.

296X. Earthquakes and Earth Structure.

297. Advanced Techniques in Geological Research. (2 to 4) S/U grading.

298. Advanced Topics in Earth and Space Sciences. (2 to 4) Lecture, two to four hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching Earth and Space Sciences. (2) Lecture, 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) 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) May be repeated. S/U or letter grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) S/U grading.

598. M.S. Research and Thesis Preparation. (2 to 12) May be repeated. S/U grading.

599. Ph.D. Research and Dissertation Preparation. (2 to 12) S/U grading.

EAST ASIAN LANGUAGES AND CULTURES

College of Letters and Science

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Robert E. Buswell, Ph.D., *Chair*

Professors

Noriko Akatsuka, Ph.D. (*Japanese*)
Robert E. Buswell, Ph.D. (*Chinese, Korean*)
Theodore D. Hutters, Ph.D. (*Chinese*)
Peter H. Lee, Ph.D. (*Korean*)
Michele F. Marra, Ph.D. (*Japanese*)
Herbert E. Plutschow, Ph.D. (*Japanese*)
Gregory Schopen, Ph.D. (*Indian Buddhism*)
Richard E. Strassberg, Ph.D. (*Chinese*)
Pauline R. Yu, Ph.D. (*Chinese*)

Professors Emeriti

Ben Befu, Ph.D.
Robert C. Epp, Ph.D.
Kan Lao, B.A.
Richard C. Rudolph, Ph.D.
Hartmut E.F. Scharfe, Ph.D.
Shirleen S. Wong, Ph.D.

Associate Professors

William M. Bodiford, Ph.D. (*Japanese*)
Hung-hsiang Chou, Ph.D. (*Chinese*)
John B. Duncan, Ph.D. (*Korean*)
Shoichi Iwasaki, Ph.D. (*Japanese*)

Assistant Professors

Michael K. Bourdaghs, Ph.D. (*Japanese*)
Henry H. Em, Ph.D. (*Korean*)
Seiji M. Lippit, Ph.D. (*Japanese*)
David C. Schaberg, Ph.D. (*Chinese*)
Shu-mei Shih, Ph.D. (*Chinese*)
Sung-Ock Sohn, Ph.D. (*Korean*)
Timothy R. Tangherlini, Ph.D. (*Korean*)

Lecturers

Y.C. Chu, M.A., *Emeritus*
Masako Douglas, Ph.D. (*Japanese*)
Rongrong Liao, Ph.D. (*Chinese*)
Kuo-yi Pao (Unenseñen), M.A., M.S., *Emeritus*
Yihua Wang, M.A. (*Chinese*)
Jae Eun Yoon, Ph.D. (*Korean*)

Scope and Objectives

The Department of East Asian Languages and Cultures aims to provide students with an ex-

posure to the rich cultural heritage of China, Japan, Korea, and India. This is accomplished through courses in language, literature, religion, thought, archaeology, and other aspects of culture. For undergraduates the department offers a program leading to the B.A. degree in Chinese or Japanese or Korean, in which the emphasis is on the language and culture of China or Japan or Korea. The language program aims to develop the four skills of speaking, aural comprehension, reading, and writing in a balanced and mutually supportive manner.

At the graduate level, the department offers a program leading to an M.A. degree in several fields of East Asian culture. The program aims to give students a solid mastery of these fields preparatory to careers in teaching or in areas such as journalism, business, banking, or government service. The Ph.D. program, which is very selective, trains research scholars for academic careers in specialized fields.

Courses for Nonmajors

The department offers the following courses in which knowledge of Asian languages is not required: Chinese 50, 150A, 150B, 151, 152, M153, 155, 160, 175, 190, East Asian Languages and Cultures 60, 61, 161, 162, Indic 175, Japanese 50, 60, 90, 150, 151, 154, 155, C160, 161, 175, CM182, 188, Korean 50, 150, 151, 155, 160, 175, 177, 180A, 180B, 180C.

Buddhist Courses

The department also offers the following courses in Buddhism: Chinese 160, 165, 265A-265B, East Asian Languages and Cultures 60, 61, 161, 162, 265A-265B, Japanese C160, 165, 265A-265B, Korean 160, 165, 265A-265B.

Undergraduate Study

Grammar/Composition Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Chinese, Japanese, and Korean grammar and/or composition.

Chinese B.A.

Preparation for the Major

Required: Chinese 1, 2, 3, 4, 5, and 6, or 1A, 2A, 4A, and 5A; one civilization or literature course from 50, 150A, 150B, 151; one comparative civilizations course from East Asian Languages and Cultures 60, 61, Japanese 50, 60, Korean 50.

The Major

Required: Chinese 100A-100B-100C (required only for nonnative speakers), 110A-110B-110C, East Asian Languages and Cultures C197 or 199, and four upper division electives, at least three of which must be selected from the following departmental courses: Chinese 101A, 101B, 120, 130A, 130B, 140A, 140B, 140C, 150A, 150B, 151, 152, 160, 165, 170, 175, 190, 195, East Asian Languages and Cultures 161, 162. Courses 150A, 150B, and 151 may be selected only if

not used to satisfy the preparation for the major requirements. Nondepartmental electives may be selected from Anthropology 175T, Art History C115D, C115E, C115F, Asian American Studies M132B, Ethnomusicology C156A, 156B, 157, 158A, 158B, 158C, Geography 186, History 182A, 182B, 183A, 183B, 184, Political Science 135, 159A, 159B, Sociology 151, M153, 188, Theater 102E; other courses may be substituted with approval of the undergraduate adviser. Native speakers who test out of language courses must take 10 electives, at least five of which must be from the departmental list.

Chinese language proficiency is determined by a placement examination offered at the beginning of Fall and Winter Quarters. Refer to the *Schedule of Classes* for details.

Students planning to undertake graduate study are urged to include in their undergraduate program additional courses in classical Chinese and beginning courses in Japanese or Korean. Those planning to undertake advanced graduate study are urged to gain a reading knowledge of French or German.

Japanese B.A.

Preparation for the Major

Required: Japanese 1, 2, 3, 4, 5, 6, or equivalent language proficiency; one civilization or literature course from 50, 60, 150, 151; two comparative civilizations courses from Chinese 50, East Asian Languages and Cultures 60, 61, Korean 50.

The Major

Required: Japanese 100A-100B-100C (required only for nonnative speakers), 110; one course from 197A, C197B, East Asian Languages and Cultures C197, 199; and four upper division electives, at least three of which must be selected from the following departmental courses: East Asian Languages and Cultures 161, 162, Japanese 101A, 101B (both open only to nonnative speakers), 120, CM122, CM123, CM127, 130A, 130B, 130C, 140A, 140B, 140C, C149, 150, 151, 154, C160, 161, 165, 175, C180, CM182, 188, C195. Courses 150 and 151 may be selected only if not used to satisfy the preparation for the major requirements. Nondepartmental electives may be selected from Anthropology 175S, 175T, Art History 114C, C115C, Ethnomusicology 160A, 160B, History 185, 186, 187A, 187B, 187C, Political Science 136, 160, Sociology 151, 156, 188, 189, Theater 102A, 102E; other courses may be substituted with approval of the undergraduate adviser. Native speakers who test out of language courses must take 10 electives, at least five of which must be from the departmental list.

Japanese language proficiency is determined by a placement examination offered at the beginning of Fall and Winter Quarters. Refer to the *Schedule of Classes* for details.

Students planning to undertake graduate study are urged to include in their undergraduate

program three courses in classical Japanese and beginning courses in Chinese or Korean. Those planning to undertake advanced graduate study are urged to gain a reading knowledge of French or German.

Korean B.A.

Preparation for the Major

Required: Korean 1, 2, 3, 4, 5, and 6, or 2A, 3A, 4A, 5A, and 6A (language requirements vary depending on students' language backgrounds; for details, see the undergraduate adviser); one civilization or literature course from 50, 150, 151; two comparative civilizations courses from Chinese 50, East Asian Languages and Cultures 60, 61, Japanese 50, 60.

The Major

Required: Korean 100A-100B-100C; one course from 197A, 197B, East Asian Languages and Cultures C197, 199; and five upper division electives, at least three of which must be selected from the following departmental courses: Korean 101A, 101B, 101C, CM120, CM127, 130A, 130B, 150, 151, 160, 165, 175, 176, 177, 180A, 180B, 180C, East Asian Languages and Cultures 161, 162. Courses 150 and 151 may be selected only if not used to satisfy the preparation for the major requirements. Nondepartmental electives may be selected from Anthropology 175T, 175V, Art History 114E, Asian American Studies M132A, Folklore and Mythology M183, Sociology 151, 188, 191; other courses may be substituted with approval of the undergraduate adviser. Native speakers who test out of language courses must take 10 electives, at least five of which must be from the departmental list.

Korean language proficiency is determined by a placement examination offered at the beginning of Fall and Winter Quarters. Refer to the *Schedule of Classes* for details.

Students planning to undertake graduate study are urged to include in their undergraduate program beginning courses in Chinese and Japanese. Those planning to undertake advanced graduate study are urged to gain a reading knowledge of French or German.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of East Asian Languages and Cultures offers the Master of Arts (M.A.) degree in East Asian Languages and Cultures.

Admission

Applicants to the M.A. program are expected to (1) meet general University requirements for the undergraduate major, (2) present a B.A. degree from a Department of East Asian Languages and Cultures similar to UCLA's department, and (3) have taken a minimum of three quarter courses or the equivalent in classical Chinese for Chinese majors, classical Japanese for Japanese majors, or a minimum of three years of modern Korean for Korean majors. Applicants with a B.A. in another field or from a department whose requirements are less rigorous are admitted only if they meet the requisite standards within one year. Selection is based on (1) prior scholastic performance (at the junior, senior, and/or graduate levels), (2) recommendations by professors, (3) score on the Graduate Record Examination (GRE), (4) statement of purpose focusing on research interests, and (5) an undergraduate term paper or comparable writing sample in English. All materials must be complete before the application is considered. Students transferring from other departments must also fulfill the above requirements.

International applicants are required to take the Test of English as a Foreign Language (TOEFL), administered by the Educational Testing Service, unless this test is not offered in the country of residence. A test in translation from Chinese, Japanese, or Korean into English must be taken, either with the comprehensive examinations or earlier.

Areas of Study

The department recognizes three areas of specialization at the M.A. level: Chinese language and culture, Japanese language and culture, or Korean language and culture. A comparative or interdisciplinary field may be incorporated into an area of specialization.

Course Requirements

Nine courses are required for the degree, six of which must be graduate courses. Course 200 in the appropriate field is required for the Chinese, Japanese, or Korean major.

With the consent of the department, up to two courses taken outside the department (for which the grade of S/U is acceptable) may be applied toward the nine courses. No more than two courses in the 500 series may apply toward the divisional minimum of nine courses required for a master's degree, and only one of these two courses may be counted toward the minimum of six graduate courses required for the degree. Courses taken to meet the language requirements and admission standards do not apply toward the total course requirement. At least one seminar in each of the student's comprehensive examination fields must be taken.

International students may also be required to take English as a Second Language 33A, 33B, 33C, 34, 36, or other ESL courses.

Comprehensive Examination Plan

The comprehensive examination consists of the submission of three seminar research papers (all two-quarter sequences) and evaluation of them by the ad hoc committee chaired by the principal adviser, and an oral examination based on those papers. A translation examination in the student's area of specialization must also be taken. The evaluation of three seminar papers by the ad hoc committee and the oral examination based on the papers determines whether students are admitted to the Ph.D. program.

Thesis Plan

This plan is recommended for students intending to proceed to the Ph.D. Students who have completed at least one year of graduate work with excellence may petition to the department to present a thesis for the M.A. degree. If this plan is chosen, students must have a letter of support from a faculty member who intends to serve as thesis director. The remaining members of the thesis committee are selected in consultation with the graduate adviser. Final acceptance of the thesis plan is contingent on the approval of a thesis proposal. The thesis must be 40 to 60 pages in length and follow the rules and style set by the University. Information on these regulations is available from the Graduate Division. After acceptance of the thesis, there is an oral examination related to the thesis. Students are also required to take an examination in translation in their area of specialization.

Doctoral Degree

Admission

An M.A. degree in the field or in a related field is required for admission to the program leading to the Ph.D. degree in East Asian Languages and Cultures. Selection among qualified applicants from outside the department is based on (1) prior scholastic performance, (2) three letters of recommendation, (3) score on the Graduate Record Examination (GRE), (4) statement of purpose focusing on research interests, and (5) a recent research paper in English. Applicants with an M.A. in the department are judged on their M.A. record.

Students applying from foreign institutions are encouraged to complete an M.A. in the department before proceeding to the Ph.D. program.

Major Fields or Subdisciplines

The department emphasizes six major fields at the Ph.D. level: (1) Chinese language and literature with the subdisciplines of poetry, drama, fiction, and modern literature; (2) Japanese language and literature with the subdisciplines of ancient, medieval, early modern, and modern literature; (3) Korean language and literature with the subdisciplines of culture, Buddhism, classical poetry and fiction, and modern literature; (4) Buddhist studies with the subdisciplines of Chinese Buddhism, Japanese Buddhism, and Korean Buddhism; (5) Japanese linguistics; and (6) cultural and com-

parative studies, which is designed to allow students with a primary focus on China, Japan, or Korea to incorporate comparative, interdisciplinary, and/or historical interests. In addition, a program in ancient Chinese civilization may be arranged by petition.

Course Requirements

Students entering the program with an M.A. in a different field, or in the same field but from another institution, must meet the standards of the department's M.A. coursework in addition to fulfilling Ph.D. course requirements. A minimum of five graduate courses (not including courses taken to meet the language requirements) beyond the M.A. degree is required for the Ph.D. In addition, if the student's major field is Chinese, two years of modern Japanese must be taken with grades of S and a written examination which tests the ability to translate Japanese studies in the student's field of study. If the student's major field is Japanese, two years of modern Chinese, classical Chinese, or modern Korean must be taken with grades of S and a written examination which tests the ability to translate Chinese or Korean studies in the student's field of study. If the student's major field is Korean, two years of modern Chinese, classical Chinese, or modern Japanese must be taken with grades of S and a written examination which tests the ability to translate Chinese or Japanese studies in the student's field of study. Those majoring in Buddhist studies are encouraged to take Sanskrit and/or Pali and Parsi with grades of B or better or S. Students in the comparative and cultural studies track must meet the language requirements for their primary area of interest and must also take East Asian Languages and Culture 210.

Written and Oral Qualifying Examinations

Students must take written examinations as follows:

For the major in Chinese literature: (1) a general examination in Chinese literature covering the following three fields: modern Chinese literature, traditional fiction and drama, and traditional Chinese poetry; (2) examinations in three approved fields which must be chosen from at least two groups as follows: (a) Chinese poetry, Chinese fiction and drama, and modern Chinese literature; (b) ancient Chinese civilization, Chinese Buddhism or another field of Chinese thought or religion; (c) an outside field from within the department; or (d) a field offered in another department or interdepartmental program.

For the major in Japanese literature: (1) a general examination in Japanese literature; (2) examinations in two approved fields which cannot be from the same group, as follows: (a) ancient, medieval, early modern, or modern Japanese literature; (b) Japanese Buddhism, another field of Japanese thought or religion, or Japanese linguistics; (c) Chinese or Korean literature; or (d) a field offered in another department or interdepartmental program.

For the major in Korean literature: (1) a general examination in Korean literature; (2) examinations in three approved fields which must be chosen from at least two of the following groups: (a) Korean poetry, Korean fiction, modern Korean literature; (b) Korean Buddhism, Korean thought; (c) Chinese or Japanese literature; or (d) a field offered in another department or interdepartmental program.

For the major in Buddhist studies: (1) a general examination in the major field; (2) an examination in an approved subfield within the major field; (3) a general examination in another approved field inside or outside the department.

For the major in Japanese linguistics or the major by petition in ancient Chinese civilization: (1) an examination in the major language area; (2) a general examination in the major field; (3) an examination in an approved subfield within the major field; (4) a general examination in another approved field inside or outside the department.

For the major in cultural and comparative studies: examinations in four fields selected in consultation with the student's academic adviser, including at least two fields within the department and at least one with a comparative or theoretical focus. The four fields must be selected so that at least two are from the student's primary language area and two from a specific discipline.

Once all language and course requirements are satisfied, the qualifying examinations can be taken. All examinations must be completed within a four-week period. With the consent of the department, the examinations may be repeated only once. Students are required to take an examination in translation in their area of specialization.

After successful completion of the written examinations, the department appoints a doctoral committee whose chair serves as the student's dissertation adviser. Preferably within six months, but no more than a year after the written examinations, the student must pass the University Oral Qualifying Examination on the dissertation proposal. With the department's consent, the examination may be repeated only once.

Chinese

Lower Division Courses

1. Elementary Modern Chinese. (4) Lecture, two hours; discussion, three 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.

1A. Elementary Modern Chinese for Advanced Beginners. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Preparation: ability to speak and understand Mandarin or other Chinese dialects at elementary levels. 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). Students who complete courses 1A and 2A fulfill one year of foreign language requirement. P/NP or letter grading.

2. Elementary Modern Chinese. (4) Lecture, two hours; discussion, three hours. Continuation of course 1.

2A. Elementary Modern Chinese for Advanced Beginners. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Continuation of course 1A. P/NP or letter grading.

3. Elementary Modern Chinese. (4) Lecture, two hours; discussion, three hours. Continuation of course 2.

3R. Reading and Writing of Elementary Modern Chinese. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Preparation: fluent speaking and listening skills in Mandarin Chinese. Training in reading and writing skills at elementary level. Students fulfill one-year foreign language requirement by completing this course. P/NP or letter grading.

4. Intermediate Modern Chinese. (4) Lecture, two hours; discussion, three hours. Enforced requisite: course 3. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters.

4A. Intermediate Modern Chinese for Advanced Students. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 2A. 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). Students who complete courses 4A and 5A fulfill second year of foreign language requirement. P/NP or letter grading.

5. Intermediate Modern Chinese. (4) Lecture, two hours; discussion, three hours. Enforced requisite: course 4. Continuation of course 4.

5A. Intermediate Modern Chinese for Advanced Students. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Continuation of course 4A. P/NP or letter grading.

6. Intermediate Modern Chinese. (4) Lecture, two hours; discussion, three hours. Enforced requisite: course 5. Continuation of course 5.

6R. Reading and Writing of Intermediate Modern Chinese. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Preparation: fluent speaking skills in Mandarin Chinese. Enforced requisite: course 3R. Modern Chinese for students who understand and speak Mandarin but cannot read and write at intermediate level. Students learn to read texts in traditional and simplified characters and write simple compositions. Readings provide insight into Chinese society. P/NP or letter grading.

8. Elementary Chinese: Intensive. (12) 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. Letter grading.

10. Intermediate Modern Chinese: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisites: courses 1, 2, 3. 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. Offered in summer only. Letter grading.

50. Chinese Civilization. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of development of outstanding aspects of Chinese culture from prehistoric to modern times.

Upper Division Courses

100A-100B-100C. Advanced Modern Chinese. (4-4-4) Lecture, two hours; discussion, two hours. Requisite: course 6. 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.

101A-101B. Advanced Readings in Modern Chinese. (4-4) (Formerly numbered 101A-101B-101C.) Lecture, two hours; discussion, two hours; outside study, eight hours. Requisite: course 100C. 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. Letter grading.

102A. Business Chinese. (4) Lecture, two hours; discussion, two hours; outside study, eight hours. Preparation: three years of college-level Chinese. Advanced course designed to develop speaking, listening, reading, and writing skills in modern Chinese in business-related contexts and to gain awareness of cultural concepts and values in Chinese business practice and behavior. P/NP or letter grading.

110A-110B-110C. Introduction to Classical Chinese. (4-4-4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 3. Grammar and readings in selected texts.

120. Introduction to Chinese Linguistics. (4) Lecture, three hours. Requisite: course 6. Discussion of issues of Chinese phonology, morphology, and syntax. Case studies of seemingly idiosyncratic properties of Chinese in light of current theory of universal grammar.

130A-130B. Readings in Modern Chinese Literature. (4-4) Readings/discussion, three hours. Requisite: course 100B. Readings and discussion of works of modern Chinese literature.

140A-140B-140C. Readings in Classical Chinese Literature. (4-4-4) Readings/discussion, three hours; outside study, nine hours. Requisite: course 110C. Readings and discussion of works of classical Chinese literature. **140A.** Poetry; **140B.** Prose; **140C.** Fiction.

150A. Lyrical Traditions. (4) Lecture, three hours; outside study, nine hours. Readings in English translation from poetic, critical, and essayistic writings of traditional China, with emphasis on development of subjectivity and modes of address.

150B. Traditional Narrative and Drama. (4) Lecture, three hours; outside study, nine hours. Readings in English translation from narrative and dramatic writings of traditional China, with emphasis on self and society, growth of fictionality, subjectivity, and gender representation.

151. Chinese Literature in Translation: Modern Literature. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Chinese not required. Lectures and reading of representative works from 1900 to the present in English translation.

152. Topics in Contemporary Chinese Literature and Culture. (4) Lecture, two hours; discussion, one hour; outside study, nine hours. Investigation of various topics in contemporary Chinese literature and culture, including politics and poetics of Chinese post-modernism, nativism, feminism, mass culture, and media.

M153. Chinese Immigrant Literature and Film. (4) (Same as Asian American Studies M132B and Comparative Literature M171.) Lecture, two hours; discussion, one hour; outside study, nine hours. 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.

155. Topics in Chinese Cinema. (4) Lecture, three hours; film viewing, four hours; outside study, five hours. Critical understanding of films from Hong Kong, Taiwan, and China to be offered. Examination of questions of cultural identity, transnationalism, postmodernity, and intersections between politics and culture in this "Greater China" region. P/NP or letter grading.

160. Chinese Buddhism. (4) Lecture, three hours. Knowledge of Asian languages not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism such as Pure Land and Zen, contributions to Chinese culture.

165. Introduction to Chinese Buddhist Texts. (4) Lecture, three hours. Requisite: course 100A or 110C or Korean 100A or Japanese 100A. Readings in 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.

170. Readings in Chinese Philosophical Texts. (4) Lecture, three hours. Requisite: course 110C. May be repeated for credit with consent of instructor.

175. Introduction to Chinese Thought. (4) Lecture, three hours. Knowledge of Asian languages not required. General survey of indigenous Chinese thought from Chou period to circa 1800, covering Confucianism, Taoism, Mo-tzu, legalists, influence of Buddhism, development of neo-Taoism and neo-Confucianism.

180. Chinese Mythology. (4) Lecture, three hours; outside study, nine hours. Survey of corpus of traditional Chinese mythology in English translation with focus on examples preserved in a variety of early texts, later evolutions in dramatic and fictional works, and evidence from visual arts.

190. Archaeology in China. (4) Lecture, three hours. Early Chinese study of their own past, types of artifacts, beginnings of scientific archaeology, and surveys of major excavations of sites of all periods.

195. Chinese Etymology and Calligraphy. (4) Lecture, three hours. Preparation: one year of classical Chinese. Covers (1) development of the Chinese writing system from the "Pottery Inscriptions" 6,000 years ago to modern "Simplified Forms" and the studies of Six Scripts principles which were used to form Chinese characters and (2) aesthetic training of calligraphic art and its appreciation, with focus on ways of recognizing and interpreting the "Cursive Style," a common form of handwriting.

197B. Undergraduate Seminar: 20th-Century China and Taiwan. (4) Seminar, three hours; outside study, nine hours. Designed for juniors/seniors. Undergraduate seminar on related topics in modern and contemporary literature and culture from China and Taiwan.

Graduate Courses

200. Bibliography and Methods of Research in Chinese. (4) Required of all graduate students in Chinese. Lectures and discussion on research methodologies for dealing with traditional Chinese materials, with emphasis on bibliography training (including most up-to-date indexes in Chinese studies), punctuation practice, knowledge of textual criticism, and rare book editions.

M201. China — Seminar: Classical Historiography and Readings in Classical Studies. (4) (Same as History M281.) Discussion, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents.

205. Methods and Issues in 20th-Century Chinese Literature and Culture. (4) Seminar, three hours; outside study, nine hours. Methodology course for all incoming graduate students in 20th-century Chinese literature and culture. Discussion of major theoretical and textual issues and methods.

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 the relationship between literature and history.

211A-211B. Seminars: Classical Chinese Poetry (4-4). (Formerly numbered 211.) Seminar, three hours; outside study, nine 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 and letter grading.

212. Topics in Chinese Poetry. (4) Readings/discussion, three hours; outside study, nine 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.

220A-220B. Western Theory and Chinese Texts. (4-4) Seminar, three hours; outside study, nine 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 and S/U or letter grading.

230A-230B. Seminars: Selected Topics in Modern Chinese Literature. (4-4) 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.

241A-241B. Heaven, Earth, and Monarchy in Ancient China. (4-4) Seminar, three hours. Preparation: working knowledge of classical Chinese. Close reading of chapters from the Han dynasty collection of writings on the forms of music, social interaction, education, marriage, and mourning in the Zhou royal court, with discussion of topics in recent cultural semiology and anthropology. In Progress grading.

242. Chinese Classics and Exegetical Traditions. (4) Seminar, three hours; outside study, nine hours. Preparation: command of literary Chinese. Reading and discussions of selections from one of the traditional Chinese classics (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.

245A-245B. Seminars: Traditional Chinese Narrative and Drama. (4-4) Seminar, three hours. Preparation: reading knowledge of colloquial and literary Chinese. Seminar topics alternate yearly between traditional narrative and drama, with emphasis on generic, hermeneutical, and historical approaches. Topics in narrative selected from genres from Chou through Ch'ing periods. Topics in drama selected from *tsa-chü* and *ch'uan-ch'i*. May be repeated for credit with consent of instructor. In Progress grading.

250A-250B. Chinese Literary Criticism. (4-4) Seminar, three hours; outside study, nine hours. Issues in production and interpretation of literary works, as formulated by Chinese critics from classical age onward.

265A-265B. Seminars: Chinese Buddhist Texts. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading.

290A-290B. Seminars: Selected Topics in Chinese Archaeology. (4-4) Seminar, three hours. Requisite: course 190. Discussion and research on major problems about Chinese archaeology and different interpretations to the most important archaeological finds, with emphasis on studies of the Xia and Shang cultures and Xia and Shang dynasties. May be repeated for credit. In Progress grading.

295A-295B. Seminars: Selected Topics in Chinese Cultural History. (4-4) Seminar, three hours. Discussion and research on major problems related to Chinese culture, such as beginnings of the Chinese civilization and Chinese dynastic history. Other topics include cultural developments of ancient and medieval China. May be repeated for credit. In Progress grading.

East Asian Languages and Cultures

Lower Division Courses

60. Introduction to Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. General survey of development of Buddhism in India, focusing on those religious doctrines and meditative practices most essential to various Asian traditions of the religion.

61. Introduction to Zen Buddhism. (4) 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.

Upper Division Courses

161. Buddhist Literature in Translation. (4) Readings, three hours. Preparation: prior course on Buddhism or traditional Asian religions. Readings from variety of Buddhist literature of Indic and non-Indic origin, with emphasis on key Buddhist themes and critical issues in cross-cultural interpretations of Asian religious texts.

162. Buddhist Meditation Traditions. (4) Lecture, three hours. 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.

C197. Life Writing in East Asia. (4) Seminar, three hours; outside study, nine 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. Concurrently scheduled with course C297.

199. Special Studies in East Asian Languages and Cultures. (2 to 4) Preparation: advanced reading knowledge of Chinese or Japanese. Required of senior majors. Special individual studies. May be repeated once with consent of instructor.

Graduate Courses

202. Proseminar: Functional Approaches to Japanese/Korean Linguistics. (4) Seminar, four hours; outside study, eight 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.

210. Proseminar: Cultural and Comparative Studies. (4) Seminar, three hours; outside study, nine hours. Designed for graduate students. Introduction to theoretical topics relevant to comparative study of East Asian cultures in the modern period. Readings include Western theoretical works balanced with texts taking congruent approaches to East Asian topics. S/U or letter grading.

220A-220B. Seminars: Topics in Cultural Studies (4 units each). (4) Seminar, three hours; outside study, nine 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 and letter grading.

230A-230B. Seminars: Theoretical Topics in East Asian Literature. (4-4) Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Concerns of literary theory which are brought to the 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.

240A-240B. Seminars: Topics in East Asian Literary History. (4-4) 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, the written and the oral, etc. In Progress grading.

245A-245B. Seminars: Position of Modernity in East Asian Literature. (4-4) Seminar, three hours. Preparation: at least five years of an East Asian language. Designed for graduate students. Course 245A concerned with conceptual architecture and archaeology of modernity, with readings largely from European sources. In-class debate probes relevance of these readings for work as Asianists. Focus on Asian writings in course 245B. In Progress grading.

265A-265B. Seminars: Selected Topics in Buddhist Studies. (4-4) Seminar, three hours. Coverage varies. May be repeated for credit. In Progress grading.

C297. Life Writing in East Asia. (4) Seminar, three hours; outside study, nine 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. Concurrently scheduled with course C197. Additional readings and research required of graduate students.

299. Independent Study (2 to 6). Designed for graduate students. Guided research and writing of a research paper. May be repeated, but only four units may be applied toward M.A. degree. May not be applied toward Ph.D. degree. S/U or letter grading.

301. Teaching an East Asian Language as a Foreign Language. (4) Lecture, four hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495C. Teaching Chinese at College Level. (2 to 4) Seminar, two hours; outside study, 10 hours. Preparation: Chinese language proficiency at advanced level. Study in team-teaching, teaching methodology, developing course and testing materials, teaching of Mandarin pronunciation, grammar, and characters, integrating cultural aspects in Chinese teaching, and comparative analysis between Chinese and English. S/U grading.

495J. Teaching Japanese at College Level. (2 to 4) Preparation: appointment as teaching assistant in Japanese. 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.

495K. Teaching Korean at College Level. (2 to 4) Preparation: appointment as teaching assistant in Korean. 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.

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 4) S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (4 to 8 units). S/U grading.

598. Research for and Preparation of M.A. Thesis. (4 to 8) Maximum of eight units may be applied toward M.A. degree requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 8) S/U grading.

Indic

Upper Division Courses

110A. Elementary Sanskrit. (4) Lecture, three hours. Introduction to script and grammar, with reading exercises and attention to significance of Sanskrit for the understanding of other Indo-European languages.

110B. Intermediate Sanskrit. (4) Lecture, three hours. Requisite: course 110A. Advanced aspects of grammar and reading of literary texts.

110C. Advanced Sanskrit. (4) Lecture, three hours. Requisite: course 110B. Reading of entire *Bhagavadgita* or comparable amount of other Sanskrit literature.

115. Readings in Sanskrit. (4) Lecture, three hours. Requisite: course 110C. Extensive reading in such texts as best serve students' needs.

175. Introduction to Indic Philosophy. (4) Lecture, three hours. Survey of main trends in Indian philosophy from ancient to modern times.

Graduate Courses

M222A-M222B. Vedic. (4-4) (Same as Iranian M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit.

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-234B. Introduction to Panini's Grammar. (4) Lecture, three hours. Requisite: course 110C. Reading of selected passages of the text, with introduction to Panini's technique. S/U or letter grading.

236A-236B. Pali and 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. **236A.** Pali; **236B.** Prakrits.

Japanese

Lower Division Courses

1. Elementary Modern Japanese. (4) 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. Conversation drill based on material covered in class.

2. Elementary Modern Japanese. (4) Lecture, two hours; discussion, three hours. Continuation of course 1.

3. Elementary Modern Japanese. (4) Lecture, two hours; discussion, three hours. Continuation of course 2.

4. Intermediate Modern Japanese. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 3. 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. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 4. Continuation of course 4. P/NP or letter grading.

6. Intermediate Modern Japanese. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 5. Continuation of course 5. P/NP or letter grading.

8. Elementary Japanese: Intensive. (12) Lecture, five hours; discussion, 15 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. Letter grading.

10. Intermediate Modern Japanese: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisites: courses 1, 2, 3. Intensive course equivalent to courses 4, 5, and 6. Readings in modern Japanese, with emphasis on comprehension and structural analysis. Offered in summer only. Letter grading.

15. Intermediate Reading and Writing for Japanese-Heritage Speakers. (4) Lecture, three hours; outside study, nine hours. Designed for intermediate-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 formal aspects of spoken Japanese (polite and honorific/humble forms). P/NP or letter grading.

50. Japanese Civilization. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Survey of development of Japanese culture and its relationship to the Asiatic mainland. P/NP or letter grading.

60. Images of Japan: Humanistic Tradition. (4) Lecture, three hours; outside study, nine hours. Basic introduction to literary heritage of Japan and to its humanistic tradition through exposure to select literary works and to documentary and feature films based on Japan's literary classics. P/NP or letter grading.

90. Japanese Aesthetics and Tea Ceremony. (4) Lecture, three hours. Introduction to Japanese aesthetics in theory and practice, including study of ritual and specific trends in Japanese aesthetics such as imperfection asymmetry, suggestion, miniaturization, indirectness, *wabi*, *sabi*, *hie-kare*, *yugen*, especially as reflected and practiced in the tea ceremony.

Upper Division Courses

100A-100B-100C. Advanced Modern Japanese. (4-4-4) Lecture, two hours; discussion, three hours; outside study, seven hours. Requisite: course 6. 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.

101A-101B. Advanced Readings in Modern Japanese. (4-4) Lecture, two hours; discussion, 90 minutes. Requisite: course 100C. 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.

110. Introduction to Classical Japanese. (4) Lecture, three hours; outside study, nine hours. Requisite: course 100C. Introduction to fundamentals of classical Japanese. Grammar and reading of selected texts.

120. Introduction to Japanese Linguistics. (4) Lecture, three hours. Requisite: course 3. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics.

CM122. Structure of Japanese I. (4) (Same as Linguistics M176A.) Lecture, three hours. Preparation: two years of Japanese. Requisite: course 120. Discussion of many seemingly idiosyncratic characteristics of Japanese syntax and semantics in light of word-order typology and universal grammar, often in form of a contrastive analysis of Japanese and English. Concurrently scheduled with course C222.

CM123. Structure of Japanese II. (4) (Same as Linguistics M176B.) Lecture, three hours. Preparation: two or more years of Japanese language study. Survey of Japanese language at three different levels of organization: (1) word level — word class, verbal morphology and semantics; (2) clause/sentence level — tense, aspect, modality; (3) discourse level — point of view, ellipsis, topicalization. Concurrently scheduled with course C223.

CM127. Contrastive Analysis of Japanese and Korean. (4) (Same as Korean CM127 and Linguistics M178.) Lecture, three hours. Preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM227.

130A-130B-130C. Readings in Modern Japanese Literature (4 units each). (4-4-4) Readings/discussion, three hours. Requisite: course 100C. Readings and discussion of works by modern Japanese writers. Letter grading.

140A-140B-140C. Readings in Classical Japanese Literature. (4) Discussion, three hours; readings/outside study, nine hours. Requisite: course 110. Readings and discussion of works of classical Japanese literature. **140A.** Heian; **140B.** Medieval; **140C.** Edo.

C149. Introduction to Kambun and Other Literary Styles. (4) Lecture, three hours; outside study, nine hours. Requisite: course 140A or 140B. Introduction to Kambun, the Japanese literary rendering of classical Chinese, and Sorobun, the epistolary style. Concurrently scheduled with course C249.

150. Japanese Literature in Translation: Classical. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Japanese not required. Survey of Japanese literature from the beginning to 1600, emphasizing Chinese, Buddhist, and Western influences.

151. Japanese Literature in Translation: Modern. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Japanese not required. Survey of Japanese literature from the 16th century to post-World War II.

154. Postwar Japanese Culture through Literature. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D, 2A, 2B, 2C. Use of fiction and film to explore Japanese culture in postwar era in a broad cross-disciplinary and cross-cultural context. P/NP or letter grading.

155. Topics in Japanese Cinema. (4) Lecture, three hours; film viewing, four hours; outside study, five hours. Critical and historical examination of Japanese cinema. P/NP or letter grading.

C160. Japanese Buddhism. (4) (Formerly numbered 160.) Lecture, three hours; outside study, nine hours. Knowledge of Asian languages not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course C260.

161. Religious Life in Modern Japan. (4) Lecture, three hours. Religious transformations accompanying rapid industrialization, urbanization, militarism, and defeat in the Pacific War, including analyses of Shinto mythology, secular positivism, Buddhist reform movements, new religions, and continuing role of traditional village/family religious rites.

165. Introduction to Japanese Buddhist Texts. (4) Lecture, three hours. Requisite: course 140B or C149 or Chinese 165. Readings in Buddhist texts written by Japanese in literary Chinese, 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.

175. Introduction to Japanese Thought. (4) Lecture, three hours. Knowledge of Asian languages not required. General survey of Japanese thought from early to modern times, including analyses of Shinto mythology, forms of Confucianism, ethic of bushido, National Learning School, and modern Japanese philosophers such as Nishida Kitaro and Watsuji Tetsuro. Attention also to representative types of contemporary thinking about Japanese thought, especially the question of what might qualify as recognizably "Japanese" in aesthetics, ethics, and philosophy.

C180. Readings in Japanese Literary Thought. (4) Discussion, three hours; outside study, nine hours. Requisite: course 110. Reading and translation of commentaries of *monogatari* and *waka* from Heian, Kamakura, Muromachi, and Edo periods. Introduction to Japanese hermeneutics. Concurrently scheduled with course C280.

CM182. Japanese Folklore. (4) (Formerly numbered M182.) (Same as Folklore CM182.) Lecture, three hours; discussion, one hour; outside study, eight hours. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM282. Letter grading.

188. Personalities in Japanese Civilization. (4) (Formerly numbered C197.) Seminar, three hours; outside study, nine hours. Five weeks of introductory lectures and five weeks of student presentations based on instructor-guided student research.

C195. Japanese Aesthetics and Hermeneutics. (4) (Formerly numbered 190.) Lecture, three hours; outside study, nine hours. Requisite: course 50 or 60 or 150 or 151. Introduction to field of modern and pre-modern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. Concurrently scheduled with course C295. P/NP or letter grading.

197A. Undergraduate Seminar: Classical Japan. (4) Seminar, three hours; outside study, nine hours. Selected topics in classical Japanese literature and thought.

C197B. Seminar: Modern Japan. (4) (Formerly numbered 197B.) Seminar, three hours; outside study, nine hours. Selected topics on modern Japan. Concurrently scheduled with course C297B.

Graduate Courses

200. Bibliography and Methods of Research in Japanese. (4) Lecture, three hours. Required of all graduate students in Japanese.

201A-201B. Introduction to Reading Japanese Academic Texts. (4) Lecture, three hours; outside study, nine hours. Requisite: course 100A. 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.

210. Issues in Modern Japanese Literature. (4) Lecture, three hours. Introduction to issues in the field of modern Japanese literature, with readings in primary and secondary sources. Topics vary.

211. No and Kyogen. (4) Lecture, three hours. Preparation: one year of classical Japanese. Readings of selected No and Kyogen texts from Muromachi and Edo periods, as well as readings of critical writings and discussion of theories. May be repeated for credit with consent of instructor.

212. Kyoto through Classical Japanese Literature. (4) Discussion, three hours. Preparation: knowledge of Japanese. Investigation of history and life of the city as seen through Japanese literature.

C222. Structure of Japanese I. (4) Lecture, three hours. Preparation: two years of Japanese. Requisite: course 120. Discussion of many seemingly idiosyncratic characteristics of Japanese syntax and semantics in light of word-order typology and universal grammar, often in form of a contrastive analysis of Japanese and English. Concurrently scheduled with course CM122.

C223. Structure of Japanese II. (4) Lecture, three hours. Preparation: two or more years of Japanese language study. Survey of Japanese language at three different levels of organization: (1) word level — word class, verbal morphology and semantics; (2) clause/sentence level — tense, aspect, modality; (3) discourse level — point of view, ellipsis, topicalization. Concurrently scheduled with course CM123.

224A-224B. Seminars: 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.

225A-225B. Seminars: Linguistic Analysis of Japanese Narratives. (4) Seminar, three hours. Requisite: course CM122. Analysis of selected modern and classical Japanese narratives. Emphasis on exploration of how grammatical features such as tense, aspect, voice, and point of view are utilized to achieve desired literary effects. May be repeated for credit with consent of instructor. In Progress grading.

226. Survey of Functional Linguistics. (4) Lecture, four hours; outside study, eight hours. Survey of recent empirical and theoretical research in several areas of functional linguistics, which 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. Preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM127.

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.

235A-235B. Seminars: Selected Topics in Modern Japanese Fiction. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading.

240A-240B. Seminars: Selected Topics in Japanese Literature. (4-4) Seminar, three hours. May be repeated for credit. In Progress grading.

241A-241B. Seminars: Japanese Classics. (4-4) Seminar, three hours. Prose and poetry from early times to 1868. May be repeated for credit with consent of instructor. In Progress grading.

245A-245B. Seminars: Medieval Japanese Literature. (4-4) 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.

C249. Introduction to Kambun and Other Literary Styles. (4) Lecture, three hours; outside study, nine hours. Requisite: course 140A or 140B. Introduction to Kambun, the Japanese literary rendering of classical Chinese, and Sorobun, the epistolary style. Concurrently scheduled with course C149. Graduate students cover more text and submit one additional translation.

C260. Japanese Buddhism. (4) Lecture, three hours; outside study, nine hours. Knowledge of Asian languages not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course C160. Graduate students read additional texts and submit one additional written assignment.

265A-265B. Seminars: Japanese Buddhist Texts. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading.

M270A-M270B. Seminars: Japanese Ritual Arts. (4-4) (Same as Folklore M270A-M270B.) 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.

M276. Reading Modern Bodies. (4) (Same as Comparative Literature M276.) Seminar, three hours; outside study, nine 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.

C280. Readings in Japanese Literary Thought. (4) Discussion, three hours; outside study, nine hours. Requisite: course 110. Reading and translation of commentaries of *monogatari* and *waka* from Heian, Kamakura, Muromachi, and Edo periods. Introduction to Japanese hermeneutics. Concurrently scheduled with course C180. Additional translations required of graduate students.

CM282. Japanese Folklore. (4) (Same as Folklore CM282.) Lecture, three hours; discussion, one hour; outside study, eight hours. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM182. Letter grading.

290A-290B. Seminars: Japanese Philosophy of Art. (4-4) Seminar, three hours. Preparation: reading knowledge of Japanese. Requisite: course 110. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. In Progress grading.

C295. Japanese Aesthetics and Hermeneutics. (4) Lecture, three hours; outside study, nine hours. Preparation: one Japanese culture course, working knowledge of Japanese. Introduction to field of modern and premodern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. Concurrently scheduled with course C195. Additional research required for graduate term paper, incorporating primary sources. S/U or letter grading.

C297B. Seminar: Modern Japan. (4) Seminar, three hours; outside study, nine hours. Selected topics in modern Japan. Graduate students to be assigned additional readings and write seminar papers based on research in their own disciplinary areas. Concurrently scheduled with course C197B.

Korean

Lower Division Courses

1. Elementary Modern Korean. (4) Lecture, two hours; discussion, three hours. Not open to students who, from whatever source, already know the language. Introduction to standard spoken Korean and Korean writing, with emphasis on conversation.

1A. Elementary Korean for Korean-Heritage Speakers. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Designed for Korean-heritage learners who have very limited knowledge in the Korean language or have had no formal instruction in the language. Emphasis on spelling, basic grammar, reading, writing, and daily conversation. P/NP or letter grading.

2. Elementary Modern Korean. (4) Lecture, two hours; discussion, three hours. Continuation of course 1.

2A. Elementary Korean for Korean-Heritage Speakers. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 1A. Designed for students who are from a Korean-speaking family background and have some limited knowledge of Korean. 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. (4) Lecture, two hours; discussion, three hours. Continuation of course 2.

3A. Elementary Korean for Korean-Heritage Speakers. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 2A. Continuation of course 2A. P/NP or letter grading.

4. Intermediate Modern Korean. (4) Lecture, two hours; discussion, three hours. Enforced requisite: course 3. Continuation of course 3. Conversation, composition, and readings with structural analysis in modern Korean.

4A. Intermediate Korean for Korean Speakers. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 3A. Not open to students who attended elementary Korean school in Korea for more than one year. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). P/NP or letter grading.

5. Intermediate Modern Korean. (4) Lecture, two hours; discussion, three hours. Enforced requisite: course 3. Continuation of course 4.

5A. Intermediate Korean for Korean Speakers. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 4A. Not open to students who attended elementary Korean school in Korea for more than one year. 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. (4) Lecture, two hours; discussion, three hours. Enforced requisite: course 3. Continuation of course 5.

6A. Intermediate Korean for Korean Speakers. (4) Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 5A. Not open to students who attended elementary Korean school in Korea for more than one year. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). P/NP or letter grading.

8. Elementary Korean: Intensive. (12) 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. Letter grading.

10. Intermediate Modern Korean: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisites: courses 1, 2, 3. Intensive course equivalent to courses 4, 5, and 6. Conversation, composition, and readings with structural analysis in modern Korean. Offered in summer only. Letter grading.

50. Korean Civilization. (4) 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.

Upper Division Courses

100A-100B-100C. Advanced Modern Korean. (4) Lecture, two hours; discussion, three hours. Requisite: course 6. Course 100A is requisite to 100B, which is requisite to 100C. Continuation of course 6. Readings of modern prose and poetry, with emphasis on grammar and Sino-Korean. P/NP (undergraduates), S/U (graduates), or letter grading.

101A-101B-101C. Advanced Readings in Modern Korean. (4) Lecture, three hours. Requisite: course 100C. Course 101A is requisite to 101B, which is 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.

102A-102B-102C. Advanced Korean Conversation. (3-3-3) Discussion, three hours; outside study, six hours. Requisite: course 20C. Course 102A is requisite to 102B, which is requisite to 102C. Courses 100A-100B-100C or 101A-101B-101C may be taken concurrently. Not open to students who have attended elementary school in Korea for more than two years. Reading and discussion of modern Korean authors, designed to further improve spoken proficiency. P/NP or letter grading.

C105A-C105B-C105C. Reading Korean Academic Texts. (4-4-4) Lecture, three hours; outside study, nine hours. Requisite: course 101C. Intended to improve reading skills for students who have studied Korean to an advanced level, with coverage in Korean of materials on modern Korean history, culture, and society. Each course may be taken independently for credit. Concurrently scheduled with courses C205A-C205B-C205C. P/NP or letter grading.

CM120. Structure of Korean. (4) (Same as Linguistics M177.) Lecture, three hours. 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.

CM127. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM127 and Linguistics M178.) Lecture, three hours. Preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM227.

130A-130B. Readings in Modern Korean Literature. (4-4) Readings/discussion, three hours. Requisite: course 101A. Readings and discussion of major modern Korean literary texts.

150. Korean Literature in Translation: Classical. (4) Lecture, three hours. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Korean not required. Survey of Korean literature from the beginning to the 19th century, with all readings from English translations.

151. Korean Literature in Translation: Modern. (4) Lecture, three hours. Requisite: English Composition 3 or one course from Comparative Literature 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Korean not required. Survey of Korean literature of the 20th century, with all readings from English translations.

155. Topics in Korean Cinema. (4) Lecture, three hours; film viewing, four hours; outside study, five hours. Historical and critical survey of Korean cinema, examining intersection between 20th-century Korean history, politics, and filmmaking. P/NP or letter grading.

160. Korean Buddhism. (4) Lecture, three hours. Knowledge of Asian languages 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.

165. Introduction to Korean Buddhist Texts. (4) Lecture, three hours. Requisites: course 100A and/or Chinese 110C. Introduction to reading 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.

175. Introduction to Traditional Korean Thought. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. General survey of Korean thought from the earliest records to the 20th century, including shamanism, Taoism, Buddhism, Christianity, and neo-Confucianism. Korean traditions and those found in India, China, Japan, and the West.

176. Introduction to Korean Confucian Texts. (4) Lecture, three hours. Requisite: course 100C. Reading in 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.

177. Introduction to Modern Korean Thought. (4) Lecture, two hours; discussion, one hour; outside study, nine hours. Requisite: course 50. Survey of Korean thought in the 20th century, including religious thought, political thought, feminism, nationalism, and economic thinking and practice.

180A-180B-180C. Cultural History of Korea. (4) Lecture, three hours; discussion, one hour. Requisite: course 50. Examination of evolution of Korean culture and society within context of political and institutional industry. Consideration of both higher and popular culture. **180A.** Through 1259; **180B.** 1260 through 1876; **180C.** Since 1876.

M183. Korean Folklore. (4) (Same as Folklore M183.) Lecture, three hours. 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.

187. Popular and Folk Religion in Korea. (4) Lecture, three hours; outside study, nine hours. 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.

197A. Seminar: Traditional Korea. (4) Seminar, three hours; outside study, nine hours. Selected issues of interpretation in Korean history from earliest times through the mid-19th century. Coverage varies from term to term and includes such topics as state formation, international relations, or "sprouts of capitalism" thesis.

197B. Seminar: Contemporary Korean Society and Culture. (4) Seminar, three hours; outside study, nine hours. Requisite: course 177 or 180C. Selected topics in modern Korean history.

Graduate Courses

200. Bibliography and Methods of Research in Korean. (4) Lecture, three hours. Preparation: reading knowledge of Korean and Chinese. Designed for graduate students. 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.

C205A-C205B-C205C. Reading Korean Academic Texts. (4-4-4) Lecture, three hours; outside study, nine hours. Requisite: course 101C. Intended to improve reading skills for students who have studied Korean to an advanced level, with coverage in Korean of materials on modern Korean history, culture, and society. Each course may be taken independently for credit. Concurrently scheduled with courses C105A-C105B-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 the rise of neo-Confucianism in the 14th century to the 20th century.

211. Thought and Society in Modern Korea. (4) Discussion, three hours; outside study, nine 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 the Korean War.

215. Korean Literary History. (4) Seminar, three hours; outside study, nine 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 a nationalist canon that governs literary studies in Korea and the West. Letter grading.

C220. Structure of Korean. (4) Lecture, three hours. Preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Linguistic analysis of Korean for those who concentrate on Korean language. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals. Concurrently scheduled with course CM120.

CM227. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM227.) Lecture, three hours. Preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM127.

230A-230B. Seminars: 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.

235A-235B. Seminars: 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 a 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.

240A-240B. Seminars: Classical Korean Fiction. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Formal and thematic study of tales of the marvelous, romance, satirical stories, diaries, and *p'ansori* fiction. Status of fiction in society and culture, fiction as imaginative representation of the writer's relationship to real conditions of existence. Latest Western theory of narratology applied in analysis. In Progress grading.

245A-245B. Seminars: Classical Korean Poetry. (4-4) 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.

265A-265B. Seminars: Korean Buddhist Texts. (4-4) Seminar, three hours. Selected topics in Korean Buddhist texts. Coverage varies. In Progress grading.

295A-295B. Seminars: Topics in Traditional Korean Cultural History. (4-4) Seminar, three hours; outside study, nine 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 the West in Eastern learning and enlightenment movements of the 19th century. May be repeated for credit. In Progress grading.

296A-296B. Seminars: Topics in Modern Korean Cultural History. (4-4) Seminar, three hours; outside study, nine hours. Preparation: reading knowledge of Korean. Designed for graduate students. Graduate research seminar on selected topics in modern Korean history. In Progress grading.

Related Courses

Art History

- 114A. Early Art of India
- 114C. Japanese Art
- 114D. Later Art of India
- 114E. Arts of Korea
- 114F. Arts of Southeast Asia
- C115A. Advanced Indian Art
- C115B. Advanced Chinese Art
- C115C. Advanced Japanese Art
- C115D. Art and Material Culture, Neolithic to 210 B.C.
- C115E. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906
- C115F. Art and Material Culture of Late Imperial China, 906 to 1911
- 260A. Indian Art
- 260B. Chinese Art
- 260C. Japanese Art

Education

- 253C. Seminar: Asian Education

English

- 95A. Introduction to Poetry
- 140A. Criticism: History and Theory
- 140B. Criticism: Special Topics
- 201A. Criticism and Interpretation from Classical Era to the Renaissance

Ethnomusicology

- 91D. Music of China
- 91G. Music of Japan
- 91J. Music of Korea
- C156A-156B. Music in China

157. History of Chinese Opera
 158A-158B-158C. Studies in Chinese Instrumental Music
 160A. Survey of Music in Japan
 160B. Studies in Japanese Court Music

Geography

186. Contemporary China
 286. Geography of Contemporary China

History

- 182A-182B. Thought and Society in China
 183A. Culture and Power in Late Imperial China
 183B. Society and Economy in China since 1500
 184. 20th-Century China
 187A-187B-187C. Japanese History
 188A. Early History of India
 200L. Advanced Historiography: China
 200M. Advanced Historiography: Japan
 200P. Advanced Historiography: History of Religions
 201L. Topics in History: China
 201M. Topics in History: Japan
 201P. Topics in History: History of Religions
 282A-282B. Seminars: Chinese History
 285A-285B. Seminars: Japanese History
 293A-293B. Seminars: History of Religions

Law

278. Comparative Law: Japanese Law and Society

Linguistics

103. Introduction to General Phonetics
 120A. Phonology I
 120B. Syntax I
 220. Linguistic Areas
 225H. Linguistic Structures: Japanese
 225P. Linguistic Structures: Chinese

Political Science

135. International Relations of China
 136. International Relations of Japan
 159A-159B. Government and Politics of China
 160. Government and Politics of Japan
 C242. Chinese and East Asian Politics
 C243. Japanese and Western Pacific Politics

Sociology

188. Comparative East Asian Societies before World War II
 276. Selected Topics in Sociology of East Asia

- Theodore D. Hutters, Ph.D. (*East Asian Languages and Cultures*)
 Peter H. Lee, Ph.D. (*East Asian Languages and Cultures*)
 Michele F. Marra Ph.D. (*East Asian Languages and Cultures*)
 Donald F. McCallum, Ph.D. (*Art History*)
 Fred G. Notehelfer, Ph.D. (*History*)
 Herman Ooms, Ph.D. (*History*)
 Herbert E. Plutschow, Ph.D. (*East Asian Languages and Cultures*)
 Carol Fisher Sorgenfrei, Ph.D. (*Theater*)
 Richard E. Strassberg, Ph.D. (*East Asian Languages and Cultures*)
 Richard von Glahn, Ph.D. (*History*)
 Pauline R. Yu, Ph.D. (*East Asian Languages and Cultures*)
 Lynne G. Zucker, Ph.D. (*Sociology*)

Associate Professors

- Kathryn Bernhardt, Ph.D. (*History*)
 William M. Bodiford, Ph.D. (*East Asian Languages and Cultures*)
 Hung-hsiang Chou, Ph.D. (*East Asian Languages and Cultures*)
 John B. Duncan, Ph.D. (*East Asian Languages and Cultures*)
 Chi-Fun Cindy Fan, Ph.D. (*Geography*)
 Shoichi Iwasaki, Ph.D. (*East Asian Languages and Cultures*)
 Miriam Silverberg, Ph.D. (*History*)
 James Tong, Ph.D. (*Political Science*)
 Lothar von Falkenhausen, Ph.D. (*Art History*)

Assistant Professors

- Michael K. Bourdaghs, Ph.D. (*East Asian Languages and Cultures*)
 Henry H. Em, Ph.D. (*East Asian Languages and Cultures*)
 Seiji M. Lippit, Ph.D. (*East Asian Languages and Cultures*)
 Joshua S.S. Muldavin, Ph.D. (*Geography*)
 Kyeyoung Park, Ph.D. (*Anthropology*)
 David C. Schaberg, Ph.D. (*East Asian Languages and Cultures*)
 Shu-mei Shih, Ph.D. (*East Asian Languages and Cultures*)
 Gi-Wook Shin, Ph.D. (*Sociology*)
 Sung-Ock Sohn, Ph.D. (*East Asian Languages and Cultures*)
 Mariko Tamanoi, Ph.D. (*Anthropology*)
 Timothy R. Tangherlini, Ph.D. (*East Asian Languages and Cultures*)
 Helen Rees, Ph.D. (*Ethnomusicology*)
 Michael F. Thies, Ph.D. (*Political Science*)

Lecturers

- Tsun Y. Lui, *Emeritus* (*Ethnomusicology*)
 Ikuko Yuge, B.A. (*Ethnomusicology*)

Scope and Objectives

The East Asian Studies major is an area studies program of the East Asian region which is divided into three areas of concentration — China, Japan, and Korea. It offers a social science approach, combined with language study and work in the humanities.

Undergraduate Study

East Asian Studies B.A.

Two years of language and a total of 13 upper division courses, including courses in the social sciences, culture, and language, must be taken for graduation. Students must take a minimum of nine courses in the area of their choice. The remainder must be taken in another area of concentration within the major. No more than eight courses may be from a sin-

gle department. Students should select the courses from the lists below. Courses on East Asia not listed below, offered only on a temporary basis, may also be applied toward the major. At the discretion of the adviser, students may be advised to take theory classes applicable to the major requirements. Courses marked with an asterisk are those on East Asia in general.

China Concentration

Preparation for the Major

Required: Chinese 1, 2, 3, 4, 5, 6, History 11A-11B, Sociology 1.

The Major

Required: A minimum of nine courses selected from Art History C115B, C115D, C115E, C115F, Chinese 150A, 150B, 151, 160, 175, 190, and up to three upper division language courses or equivalent, East Asian Languages and Cultures 161, 162, Economics *190, *191, *192, Ethnomusicology C156A, 156B, 157, 158A, 158B, 158C, Geography 186, History 182A, 182B, 183A, 183B, 184, Political Science 135, 159A, 159B, Sociology *188, and a 199 special studies course in Chinese or in any social sciences or humanities department.

Japan Concentration

Preparation for the Major

Required: History 9C, Japanese 1, 2, 3, 4, 5, 6, Sociology 1.

The Major

Required: A minimum of nine courses selected from Anthropology 175S, Art History 114C, C115C, East Asian Languages and Cultures 161, 162, Economics *190, *191, *192, Ethnomusicology 160A, 160B, History 185, 186, 187A, 187B, 187C, Japanese 60, 150, 151, C160, 175, CM182, C195, and up to three upper division language courses or equivalent, Political Science 136, 160, Sociology *188, 189, Theater 102A, and a 199 special studies course in Japanese or in any social sciences or humanities department.

Korea Concentration

Preparation for the Major

Required: Korean 1, 2, 3, 4, 5, 6, 50, Sociology 1.

The Major

Required: A minimum of nine courses selected from Anthropology 175V, Art History 114E, East Asian Languages and Cultures 161, 162, Economics *190, *191, *192, Korean 150, 151, 160, 175, 180A, 180B, 180C, and three upper division language courses or equivalent, Sociology *188, Theater *102E, and a 199 special studies course in Korean or in any social sciences or humanities department.

EAST ASIAN STUDIES

*Interdepartmental Program
 College of Letters and Science*

UCLA
 290 Royce Hall
 Box 951540
 Los Angeles, CA 90095-1540

(310) 206-8235
<http://www.humnet.ucla.edu/humnet/ealc/>

Richard E. Strassberg, Ph.D., *Administrative Director*

Professors

- Noriko Akatsuka, Ph.D. (*East Asian Languages and Cultures*)
 Richard D. Baum, Ph.D. (*Political Science*)
 Robert E. Buswell, Ph.D. (*East Asian Languages and Cultures*)
 Lucie C. Cheng, Ph.D. (*Sociology*)
 Benjamin A. Elman, Ph.D. (*History*)
 Philip C. Huang, Ph.D. (*History*)

ECONOMICS

College of Letters and Science

UCLA
2263 Bunche Hall
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Los Angeles, CA 90095-1477
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Bryan C. Ellickson, Ph.D., *Chair*
Gary D. Hansen, Ph.D., *Vice Chair*
Jean-Laurent Rosenthal, Ph.D., *Vice Chair*

Professors

Costas Azariadis, Ph.D.
Trudy Cameron, Ph.D.
Janet Currie, Ph.D.
Sebastian Edwards, Ph.D. (*Henry Ford II Professor of International Management*)
Bryan C. Ellickson, Ph.D.
Roger E. Farmer, Ph.D.
Gary D. Hansen, Ph.D.
Arnold C. Harberger, Ph.D.
V. Joseph Hotz, Ph.D.
Guido Imbens, Ph.D.
Benjamin Klein, Ph.D.
Deepak K. Lal, D.Phil. (*James S. Coleman Professor of International Development Studies*)
Naomi Lamoreaux, Ph.D.
Edward E. Leamer, Ph.D. (*Chauncey J. Medberry Professor of Management*)
David K. Levine, Ph.D. (*Armen Alchian Professor of Economic Theory*)
Joseph M. Ostroy, Ph.D.
John G. Riley, Ph.D.
Jean-Laurent Rosenthal, Ph.D.
Lloyd S. Shapley, Ph.D.
Kenneth L. Sokoloff, Ph.D.
Duncan Thomas, Ph.D.
Earl A. Thompson, Ph.D.
William R. Zame, Ph.D.

Professors Emeriti

Armen A. Alchian, Ph.D.
William R. Allen, Ph.D.
Masanao Aoki, Ph.D.
Robert W. Clower, D.Litt.
Harold Demsetz, Ph.D.
George W. Hilton, Ph.D.
Werner Z. Hirsch, Ph.D.
Jack Hirshleifer, Ph.D.
Michael D. Intriligator, Ph.D.
Axel Leijonhufvud, Ph.D.
John J. McCall, Ph.D.
George G.S. Murphy, Ph.D.
Harold M. Somers, Ph.D., LL.B.

Associate Professors

Sule Ozler, Ph.D.
Carlos Vegh, Ph.D.

Assistant Professors

Patrick Asea, Ph.D.
Hongbin Cai, Ph.D.
Paul J. Devereux, Ph.D.
Mark Dwyer, Ph.D.
Keisuke Hirano, Ph.D.
Wei-Yin Hu, Ph.D.
Thomas Hubbard, Ph.D.
Dean R. Hyslop, Ph.D.
Amartya Lahiri, Ph.D.
Luisa Lambertini, Ph.D.
Phillip Leslie, M.A.
Kathleen McGarry, Ph.D.
Hilary Sigman, Ph.D.
Aaron Yelowitz, Ph.D.

Scope and Objectives

The economics undergraduate program is designed for students who wish to gain a thor-

ough understanding of both empirical and theoretical approaches to economics. Emphasis is on economic principles applied to resolving interpersonal conflicts of interest and coordinating productive activity in a world of scarce resources. Because students must gain a thorough theoretical and technical competence before extensive study of the applied specializations in the discipline, the analytic core of the major in Economics is closely structured. Some courses are appropriate for nonmajors, but the curriculum is most suitable for students who wish to make the study of economics the primary focus in their undergraduate education.

The undergraduate major provides analytical training in reference to socioeconomic phenomena and provides an excellent theoretical background for those pursuing graduate education in economics, law, management, public administration, journalism, social welfare, architecture and urban planning, and education.

The graduate program is designed primarily for students pursuing the Ph.D. degree. The doctorate is awarded to those students who have achieved the level of study and training required for a professional economist. The degree recognizes students' ability to make scholarly contributions in their fields of specialization and to undertake advanced research in those areas.

Undergraduate Study

Economics B.A.

Preeconomics Major

While students are completing the lower division preparation courses for the major, they may be classified as Preeconomics majors and are eligible to apply for the major once they have completed the preparation courses and at least one 12-unit term in residence at UCLA. Application for the major should be filed at the undergraduate counselor's office in 2253 Bunche Hall by the time students attain 135 quarter units.

Preparation for the Major

Required: Economics 1, 2, 11, M40 (or Statistics M11); English 4 or English Composition 100 or 129B; Mathematics 31A, and 31B or 31E. All courses must be taken for a letter grade. A 2.0 (C) grade is required in each pre-major course. To enter the major, students must have a minimum 2.5 grade-point average in the economics and mathematics preparation courses and a GPA of at least 2.0 in any upper division courses taken for the major before applying.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major. Transfer credit for any of the above is subject to department approval; consult the undergraduate counselor before enrolling in any courses for the major.

The Major

Required: Nine upper division courses in economics which must include Economics 101, 102, and one course from at least three different fields in economics selected from the major fields list below. All courses must be taken for a letter grade. Economics 100, 110, and 190 may not be included among the nine upper division courses. One or two of the nine courses may be selected from Management 120A, 120B, 130A, 130B, and/or 133.

To graduate, students must have at least a 2.0 grade-point average in their upper division major courses, with grades of C– or better in Economics 101 and 102. All upper division courses for the major must be taken for a letter grade. Transfer credit is subject to department approval; consult the undergraduate counselor before enrolling in any courses for the major.

Major Fields

Economic theory (courses 101, 102, 103A–103Z, 104, 105AH, 105BH, 107); economic development (courses 111, 112); regional economics (course 120); public finance (courses 130, 133, M135, M136); statistics, mathematical economics, and econometrics (courses 142, 143, 144, 145, 146, 147A, 147B, 148); labor economics (courses 150, 151, 152); money and banking (courses 160, 161); government and industry (courses 170, 171, 172, 173, 174, 175, 176, 177); economic institutions (courses 180, 181A, 181B, 182, 183, 184); international economics (courses 191, 192).

Economics B.A./Applied Economics M.S. Dual Program

An intercampus dual degree program has been established between UCLA and UC Santa Cruz which allows students to obtain a B.A. in Economics from UCLA and an M.S. in Applied Economics from UC Santa Cruz in five years. Consult the economics undergraduate counselor for additional information.

Business Economics B.A.

The B.A. program offers a major for students seeking a business orientation in their study of economics. It does not replicate the traditional undergraduate business school curriculum. Instead, it offers a more tightly focused curriculum that is guided by the rigorous logic and integrative perspective of economics. It is designed to prepare students for graduate education in business, economics, and law. The program requires students to include specific courses offered by the department and the John E. Anderson Graduate School of Management (see The Major).

Admission

Enrollment in the program is limited. Applications for admission are handled exclusively by the Department of Economics. To apply, students must have completed at least 72 quarter units (but no more than 135 quarter units), one

12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major. In addition, they must (1) be enrolled in UCLA regular session at the time of application, (2) have a 2.0 (C) minimum grade in each preparation course, (3) have a 3.0 (B) overall average in all preparation courses except English, and (4) have a 2.0 (C) grade-point average in their upper division courses taken for the major before applying (Economics 101 applies on the major preparation grade-point average).

Note: The requisite grade-point averages plus completion of the preparation for the major courses do not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration. Students must petition to enter the major at the undergraduate counselor's office in 2250B or 2253 Bunche Hall.

Prebusiness Economics Major

While students are completing the preparation courses for the major, they may be classified as Prebusiness Economics majors. (Transfer students who wish to enter UCLA as Prebusiness Economics majors must meet the admission screening requirements. For information, contact the Office of Undergraduate Admissions and Relations with Schools.)

Preparation for the Major

Required: Economics 1, 2, 11, M40 (or Statistics M11), 101; English 4 or English Composition 100 or 129B; Management 1A-1B; Mathematics 31A, and 31B or 31E. All courses must be taken for a letter grade.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major. Transfer credit for any of the above is subject to department approval.

The Major

Required: Economics 102 and at least two courses from 104, 173, 174, 177, 184; four other upper division courses in economics in at least two different fields (no more than two may be taken in the government and industry field); four upper division courses from Management 108, 120A, 120B, 122, 123, 124, 127A, 130A, 130B, 133, 140, 175. Transfer credit for any of the major courses is subject to department approval. Consult the undergraduate counselor before enrolling in any courses for the major.

All upper division major courses must be taken for a letter grade. To graduate, students must have at least a 2.0 grade-point average in their upper division major courses, with at least a C– in each course. (Economics 101 applies on the preparation for the major, therefore requiring a minimum grade of C.)

Economics/International Area Studies B.A.

The B.A. program is for students who wish to attain specialized knowledge of a particular geographical area in addition to the economics

analysis provided by the major. It should be useful to those who plan careers in international business or government service. The department encourages participation in the University of California Education Abroad Program or other recognized international study programs. Experience in foreign firms or institutions would be an advantage but yields no academic unit credit toward the major.

Admission

Qualified students must apply for the major through the undergraduate counselor in 2253 Bunche Hall. To apply, students must have completed at least 72 quarter units (but no more than 135 units), one 12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major (except for the second year of foreign language). In addition, they must be enrolled in UCLA regular session at the time of application. All courses must be completed for a letter grade. A minimum 2.0 (C) grade is required in each premajor course, with a combined 3.0 GPA in the economics and mathematics courses. Students must also have a 2.0 (C) grade-point average in their upper division courses taken for the major before applying. Language course preparation need not be completed at the time of admission but must be completed before preparing the research paper required in Economics 193. The program as a whole must be approved by the Economics Department counselor before students are admitted to the major.

Preeconomics/International Area Studies Major

While students are completing the preparation courses for the major, they may be classified as Preeconomics/International Area Studies majors.

Preparation for the Major

Required: Economics 1, 2, 11, M40 (or Statistics M11), 101, 102; Mathematics 31A, and 31B or 31E. Students also must complete at least the first year (or equivalent) of the two required years of a modern foreign language which is spoken in the geographical area of their major concentration.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major. Transfer credit for any of the above is subject to department approval; consult the undergraduate counselor before enrolling in any courses for the major.

The Major

Required: A total of 12 upper division courses selected from economics and the approved noneconomics courses listed below for the concentration. Eight economics courses are required, including Economics 191, 192, 193, and five economics courses from at least two different fields (selected from the major fields listed under the Economics major). Economics 101 and 102 (which are required for the premajor) cannot be used to satisfy this require-

ment. The four remaining upper division courses are social sciences courses related to the concentration and must be chosen from the approved courses listed below. Students are required to include selections from at least two different departments. Economics 193 must be completed in the last year before graduation and includes the preparation of a research paper on the economy of the country or region of the concentration. In addition, students must show two-year proficiency (or equivalent) in a modern foreign language related to their concentration. The noneconomics courses, the research paper, and the language learned must show consistency of purpose.

One or two courses from Management 120A, 120B, 130A, 130B, 133 may be substituted for one or two of the economics electives.

To graduate in the major, students must achieve a minimum 2.0 grade-point average for both economics and noneconomics courses, with a grade of C– or better in each course.

Major Concentrations

When students declare the major, they must also select a concentration that includes a geographical area where the foreign language they have taken is spoken. They must complete four of the approved noneconomics courses listed, including courses from at least two different departments. Students may not use courses that are not on their concentration list unless they have petitioned and received approval in advance. Consult the undergraduate counselor in 2253 Bunche Hall about the petition process.

East Asia

Languages: Chinese, Japanese, Korean

Approved Noneconomics Courses: Anthropology 175S, 175T, Chinese 175, Geography 186, History 182A, 182B, 183A, 183B, 184, 185, 187A, 187B, 187C, 190A, 190B, Japanese 175, Korean 175, 180A, 180B, 180C, Political Science 135, 136, 159A, 159B, 160, Sociology M153, 188, 189

Europe

Languages: French, German, Italian, Portuguese, Spanish

Approved Noneconomics Courses: French 109, 130B, 132, Geography 183, German 100A, 100B, 100C, History 117A, 124A, 124B, 125A, 125C through 125F, 126A through 126F, 128A, 128B, 128C, 129A, 129B, 129C, 130, 132A, 132B, 133A, 133B, 134A, 134B, 141A, 141B, 141C, 142A, 142B, Italian 102B, Political Science 127A, 152A, 152B, 152C, 153A, 153B, 155, 156B

Latin America

Languages: Portuguese, Spanish

Approved Noneconomics Courses: Geography 181, 182A, 182B, History 165A, 166, 167A through 167D, 168, 170A, 171, 172, 173, 174, Political Science 130, 131, 154A, 154B, Sociology 186

Middle East

Languages: Arabic, Hebrew, Persian, Turkish

Approved Noneconomics Courses: Geography 187, History 106C, 107B, 108A, 110B, 111B, Jewish Studies 142, Political Science 132A, 157, Sociology 187, Turkic Languages 180

Former Soviet Union

Languages: Armenian, Russian

Approved Noneconomics Courses: Geography 184, History 112A, 112B, 112C, 113, 124A, 124B, 131A through 131D, Political Science 128A, 128B, 156A, Turkic Languages 180

Individual Concentration

Language, geographical area, and noneconomics courses to be approved in advance by the economics/international area studies faculty adviser

Mathematics/Economics B.S.

See the Mathematics/Economics listing for a description of the major.

Honors Program

The departmental honors program is open to majors in Economics, Business Economics, and Economics/International Area Studies who have a cumulative grade-point average of at least 3.5 in all courses taken at UCLA prior to application.

To qualify for departmental honors at graduation, students must (1) select at least seven of the required upper division economics courses from the approved list designated for departmental honors, (2) complete a senior thesis acceptable to the departmental honors committee, (3) present the thesis in Economics 195H, and (4) complete the major requirements with at least a 3.5 grade-point average in the economics courses. Highest honors are awarded at the discretion of the departmental honors committee based on grade-point average and quality of the senior thesis.

Economics 195H and 199, the courses used for thesis preparation, may be counted as upper division courses toward the field in which the thesis is written (for purposes of satisfying the requirements for the major). Further information and application forms are available from the undergraduate counselor in 2253 Bunche Hall.

Computing Specialization

Majors in Economics, Business Economics, and Economics/International Area Studies may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, Mathematics 61, and two courses from Program in Computing 10C, 15, 30, 60, and (3) completing at least two courses from Economics 104, 143, 144, 145, 146, 147A, 147B, 199, with the additional provision that the courses taken must make substantial use of computers. A grade of C- or better is required in each course, with a combined grade-point average of at least 2.0. Stu-

dents graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The department does not accept students whose sole objective is the Master of Arts degree in Economics.

Areas of Study

Economic theory; econometrics; information and uncertainty; mathematical economics; monetary theory; economic history; public finance; labor economics; industrial organization; international economics; and development economics.

Course Requirements

The department requires nine upper division and graduate-level courses in economics completed while in graduate status at UCLA for the Master of Arts degree in Economics. At least seven of the nine courses must be graduate-level courses in the Economics Department, one of which must be either Economics 207 or 241 or 242. Each course must be completed with a grade of B or better.

With prior approval of the vice chair for graduate affairs, students may offer a maximum of two courses from outside the department. However, these may not substitute for the seven graduate-level economics courses required.

With the prior approval of the vice chair for graduate affairs, four units of Economics 596 may be applied toward the total course requirement and the minimum graduate course requirement.

Comprehensive Examination Plan

In addition to the course requirements, candidates for the M.A. degree must satisfactorily complete a written comprehensive examination requirement that involves passing two examinations. The requirement may be fulfilled by one of the following:

- (1) Master's-level (M) passes in comprehensive examinations for two of the three first-year sequences and a grade of B or better in all three courses in the remaining sequence.
- (2) Master's-level (M) passes in the comprehensive examination for one of the three first-year sequences and in one doctoral field examination.

(3) Master's-level (M) passes in two doctoral field examinations.

Examinations are graded H (Ph.D. honors pass), P (Ph.D. pass), M (M.A. pass), or F (fail).

Thesis Plan

None.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Economics must satisfy the University minimum requirements. It is strongly recommended that applicants have undergraduate training in economics, mathematics, and statistics. Applicants must also submit a full record of prior university experience, three letters of reference, and scores on the Graduate Record Examination (GRE) General Test. International applicants must also submit scores for the Test of English as a Foreign Language (TOEFL).

The department admits students only for the Fall Quarter of each academic year. The deadline for submitting the *Application for Graduate Admission* is December 15.

Major Fields or Subdisciplines

Economic theory; econometrics; information and uncertainty; mathematical economics; monetary theory; economic history; public finance; labor economics; industrial organization; international economics; and development economics.

Course Requirements

In order that the program can be tailored to an individual student's background and interests, there are no formal course requirements in the Ph.D. program. In their first year however, students normally enroll in the standard first-year graduate core sequences in microeconomic theory (Economics 201A-201B-201C), macroeconomic theory (Economics 202A-202B-202C), and quantitative methods (Economics 203A, 203B, 203C).

Written and Oral Qualifying Examinations

Written Examinations. All Ph.D. qualifying examinations are intended to determine competency in the overall field. While the courses offered are intended to prepare students for the field examinations, and while the professors of the courses are normally also the examiners, the qualifying examination is not restricted solely to the material explicitly presented in course lectures or assigned exercises. Students are assisted in acquiring knowledge of the overall field by course reading lists that include recommended supplementary and complementary readings.

The department offers written qualifying examinations in the areas listed below (with preparatory courses shown in parentheses):

Core Sequences. Microeconomic theory (Economics 201A-201B-201C); macroeconomic

theory (Economics 202A-202B-202C); quantitative methods (Economics 203A, 203B, 203C).

Elective Doctoral Fields. Econometrics (Economics 231A, 231B, M232A, 232B); information and uncertainty (Economics 211A-211B, 212A); mathematical economics (Economics 213A-213B, 214A); monetary economics (221A-221B); economic history (Economics 241, 242); public finance (Economics 251A, 251B, 252); labor economics (Economics 261A-261B); industrial organization (Economics 271A-271B, 271C); international economics (Economics 281A, 281B, 281C); development economics (Economics 286A, 286B, 287A, 287B).

Examinations are graded H (Ph.D. honors pass), P (Ph.D. pass), M (M.A. pass), or F (fail).

Students must pass (with a P or better) the qualifying examinations for two of the standard first-year core sequences — microeconomic theory, macroeconomic theory, or quantitative methods — by the end of Spring Quarter of their second year.

Students must satisfy an additional requirement in the remaining first-year core sequence that may be met by (1) earning a Ph.D. pass on the corresponding qualifying examination or (2) earning a grade of B or better in all three courses.

Students must pass (with a P or better) qualifying examinations in three doctoral elective fields (or two fields plus breadth option), usually by the end of the second year. The requirement must be satisfied by the end of the Spring Quarter of their third year.

Written qualifying examinations can be repeated, but students may sit for no more than seven in total.

Qualifying examinations in all core sequences are offered twice a year (September and June). Doctoral field qualifying examinations are offered at least once a year.

By employing the breadth option, students may substitute a field by coursework, defined as three graduate-level courses for one of the three elective fields. Courses used to satisfy the requirement cannot include any courses used in the core sequence requirements nor can they include courses preparatory for the written qualifying examinations which students are using for field requirements. The breadth option must include Economics 207 or 241 or 242. Students may apply courses at the graduate (200) level outside the Economics Department on written preapproval by the vice chair for graduate affairs. Only courses in which a minimum grade of B is earned may be used to satisfy this requirement.

Paper Requirement. A written paper must be completed by the end of the student's third year. The paper is to be read and evaluated by a member of the Economics Department faculty, who must certify in writing that it satisfied this requirement. The paper could be based on or be an extension of an optional or required

paper for a course. Alternatively, the paper could be one presented in a workshop or an outgrowth of a research assistantship or independent study. Ideally, the paper would be related to the student's doctoral dissertation. The materials of the paper may be used as the basis for presentation in a departmental workshop, as well as the basis for the dissertation.

Before advancing to the University Oral Qualifying Examination, students are required to present a paper in a departmental workshop. It is recommended that this be completed by the end of the third year.

Oral Qualifying Examination. The University Oral Qualifying Examination, administered by the student's doctoral committee, is scheduled after successful completion of all written qualifying examinations, course requirements, the written paper and workshop requirements, and the submission of a written dissertation proposal. The proposal should be made available to the committee members at least two weeks prior to the date of the examination. The examination focuses on, but is not be limited to, the dissertation proposal.

Normally, students should attempt the oral examination by the end of the Fall Quarter of the fourth year. The examination must be passed by the end of the Spring Quarter of the fifth year. In case of failure, students may repeat the oral qualifying examination once.

Economics

Lower Division Courses

1. Principles of Economics. (4) Lecture, three hours; discussion, one hour. Not open to students with credit for course 100. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on allocation of resources and distribution of income through the price system.

2. Principles of Economics. (4) Lecture, three hours; discussion, one hour. Not open to students with credit for course 100. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregative economics, including national income, monetary and fiscal policy, and international trade.

5. Introductory Economics. (4) Lecture, three hours. Not open to students with credit for course 1, 2, or 100. Principles of economics as tools of analysis. Presentation of a set of concepts with which to analyze a wide range of social problems that economic theory illuminates. May not be used to fulfill entrance requirements for any Economics Department major.

11. Microeconomic Theory. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 1, 2, one course from Mathematics 31B, 31BH, 31E, 32A. Laws of demand, supply, returns, and costs; price and output determination in different market situations.

M40. Introduction to Statistical Methods for Business and Economics. (4) (Formerly numbered 40.) (Same as Statistics M11.) Lecture, three hours; discussion, one hour. Not open to students with credit for Mathematics M170A, 170B, 171, Statistics 10, M100A, or 100B. Elements of statistical analysis. Presentation and interpretation of data; descriptive statistics; theory of probability and basic sampling distributions; statistical inference, including principles of estimation and tests of hypotheses; introduction to regression and correlation. P/NP or letter grading.

41. Theory and Practice of Econometrics. (4) (Formerly numbered 103C.) Lecture, three hours; discussion, one hour. Requisite: course M40 or Statistics 10. Introduction to theory and practice of econometrics to provide sufficient knowledge of statistical and econometric theory to make one an effective consumer and producer of empirical research in economics. Emphasis on intuitive understanding rather than rigorous argument and on applications. P/NP or letter grading.

Upper Division Courses

100. Economic Principles and Problems. (4) Lecture, three hours. Designed for juniors/seniors. Not open to students with credit for course 1, 2, or 5. Principles of economics with application to current economic problems. May not be used to fulfill entrance requirements for any Economics Department major.

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; interest and capital.

102. Macroeconomic Theory. (4) Lecture, three hours. Requisite: course 101. Theory of income, employment, and price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy.

103A-103Z. Upper Division Research Seminars: Applications of Economic Theory. (4) Seminar, three hours. Requisite: course 11. Limited enrollment seminars in which students usually write a research paper on a topic selected in consultation with instructor.

M103A. Political and Economic Issues in the Proliferation of Nuclear Weapons. (Same as Political Science M139A.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Interdisciplinary approach to the problem of nuclear proliferation. Economic aspects of acquisition of nuclear weapons and economic aspects of nuclear energy treating technological, bargaining, and stability issues.

103B. Economics of Energy. Requisite: course 102. Topics include pricing and taxation of exhaustible resources, interactions between energy and the economy, institutions such as OPEC and oil price controls, oil debt and balance of payments, energy conservation, and future technologies.

104. Managerial Economics. (4) Lecture, three hours; discussion, one hour. Requisite: course 11. Enrollment priority to Business Economics majors. Application of economic principles to business decisions. Allocating joint costs. Implicit costs of capacity constraints. Problems in capital budgeting, financing, and pricing. Role of interest rates in business decisions. P/NP or letter grading.

105AH. Topics in Microeconomics (Honors). (4) Lecture, three hours. Requisite: course 101. Designed for departmental honors program students. Introduction to Walrasian and Nash equilibrium. Modeling of selected applied topics such as peak load pricing, pricing of externalities, strategic pricing.

105BH. Topics in Macroeconomics (Honors). (4) Lecture, three hours. Requisite: course 101. Designed for departmental honors program students. Imperfect information-based models of monetary business cycles: theory and evidence. Real business cycle models: role of shocks and interindustrial technology structure in explaining fluctuations. Policy analysis and policy intervention in a world with rational maximizing agents: recent perspectives.

106. Special Topics in Business Economics. (4) Lecture, three hours. Requisite: course 101. Enrollment priority to business economics students. Application of economic analysis to contemporary business. Course may be organized around individual industries or topics of current relevance to business. Alternatively, course may examine problems in major fields of economics (e.g., international, macroeconomics, finance) and their implications for business. May be repeated for credit with topic change.

107. History of Economic Theory. (4) Lecture, three hours. Requisite: course 1 or 100. Survey of economic analysis from Grecian antiquity to the early 20th century, concentrating on the 18th and 19th centuries; special attention to selected writers, including Aristotle, mercantilists, Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, marginalists, and Marshall.

110. Economic Problems of Underdeveloped Countries. (4) Lecture, three hours. Requisite: course 1 or 100. Limited to non-Economics Department majors. Not open for credit to students with credit for course 111 or 112. Survey of major issues of development economics. Economic structure of low-income countries and primary causes for their limited economic growth. Economic goals and policy alternatives open to their leaders. Possible roles of developed countries. May not be applied toward any Economics Department major.

111. Theories of Economic Growth and Development. (4) Lecture, three hours. Requisite: course 11. Growth models, theory of production under constraints, relative factor prices and their impact on choice of technology, investment criteria, role of the market, economic planning in less developed areas.

112. Policies for Economic Development. (4) Lecture, three hours. Requisite: course 102 or 111. Suggested strategies for economic development: inflation, balanced growth, industry vs. agriculture, import substitution, export-oriented expansion, foreign aid, and others. Selected case studies.

120. 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 an urban setting. Topics include urbanization and urban growth, housing markets, location decisions of households and firms, transportation, urban labor markets, and local public sector.

130. Public Finance. (4) Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. Role of government in a 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 an open economy. Properties of public choice mechanisms. P/NP or letter grading.

133. State and Local Finance. (4) Lecture, three hours. Requisites: courses 101, 130. Division of functions and revenues between state and local governments; revenues, expenditures, and indebtedness of these governments. Analyses of state and local tax systems.

134. Environmental Economics. (4) Lecture, three hours. Requisites: courses 11, 101. Application of economic theory to natural and environmental resources problems. Topics include sustainability and natural resource scarcity, steady-state models for renewable resources (land and water, fisheries, forests), externalities and pollution (including use of incentives for pollution control), and nonrenewable resources (minerals). Letter grading.

M135. Economic Models of Public Choice. (4) (Same as Political Science M105.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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.

M136. Economic Models of Political Conflict and Conflict Resolution. (4) (Same as Political Science M106.) Seminar, three hours; discussion, one hour. Enforced requisite: course 11. Prior political science course desirable but not essential. Designed for juniors/seniors. Biological, cultural, and organizational sources of political conflict. Role of threats, promises, commitments. Models of onset and termination of conflict. Conduct of war: strategy and tactics. P/NP or letter grading.

142. Probabilistic Microeconomics. (4) Lecture, three hours. Requisites: courses 11, 101. Combination of basic probability introduced in course 40 with microeconomic models presented in courses 11 and 101 in order to explain phenomena such as insurance, job search, and stock market behavior. Optimal production and consumption under uncertainty. Review of probability and introduction to alternative measures of risk and risk aversion.

143. Applied Regression Analysis. (4) Lecture, three hours; discussion/computer tutorial, one hour. Requisite: course M40. Not open to students with credit for course 147A or 147B. Review of simple regression; assumptions of classical linear regression model; multiple regression, estimation, and inference; violations of assumptions of classical model (multicollinearity, heteroskedasticity, autocorrelation); autoregressive models, dummy variables. Emphasis on practical experience with regression analysis and interpretation; matrix algebra not required. P/NP or letter grading.

144. Introduction to Mathematical Methods in Economics. (4) Lecture, three hours. Requisite: course 101. Introduction to use of mathematics in economic analysis. Topics include partial differentiation, optimization, integration, and differential and difference equations, with applications to theory of the household and the firm, capital theory, and economic dynamics.

145. Topics in Mathematical Economics. (4) Lecture, three hours. Requisites: courses 101, 144. Possible topics include game theory; competitive equilibrium analysis; examination of market failure and role for market intervention.

146. Linear Models in Economics. (4) Lecture, three hours. Preparation: one linear or matrix algebra course. Not open for credit to students with credit for Mathematics 164 or Electrical Engineering 136. Possible topics include duality theory of linear programming and simplex algorithm, input/output analysis, and two-person zero-sum games.

147A. Introduction to Econometrics. (4) Lecture, three hours; discussion, one hour. Preparation: two calculus courses. Requisites: course 143, or Mathematics M170A and 170B, or Statistics M100A and 100B. Introduction to econometrics, including review of matrix algebra and statistical theory; linear regression model; model specification; data collection; estimation and hypothesis testing; and introduction to simultaneous equations models. Original econometric paper required. P/NP or letter grading.

147B. Applications of Econometrics. (4) Lecture, three hours. Requisite: course 147A. Econometric models and data; forecasting, policy analysis, estimation of simultaneous equations models, applications of econometrics. Major original econometric paper required.

148. Introductory System Theory. (4) Lecture, three hours. Requisites: Mathematics 33A, 33B. Introduction to modeling and analysis of dynamic systems, with emphasis on examples from social and life sciences. Linearity, impulse responses, stability, state variables, algorithms for filtering and control.

150. Wage Theory. (4) Lecture, three hours; discussion, one hour. Requisites: courses 11, 101. 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.

151. Labor, Wages, and Income. (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.

152. Trade Unions and Professional Associations. (4) Lecture, three hours. Comparative behavior of unions and professional associations; criteria for wage maximization; quantification of gains; analysis of legal framework applying to such organizations.

M158. International Political Economy of Work and Gender. (4) (Same as Women's Studies M123.) Lecture, three hours; outside study, nine hours. Requisite: course 1 or 5 or 100. Analysis of women's economic status in world economy by taking account of interdependencies between household and market activities and between economic systems and legal and political institutions. Introduction of alternative theoretical approaches in social sciences; presentation of empirical evidence.

160. Money and Banking. (4) Lecture, three hours. Requisite: course 102. Principles of money and banking in the U.S.; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy.

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.

170. Monopoly and Competition. (4) Lecture, three hours. Requisite: course 11. Comparison of economic and legal treatments of the 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.

171. Industrial Organization: Theory and Tactics. (4) Lecture, three hours. Requisite: course 11. Study of pricing and output decisions of firms under conditions of less than perfect competition or monopoly; theories of oligopoly and monopolistic competition; information costs and advertising; examination of pricing practices such as price discrimination, tie-in selling, predatory pricing, and resale price maintenance.

172. Economic Analysis of Laws and Legal Institutions. (4) Lecture, three hours. Requisite: course 11. Application of economic theory to legal rule formulation: study of economic nature and consequences of alternative legal arrangements, with special reference to property rights. Application of economic theory to analysis of effects of laws relative to property contracts, torts, crimes, taxation, and constitutional issues. Analysis of legal process.

173. Centralized Markets. (4) Lecture, three hours. Requisite: course 11. Enrollment priority to Business Economics majors. Organization and function of stock, bond, commodity, and foreign exchange markets. Theory and evidence related to efficiency of these markets in evaluating information, to their role in facilitating risk-bearing and capital allocation. Interrelationship between business finance and organized capital markets.

174. Organization of the Firm. (4) Lecture, three hours. Requisite: course 11. Enrollment priority to Business Economics majors. Role of the firm in traditional economic theory and modern developments in the theory of the firm. Functions of ownership and management in face of risk and opportunism. Internal organization of the firm. Problem of separation of ownership from control in the modern corporation. Determinates of firm size, vertical integration, and degree of specialization of activities of firms. Decision making within the firm in a democratic setting.

175. Economics of Transportation. (4) Lecture, three hours. Requisite: course 11. Economic characteristics of transport; functions of the different agencies; pricing and resource allocation in transport; public regulation of transport; urban transport; modern transport problem.

176. Business and Government. (4) Lecture, three hours. Requisite: course 101. Several aspects of interaction between business and government, including regulation of prices, entry, working conditions, natural resource use, policies of taxation, and subsidy of business.

177. Contractual Arrangements in Business. (4) Lecture, three hours. Requisite: course 101. Enrollment priority to Business Economics majors. Economic and legal determinants of contractual arrangements adopted by business. Franchise contracts, rights-of-first refusal, and tie-in contracts. Legal constraints and efficiency of different contractual arrangements.

180. Comparative Systems: Transformation of Socialist Economies. (4) Lecture, three hours. Requisite: course 101. Comparative analysis of capitalist and socialist economies. Models of transition from centrally planned to free market economies. Analysis and critique of actual implementation. Future prospects.

181A. Development of Economic Institutions in Western Europe. (4) Lecture, three hours. Requisite: course 11. European economic history, 900 to 1700. Custom, command, and market modes of organization. Evolution of property rights, contract forms, and monetary arrangements. Decline of feudal institutions, especially serfdom. Open field village and enclosures. Crafts manufacturing and guild organization. Development of banking. Public finances and role of government.

181B. Development of Economic Institutions in Western Europe. (4) Lecture, three hours. Requisite: course 11. European economic history, 1700 to 1914. Industrial revolution in Britain and its spread to the continent. Rise of factories, industrial firms, and unions. Changes in standard of living and demographic consequences. Imperial expansion and decline of Britain. Worldwide diffusion of economic growth and the Gerschenkron hypothesis.

182. Centralized Economics Systems. (4) Lecture, three hours. Requisite: course 101. Introduction to theory of centralized systems and examination of some centralized economies. Considerable attention to economy of the U.S.S.R.; some attention to other economies selected in light of the centralized model and with view to the march of current events.

183. Development of Economic Institutions in the U.S. (4) Lecture, three hours. Requisite: course 11. Study of changing economic conditions in the U.S. from Colonial times to the early 20th century and effects of these changes on American society. Letter grading.

184. History of Enterprise and Entrepreneurship in the American Economy. (4) Lecture, three hours. Enrollment priority to Business Economics majors. Study of role of innovation in history of American enterprise. Examination of specific episodes of salient entrepreneurial innovation, as well as general theoretical and empirical treatments.

M189. Asian Pacific Americans in the U.S. Economy. (4) (Same as Asian American Studies M123.) Lecture, three hours. Examination of several dimensions of Asian American participation, from labor market experience to use of government services to entrepreneurial activity. Attention to linking understanding of Asian American experience to public policies available to address problems of economically disadvantaged. P/NP or letter grading.

190. International Economics. (4) Lecture, three hours. Requisite: course 1 or 100. Limited to non-Economics Department majors. Not open to students with credit for course 191 or 192. General introduction to international economics, based on examination of theory of trade and the means and significance of balance of payments adjustments, with analysis of major issues of international commercial and monetary policy confronting national and international agencies. May not be applied toward any Economics Department major.

191. International Trade Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 101. Not open to students with credit for course 190. 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.

192. International Finance. (4) Lecture, three hours; discussion, one hour. Requisite: course 102. Not open to students with credit for course 190. Emphasis on interpretation of the 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.

193. Research in International Area Studies Seminar. (4) Seminar, three hours. Limited to senior Economics/International Area Studies majors. Students prepare research paper on economy of the country or region of specialization.

195H. Honors Thesis Seminar. (4) Seminar, three hours. Limited to senior departmental honors program students. Seminar in which students present results of their senior theses.

199. Special Studies in Economics. (2 or 4) Requisites: courses 11, 101. Limited to juniors/seniors. May be repeated but may be applied only once toward the major requirements.

Graduate Courses

Foundations of Economics

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.

201A-201B-201C. Microeconomics. (4-4-4) Lecture, three hours. S/U or letter grading:

201A. Theory of the 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. Basic Concepts and Techniques of Noncooperative Game Theory and Information Economics. (4) (Formerly numbered 201C.) Lecture, three hours. Nash equilibrium and subgame perfection. Games with incomplete information. Models of strategic market behavior. Screening and signaling. Bargaining models. Theory of the firm. S/U or letter grading.

201C. General Equilibrium and Welfare Economics. (4) (Formerly numbered 201B.) Lecture, three hours. Meaning of competition in general equilibrium. Decentralization and appropriation roles of prices. Increasing returns. Public goods. Pecuniary and nonpecuniary externalities. Mechanism design. S/U or letter grading.

202A-202B-202C. Macroeconomics. (4-4-4) Lecture, three hours:

202A. Dynamics and Growth Theory. 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.

202B. Business Cycles. 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.

202C. Topics in Macroeconomics. 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.

203A. Probability and Statistics for Econometrics. (4) Lecture, three hours. Provides statistical tools necessary to understand econometric techniques. Random variables, distribution and density functions, sampling, estimators, estimation techniques, hypothesis testing, and statistical inference. Use of economic problems and examples. S/U or letter grading.

203B. Introduction to Econometrics: Single Equation Models. (4) Lecture, three hours. Estimation of basic linear regression model, testing hypotheses, generalized least squares, serial correlation, heteroskedasticity, multicollinearity, error-in-variables, distributed lags, qualitative dependent variables, and forecasting. S/U or letter grading.

203C. Introduction to Econometrics: Systems Models. (4) Lecture, three hours. Multivariate regression, simultaneous equation estimation, identification, and latent variables. S/U or letter grading.

204A-204Z. Applications of Economic Theory. (4 each) Lecture, three hours:

M204L-M204M-M204N. Seminars: Pharmaceutical Economics and Policy (1 unit, 1 unit, 2 units). (Same as Health Services M204A-M204B-M204C.) Seminar, three hours every other week for three terms. Requisites: courses 201A-201B-201C, Health Services 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 and S/U or letter grading.

205. Economic Modeling. (4) Lecture, three hours. Development of modeling skills by considering a 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.

207. History of Economic Thought. (4) Lecture, three hours. Topics from classical economics, including work of Smith, Ricardo, and Mill, and developments from the 1870s, including contributions of major figures of the marginalist revolution, the socialist controversy, and history of welfare economics. S/U or letter grading.

Economic Theory

211A-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.

212A-212Z. Topics in Advanced Theory. (4) Lecture, three hours. Current research in microeconomic theory. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading:

212A. Search Theory. Preparation: calculus, introductory probability. Price searching, queueing, Brownian motion, martingales, and applications to the theory of the firm.

212B. Applied Game Theory. 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.

213A-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-214Z. Topics in Mathematical Economics. (4 each) Lecture, three hours. Prerequisite: course 213B. Current research in mathematical economics. Content varies. Ordinarily only two courses in this sequence given every year. May be repeated for credit. S/U or letter grading:

214A. General Equilibrium Theory. Prerequisite: course 201C. Core convergence theorem, cooperative and noncooperative approach to competitive equilibrium theory, perfectly competitive equilibria, the no-surplus condition, and applications to mechanism theory and incomplete market models.

M214B. Game Theory. (Same as Mathematics M261 and Political Science M208A.) Lecture, three hours. Designed for graduate economics, mathematics, and political science students. Bargaining theory, the core, the value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs.

M215. 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-218B-218C. Proseminars: Economic Theory. (4-4-4) 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-219B-219C. Workshops: Economic Theory and Mathematical Economics. (4-4-4) 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.

Also see Management 200 (game theory and information economics), 203A (decision theory), 203B (economics of information)

Monetary Economics

221A-221D. Monetary Economics I to IV. (4 each) Lecture, three hours. S/U or letter grading:

221A. Prerequisites: 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.

221B. 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.

221C. Prerequisites: 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.

221D. Prerequisites: courses 202A-202B-202C. Emphasis on applied macroeconomics, with topic change each year. Students select a particular data set to study. Each week class studies an article from recent work in applied macroeconomics or applied econometrics which teaches a technique or suggests a theoretical restriction on the data. Subgroups of students report back to class using the technique on their selected data set.

222A-222Z. Topics in Monetary Economics. (4 each) Lecture, three hours. Current research in monetary economics. Content varies. May be repeated for credit. S/U or letter grading:

M222A. Control and Coordination in Economics. (4) (Same as Computer Science M222.) Lecture, three hours. Recommended preparation: appropriate mathematics course. Designed for graduate economics and engineering students. Stabilization policies, short- and long-run dynamics and stability analysis; decentralization, coordination in teams; certainty equivalence and separation theorems; stochastic and learning models. Bayesian approach to price and output rate adjustment. S/U or letter grading.

228A-228B-228C. Proseminars: Monetary Economics. (4-4-4) Seminar, three hours. Workshops for predissertation 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-229B-229C. Workshops: Monetary Economics. (4-4-4) 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.

Also see Management 239A, 239B, 239C (Ph.D. sequence in finance), 239D (advanced topics in finance), 239X-239Y-239Z (finance workshops)

Econometrics

231A. Econometrics: Single Equation Models. (4) Lecture, three hours. Linear regression model, specification error, functional form, autocorrelation, nonlinear estimation, distributed lags, nonnormality, univariate time series, qualitative dependent variables, aggregation, structural change, and errors-in-variables. S/U or letter grading.

231B. System Models. (4) Lecture, three hours. Multivariate regression, errors-in-variables, simultaneous equations, identification, proxy variables, latent variables, factor analysis of panel data, asymptotic distribution theory. S/U or letter grading.

232A-232Z. Topics in Econometrics. (4 each) Lecture, three hours. Prerequisites: 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:

M232A. Bayesian Econometrics. (Same as Political Science M208E.) Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism.

232B. Time Series. Stationary stochastic processes, Box/Jenkins methods, spectral analysis, forecasting, rational expectation models, analysis of macroeconomic data.

239A-239B-239C. Workshops: Econometrics. (4-4-4) 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.

Economic History

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 the agricultural revolution, demographics, industrial revolution, imperial expansion, and decline of Britain. S/U or letter grading.

242. Economic History of the U.S. (4) Lecture, three hours. Seminar on American economic history. Onset of industrialization, relative economic backwardness of the South, slavery, technological change, rise in industrial concentration, women in the labor force, development of financial markets. S/U or letter grading.

243A-243Z. 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.

249A-249B-249C. Von Grep Workshops: History of Entrepreneurship in the 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.

Public Finance

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. Prerequisite: 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-253Z. Topics in Public Finance. (4 each) 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-254B-254C. Workshops: Public Economics. (4-4-4) 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.

Labor Economics

261A-261B. Labor Economics I, II. (4-4) Lecture, three hours. S/U or letter grading:

261A. 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.

261B. Prerequisite: course 261A. Models of life-cycle learning and work behavior, with particular emphasis on recent literature examining labor force behavior and experience of women.

262A-262Z. Topics in Labor Economics. (4 each) Lecture, three hours. Current research in labor economics. Content varies. May be repeated for credit. S/U or letter grading.

268A-268B-268C. Proseminars: Labor and Population. (4-4-4) 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-269B-269C. Workshops: Labor Economics. (4-4-4) 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.

Industrial Organization

271A-271B. Industrial Organization, Price Policies, and Regulation I, II. (4-4) Lecture, three hours. S/U or letter grading.

271A. Major economic aspects of property rights system. The firm and the 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.

271B. 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.

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-272Z. Topics in Industrial Organization. (4 each) 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 industries; experiences of unregulated monopoly and public enterprises by way of contrast. S/U or letter grading.

278A-278B-278C. Proseminars: 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-279B-279C. Workshops: Business Organization. (4) 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.

Also see Management 262 (pricing policy)

International Economics

281A. International Trade Theory. (4) Lecture, three hours. Theoretical and empirical analysis of micro-economic 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-282Z. Topics in International Economics. (4 each) 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 U.S.S.R. planners and specific planning methods, interpreted broadly to cover not only instructions and objectives but also institutional arrangements. Intended and unintended outcomes of the methods. S/U or letter grading.

285A-285B-285C. Workshops: International Economics. (4-4-4) 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.

Development Economics

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-287Z. Topics in Development Economics. (4 each) 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.

287A. Economic Problems of Latin America. Economic history of Latin America. The great depression, import substitution and industrialization, inflation and growth, free market experiments, and economic integration.

287B. Economic Development in East Asia. 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 the U.S., in area's economic development.

287C. Topics in Economic Development. Designed for graduate students. Topics in monetary and exchange rate policy in developing countries. Students expected to develop analytical tools and underlying policy issues.

288A-288B-288C. Proseminars: International and Development Economics. (4-4-4) 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.

Urban Economics

291A-291B. Urban Economics. (4-4) Lecture, three hours. Course 291A is requisite to 291B. Implications of urbanization for economic analysis. Development of theory in course 291A; emphasis on policy in 291B. Use of monocentric model of urban land use to introduce location and transportation costs. Examination of housing, transportation, and local public services.

293A-293Z. Topics in Urban Economics. (4 each) 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.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching College Economics. (2) Discussion, 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.

596. Individual Study. (2 to 8) Directed individual study or research. S/U grading.

597. Individual Study: Graduate Examinations. (2 to 8) Directed individual study in preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. S/U grading.

599. Individual Research: Ph.D. Dissertation. (2 to 8) Preparation: advancement to Ph.D. candidacy. Directed individual research in preparation of Ph.D. dissertation. S/U grading.

EDUCATION

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 Renee Smith Maddox, Ph.D.
 William A. Sandoval, Ph.D.
 Yeow Meng Thum, Ph.D.

Adjunct Professors

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 Harry Handler, Ph.D.
 Russell Jacoby, Ph.D.
 Jane S. Permaul, Ed.D.
 Harold L. Pruet, Ph.D.
 Linda P. Rose, Ph.D.
 Eugene Tucker, Ed.D.

Adjunct Associate Professor

Philip Ender, Ph.D.

Scope and Objectives

As one of the top-ranked public graduate programs in education in the nation, the Department of Education is guided by a commitment to integrate theory and practice and to improve educational practice and policy. The department attracts prominent scholars and is internationally recognized for its research centers in evaluation, higher education, child development, and urban education. Whether students choose to pursue a Ph.D., an Ed.D., a master's degree, or a services or instructional credential, they graduate with a broad understanding of educational theory and tested practice.

Undergraduate Study

For information on the special certificate program through which students may waive the Multisubject Assessment for Teachers (MSAT) in California, see the Diversified Liberal Arts Program (DLAP) and contact a DLAP counselor in the College of Letters and Science, A316 Murphy Hall, (310) 206-6681.

Education Studies Minor

The Education Studies minor is intended to address the diverse information needs of the UCLA undergraduate community to (1) allow students to learn more about the multitude of contemporary professional research issues confronting the field of education, (2) help un-

derstand the complex interactions between the legal, social, political, and economic forces which influence and shape educational policies in America, (3) provide an introductory course sequence for students who wish eventually to pursue careers in education either as teachers or researchers, and (4) provide an analysis of current educational practices by which UCLA students can become better consumers of educational services as future parents, taxpayers, and citizens.

To enter the minor, students must have completed 32 units with a minimum overall 2.3 (C+) grade-point average and file an admission application with the education studies academic adviser in the Office of Student Services, 1009 Moore Hall. Applicants are expected to have a real commitment to inquiry into issues vital to education.

Required Lower Division Courses (eight units): Two policy and issues courses from Education 91A through 91E, with grades of C+ or better.

Required Upper Division Courses (20 units): Two behavioral and social sciences perspective courses from Education M108, 180, C191A through 191F; two elective courses from M102, 125A, M148; and one professional topics course from 197A through 197Z.

In addition to or in lieu of electives, students may select a concentration in community education leadership by completing three courses from Education 192A, 197E, 197K through 197N.

Students with a 3.0 grade-point average may, after acceptance of a separate application, also select a concentration in advanced studies by taking Education 197X and 199 in addition to the course requirements for the minor.

All minor courses must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Education offers the Master of Arts (M.A.) degree in Education and the Master of Education (M.Ed) degree and participates in concurrent and articulated degree programs.

Master of Arts

Admission

The M.A. in Education is an academic master's degree designed to meet the needs of individu-

als preparing for careers in basic research or for advanced graduate study.

Qualifications for admission to a program of study in education, in addition to the University requirements for admission, are (1) scores on the quantitative, verbal, and analytical sections of the Graduate Record Examination (GRE) and (2) at least three letters of recommendation documenting qualifications and/or professional experience.

Acceptance into a particular division is dependent on the availability of openings in that division and the applicant's desired emphasis area; preference is given to applicants with relevant background and experience. Admission to an initial advanced degree program occurs simultaneously with admission to graduate standing and to the Department of Education. No screening examination (other than described above) and no specific coursework are required for admission to a degree program. The department has an application form which must be completed in addition to the one used by the Graduate Division. Application forms and departmental brochures are available from the Office of Student Services, Graduate School of Education and Information Studies.

Law/Education

The Department of Education and the School of Law offer a concurrent degree program that allows students to design a program of study leading to the J.D. and any advanced degree in education (M.Ed., M.A., Ed.D., or Ph.D.). If the program meets the degree requirements in both schools, students are awarded both degrees on its completion. The program is not accepting applications for 1999-00.

Areas of Study

The Master of Arts emphases in divisions 2 through 5 are the following:

Educational Psychology

Counseling, developmental studies in education, learning and instruction

Higher Education and Work

Education training, public policy analysis, research in higher education, and teaching in higher education

Social Research Methodology

Applied statistics and psychometrics, quantitative and qualitative research, evaluation methodology, and economic analysis

Social Sciences and Comparative Education

Social sciences, comparative and international education

Curricular Divisions

Contact the Office of Student Services regarding faculty member(s) to be consulted with respect to enrollment and research opportunities and/or course sequencing in each division or emphasis field.

Division 1: Administration, Curriculum, and Teaching Studies

Education M102, C191A, 206A, C206D, 220A, 220B, 223, 224, 229, 240, 241, 242, 246A, 251D, 260, 262B, 262F, 273A, 277, 400, 401, 402, 403, 420A, 422, 423, 424A, 424B, 424G, 440C, 441A, 441B, 442B, 443, 444B, 447, 448A, 448B, 470A, 470B, 490A.

Division 2: Educational Psychology

Education 125A, 191F, 197F, 197G, 205, 212A, 212B, 212C, 213A, 213B, 213C, 214A, 214B, 214D, 214E, 214F, M215, 216, M217A through 217D, 217F, M217G-M217H-M217I, 225A, 225B, 227A, 227B, 227C, 232, 236, 256A, 256B, 257, 258A, 258B, 267, 271A, 280A, 280B, M281A, M281B, M281C, 415A, 415B, 421A, 421D, 421F, 425, 433A, 433B, 501.

Division 3: Higher Education and Work

Education M148, 180, 192A, 192B, 209A, 209C, 209D, 234, 238, 239, 249B, 259A, 261F, 263, 410A-410B, 431A, 431B, 432, 462.

Division 4: Social Research Methodology

Education 200B, 200C, 202, 206C, 211A, 211B, 211C, 219, 221, M222A, 222B, 222C, 228, 230A, 230B-230C, 230X, 231A through 231E, 245, 251A, 251C, 251E, 255A-255B-255C, 272, 411A, 411B, 412A, 412B, 460.

Division 5: Social Sciences and Comparative Education

Education M108, 200A, M201C, C203, 204A through 204F, C207, 208A, 208C, C244, 252A, 252B, M252C, 253A through 253I, 254, 300.

Teacher Education

Education 264, 311, 312, 315A-315B, 316A-316B, 318A-318B-318C, 320A-320B, 330A through 330D, 360A-360B-360C, 406A-406B-406C, 407A-407B, 413A, 413B, 481, 489, 491A, 492.

Academic Interinstitutional Programs

Formal discontinuance pending.

Special Studies

Education 296A-296F, 299A-299B-299C, 310, 375, 498A-498B-498C, 499A-499B-499C, 596, 597, 598, 599.

Course Requirements

A minimum of nine upper division and graduate courses (36 units) must be completed in graduate standing although no specific upper division courses are necessary. Six courses (24 units) must be taken in the Education 200 and 500 series; no more than two 500-series courses (eight units) may be applied toward the divisional course minimum and toward the graduate course minimum.

Two research methods courses approved by the faculty adviser must be selected. Additional courses to complete the 36-unit requirement may be selected from offerings in Education and/or other departments with consent of the assigned faculty adviser and division head. Courses must be completed with grades of C or better and with an overall grade-point average of at least 3.0.

Contact the Office of Student Services regarding faculty member(s) to be consulted with respect to enrollment and research opportunities and/or course sequencing in each division or emphasis field.

Comprehensive Examination Plan

The comprehensive examination is concerned with central topics in the selected division and field of emphasis. Questions are comprehensive in nature and are designed to measure the breadth and depth of knowledge, as well as ability to focus that knowledge on specific problems.

The comprehensive examination is offered twice yearly, once in Fall Quarter and once in Spring Quarter.

Students may be passed, passed with honors, or failed on this examination. Students who fail are given a second opportunity to take the examination at the discretion of their adviser and a third opportunity on a two-thirds majority of all divisional faculty voting on this issue. No fourth sitting for the examination is permitted.

Students who fail the comprehensive examination, but who have been allowed to retake it, may do so at any scheduled sitting with consent of the divisional faculty.

Thesis Plan

Under this plan, students prepare a thesis which is a report of the results of original investigation. Before beginning work on the thesis, students must obtain approval of the subject and general plan from the Department of Education and the thesis committee chair.

The thesis committee must be formed and a petition for advancement to candidacy for the M.A. must be filed no later than one quarter prior to completion of course requirements for the degree.

The thesis and dissertation adviser and the Graduate Division publication, *Regulations for Thesis and Dissertation Preparation*, provide guidance in the final preparation of the manuscript. The department does not require a formal examination in connection with the thesis plan.

Master of Education

Admission

The M.Ed. is a professional degree program designed for individuals preparing for mid-level professional positions in schooling or for advanced professional graduate study. Qualifications for admission to a program of study in education, in addition to the University requirements for admission are (1) scores on the quantitative, verbal, and analytical sections of the Graduate Record Examination (GRE) and (2) at least three letters of recommendation documenting qualifications and/or professional experience.

The following requirements are applicable in accordance with selected emphases:

Administrative and Policy Studies in Education. Possession of a valid instructional credential is

preferred. Applicants with a demonstrated commitment to improving American schooling are sought for admission.

Bilingual/Cross-Cultural Education. Completion of an approved program of professional preparation leading to a preliminary instructional credential is required, as is classroom experience (as a teacher or aide) for at least two years, at any level of schooling. Evidence of professional competence and conscientiousness, as well as the necessary second-language proficiency, are also required.

Curriculum and the Study of Schooling. Persons with above-average capabilities and interest in curriculum and instruction are sought. Experience as a practitioner in the emphasis field is advantageous.

Teacher Education. This is a two-year program leading to qualification for a Multiple or Single Subject Instructional Credential and a Master of Education degree. Individuals with the highest qualifications in all subject areas, particularly mathematics, science, and the humanities, are sought. Experience in working with children is advantageous.

Certificate (Credential) Programs

The California Commission on Teacher Credentialing has authorized the Department of Education to offer professional programs that lead to the (1) Multiple Subject Instructional Credential with the Cross-Cultural Language and Academic Development (CLAD)/Bilingual Cross-Cultural Language and Academic Development (BCLAD) emphasis; (2) Single Subject Instructional Credential with the CLAD/BCLAD emphasis; and (3) Administrative Services Credential. Credential programs 1 and 2 are taken concurrently with the M.Ed. in teacher education; credential program 3 is taken with the M.Ed. in administrative program studies in education.

M.A. Latin American Studies/M.Ed

The Department of Education and the Latin American Studies Program offer an articulated degree program that allows students to combine study for the M.A. in Latin American Studies and the M.Ed., with an emphasis in curriculum. Articulated programs do not allow course credit to be applied toward more than one degree. The program is not accepting applications for 1999-00.

Law/Education

See the Admission section under Master of Arts for information on the concurrent degree program in law and education. The program is not accepting applications for 1999-00.

Areas of Study

Administrative and policy studies in education; bilingual/cross-cultural education; curriculum and the study of schooling; teacher education.

Course Requirements

A minimum of nine upper division and graduate courses (36 units) must be completed in graduate standing although no specific upper

division courses are necessary. At least five courses (20 units) must be in the professional education (400) series. No 500-series courses may be applied toward the degree. Education 597 may be taken on an optional basis. A field experience minimally approximating one course is required for all M.Ed. emphases.

Information regarding specific course requirements in a selected M.Ed. emphasis may be obtained from the Office of Student Services.

Comprehensive Examination Plan

The comprehensive examination for the M.Ed. degree in administrative and policy studies in Education is offered three times per year (Fall, Spring, and Summer Quarters). The M.Ed. examination in curriculum and the study of schooling is offered in Fall and Spring Quarters. The M.Ed. examination in teacher education is offered only during the summer. The examination consists of

(1) A written examination designed to assess comprehension of professional knowledge basic to the selected field of emphasis, including key concepts and principles, major theoretical positions, and fundamental issues and understanding of the broad educational context in which the selected professional field resides.

(2) A performance component for the M.Ed. in curriculum and the study of schooling designed to assess competency in the solution of problems in the selected professional field and is a test of whether knowledge can be applied in a real or simulated professional setting.

Information regarding examination foci for any selected M.Ed. emphasis is available from the faculty adviser.

Students may be passed, passed with honors, or failed on the examination. Students who fail the examination are given a second opportunity to take the examination at the discretion of their adviser and a third opportunity on a two-thirds majority of all divisional faculty voting on this issue. No fourth sitting for the examination is allowed.

Students who fail the comprehensive examination, but who have been allowed to retake it, may do so at any scheduled sitting with consent of the divisional faculty.

Thesis Plan

None.

Doctoral Degrees

The Department of Education offers the Doctor of Philosophy degree in Education and the Doctor of Education degree.

Doctor of Philosophy

Admission

The Doctor of Philosophy (Ph.D.) in Education is a strongly research-oriented academic degree designed for individuals preparing for careers in basic research or college-level instruction. Major foci include theory, research methodology, basic studies, and in-depth

knowledge in education and an approved cognate field.

To be admitted to the Ph.D. program, students must have a bachelor's degree or equivalent. Applicants must also have demonstrated academic excellence and the potential for scholarly research. Students are admitted by a division and must formally apply for a change of division.

Qualifications for admission to a program of study in education, in addition to the University requirements for admission, are (1) scores on the quantitative, verbal, and analytical sections of the Graduate Record Examination (GRE) and (2) at least three letters of recommendation documenting qualifications and/or professional experience.

Acceptance into a particular division is dependent on the availability of openings in that division and the applicant's desired emphasis area; preference is given to applicants with relevant background and experience. Admission to an initial advanced degree program occurs simultaneously with admission to graduate standing and to the Department of Education. No screening examination (other than described above) and no specific coursework are required for admission to a degree program. The department has an application form that must be completed in addition to the one used by the Graduate Division. Application forms and departmental brochures are available from the Office of Student Services, Graduate School of Education and Information Studies.

Law/Education

See the Admission section under Master of Arts for information on the concurrent degree program in law and education.

Joint Ph.D. Program in Special Education

A joint Ph.D. program in Special Education is offered by UCLA and California State University, Los Angeles. The goals of the joint program are (1) the stimulation and preparation of research workers of high competence in the various fields of special education; (2) improved preparation for potential teachers of exceptional individuals; and (3) improved preparation of personnel for research and in policy formation in the public schools of California. Students seeking information regarding emphases and requirements should consult the joint doctoral adviser at UCLA (1029B Moore Hall) or the chair of the Department of Special Education at CSULA.

Major Fields or Subdisciplines

All divisions: administration, curriculum, and teaching; educational psychology; higher education and organizational change; social research methodology; social sciences and comparative education.

Course Requirements

A program of study for a Ph.D. student is determined by the student and the faculty adviser and must conform to division and department requirements. A minimum of 18 courses is re-

quired as indicated below. At least 10 of the total courses must be in the 200 series:

(1) A sequential three-quarter research practicum (Education 299A-299B-299C) designed to provide an overview of research in the field of study. Students complete a research paper by the end of the sequence.

(2) Five courses from offerings in the student's selected division.

(3) Three upper division or graduate courses from other academic departments of the University related to the student's proposed area of research (the cognate).

(4) Appropriate research methods courses to enable demonstration of intermediate/advanced level competence in at least one area of research methodology. The requirement is satisfied by completing three methodology courses as specified in the list approved by the department; the approved list is available in the Office of Student Services.

The remainder of the courses to complete the required total may be chosen by the student; such courses must be in compliance with the selected division's guidelines and must be approved by the student's faculty adviser. Divisional course requirements may be waived, under exceptional circumstances, by the division on petition by students and their advisers to the division head. Wherever additional academic background is needed, a faculty adviser may require other coursework.

Written and Oral Qualifying Examinations

Doctoral Screening Examination. A written examination is taken after completion of appropriate coursework determined by the division. The examination is concerned with central topics in the selected division and field of emphasis. Questions are comprehensive in nature and are designed to measure the breadth and depth of knowledge, as well as to focus that knowledge on specific problems.

Students taking the doctoral screening examination ordinarily are not allowed to take more than nine courses before taking the examination. This limit is intended to ensure that students demonstrate basic competencies as early as possible in their doctoral training.

All students admitted to a doctoral program without a master's degree are required to take the doctoral screening examination.

In a first sitting for the examination, students may be passed with honors, passed at the master's level (the terminal master's), or failed. Students passed at the master's level are given one further opportunity to pass at the doctoral level; students who fail are given a second opportunity to take the examination at the master's level only.

Students who fail the doctoral screening examination, but who have been allowed to retake the examination, must do so at the next sitting. They can take up to 12 units per quarter until

they have successfully completed the examination. Of these 12 units only four may be a doctoral 200- or 400-level course; the remainder must be the 597 course. After satisfying the above requirements, students are eligible to take the following qualifying examinations:

Doctoral Written Qualifying Examination. The written qualifying examination is offered twice yearly, once in Fall Quarter and once in Spring Quarter. The examination tests the core knowledge of the division and emphasis the student has selected. The questions on the examination reflect a research and theoretical orientation. Students may be passed, passed with honors, or failed on the examination. Students who fail this examination are given a second opportunity to take the examination at the discretion of their adviser and a third opportunity on a two-thirds majority of all divisional faculty voting on this issue. No fourth sitting for the examination is allowed.

Students who fail the doctoral written qualifying examination, but who have been allowed to retake it, may do so at any scheduled sitting with consent of the divisional faculty.

University Oral Qualifying Examination. The oral examination is conducted by the student's doctoral committee, which selects topics from both education and the cognate discipline(s) that are related to the student's written research proposal. On a majority vote of the doctoral committee, the University Oral Qualifying Examination may be repeated once.

Doctor of Education

Admission

The Doctor of Education (Ed.D.) is a professional degree designed to meet the needs of individuals preparing for careers of leadership and applied research in the schools and community educational programs. Major foci include practice, applied studies, and knowledge related to professional skills.

To be admitted into the Ed.D. program, applicants must have a bachelor's degree or equivalent; at least two years of successful professional experience in education or equivalent (may be completed prior to advancement to candidacy for all divisions except the administration, curriculum, and teaching studies division which requires the experience as a prerequisite to admission); and demonstrated evidence of potential for professional leadership. Students are admitted by a division and must formally apply for a change of division.

Law/Education

See the Admission section under Master of Arts for information on the concurrent degree program in law and education.

Major Fields or Subdisciplines

The Ed.D. is offered for emphases in divisions 1 through 4. Administration, curriculum, and teaching studies emphases are offered for school administrators, education policy analysts, curriculum developers and directors of

curriculum, and teacher educators. Educational psychology emphases are offered for those interested in practical issues related to special education, educational technology, and computer-assisted instruction. Higher education and work emphases focus on administration in relation to corporate or proprietary education and training, community colleges, and continuing education. Social research methodology emphases are applied measurement and evaluation leadership.

Course Requirements

A program of study for an Ed.D. student is determined by the student and faculty adviser and must meet division and department requirements. A minimum of 18 courses is required as indicated below:

(1) Three research methods courses, with no more than two introductory (first tier) courses and at least one intermediate/advanced (second tier) course, selected from the departmental list approved for the Ed.D.

(2) Nine education courses, of which at least six must be from the Education 400 series; all courses must be approved by the faculty adviser.

(3) Three supplemental courses selected from offerings in the department (outside the student's field of emphasis) or in another UCLA professional school or department.

(4) A sequential three-quarter field practicum (Education 499A-499B-499C). Divisional course requirements may be waived, under exceptional circumstances, by the division on petition by students and their advisers to the division head. Whenever additional academic background is needed, a faculty adviser may require other coursework.

Written and Oral Qualifying Examinations

Doctoral Screening Examination. A written examination is taken after the completion of appropriate coursework determined by the division. The examination is concerned with central topics in the selected division and field of emphasis. Questions are comprehensive in nature and are designed to measure the breadth and depth of knowledge, as well as to focus that knowledge on specific problems.

Students taking the doctoral screening examination ordinarily are not allowed to take more than nine courses before taking the examination. This limit is intended to ensure that students demonstrate basic competencies as early as possible in their doctoral training.

All students admitted to a doctoral program without a master's degree are required to take the doctoral screening examination.

In a first sitting for the examination, students may be passed, passed with honors, passed at the master's level (the terminal master's), or failed. Students passed at the master's level are given one further opportunity to pass at the doctoral level; students who fail are given a

second opportunity to take the examination at the master's level only.

Students who fail the doctoral screening examination, but who have been allowed to retake the examination, must do so at the next sitting. They can take up to 12 units per quarter until they have successfully completed the examination. Of these 12 units, only four may be a doctoral 200- or 400-level course; the remainder must be the 597 course. After satisfying the above requirements, students are eligible to take the following qualifying examinations:

Doctoral Written Qualifying Examination. The written qualifying examination is offered twice yearly, once in Fall Quarter and once in Spring Quarter. The examination tests the core knowledge of the division and emphasis the student has selected. The questions on the examination reflect a professional orientation. Students may be passed, passed with honors, or failed on this examination. Students who fail are given a second opportunity to take the examination at the discretion of their adviser and a third opportunity on a two-thirds majority of all divisional faculty voting on this issue. No fourth sitting for the examination is allowed.

Students who fail the doctoral written qualifying examination, but who are allowed to retake it, may do so at any scheduled sitting with consent of the divisional faculty.

University Oral Qualifying Examination. The oral examination is conducted by the student's doctoral committee, which selects topics from education that are related to the student's written dissertation proposal. On majority vote of the doctoral committee, the University Oral Qualifying Examination may be repeated once.

Education

Lower Division Courses

91A. Infant Care and Development. (4) (Using scientific methods to answer questions about how to raise children, educational researchers, psychologists, and anthropologists try to replace myths and anecdotes with a verifiable understanding of children's development and problems and choices that parents face in raising children.

91B. Child Care: Research, Practice, and Policy. (4) Examination of psychological research on influences of early child care on children's concurrent and subsequent development, with this research linked to basic research in developmental psychology and education. Discussion of influence of research on the policy process.

91C. Elementary and Secondary Education. (4) Designed for juniors/seniors. Social sciences overview of major policy issues in American public education. General introduction to social sciences research in analysis of educational policy issues and to methods for exploring major policy issues. Topics include school finance, equal educational opportunity, testing and evaluation, teacher compensation, and school law.

91D. The Teaching Profession. (4) Designed for juniors/seniors. Introduction to the field of education. Experts within Department of Education and experienced school personnel present a variety of topics in education and provide opportunity to visit diverse educational settings.

91E. Perspectives of the American College. (4) Examination of historical conditions that have shaped American higher education and consequent differential characteristics, trends, and practices that bear on dynamics and impacts of contemporary colleges. Emphasis on interrelated research, academic, social, and policy issues underlying the diverse system of American higher education.

Upper Division Courses

M102. The Mexican American and the Schools. (4) (Same as Chicana and Chicano Studies M102.) Review of research and teaching strategies. Analysis of school policies and practices and their effect on development of Mexican American and Chicano youth and communities.

M108. Sociology of Education. (4) (Same as Sociology M175.) Requisite: Sociology 1. Study of social processes and interaction patterns in educational organizations; relationship of such organizations to aspects of society, social class, and power; social relations within school, college, and university; formal and informal groups, subcultures in educational systems; roles of teachers, students, and administrators. Fieldwork may be required.

125A. Education of Exceptional Individuals. (4) Requisite: Psychology 10. Introduction to the field of special education, with emphasis on psychology of individual differences, learning characteristics of exceptional individuals, and application of research and theory to special education problems.

140. Time and Behavior in Educational Organizations. (4) (Formerly numbered 197H.) Designed for juniors/seniors. Overview of role that time plays in understanding behavior in school and social organizations, with specific emphasis on understanding management of change process. Exploration of behavioral issues such as gang membership, midlife crisis, school reform, teacher burnout, and student at-risk behaviors.

M148. Women in Higher Education. (4) (Same as Women's Studies M148.) Designed for juniors/seniors. Education and career development of women in higher education. Specifically, emphasis on undergraduate and graduate women; women faculty and administrators; curricula, programs, and counseling services designed to enhance women's educational and career development, affirmative action, and other recent legislation.

180. Social Psychology of Higher Education. (4) Overview of significant studies in social psychology of higher education. Focus on institutional characteristics and students' interpersonal and intrapersonal processes, with special emphasis on identifying and explaining effects of college experience on student development and achievement.

183A. Contextual Leadership for Education and Community Service. (4) (Formerly numbered 197M.) Conceptual, case study, and experiential investigation of leadership within educational environments and the community. Investigation of how context and environment influence leaders, what leadership effectiveness means, and how to become effective leaders.

183B. Problem Solving for Leadership and Change. (4) (Formerly numbered 197E.) Study of concepts and tools that contribute to creative problem solving and its relationship to leadership and change, drawing from both life and social sciences disciplines as well as professional studies of education and related fields.

183C. Strengths-Based Learning. (4) (Formerly numbered 197E.) Conceptual analysis of theories that point to improved learning and academic achievement. Relevant theory and research from cognitive psychology provide context. Practical applications of theory through classroom activities and experiential assignments.

C191A. Philosophy of Education: Ethics and Values. (4) Study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation. Concurrently scheduled with course C206D.

191B. Issues in Education: Historical Perspective. (4) Lecture, three hours; discussion, one hour. Exploration of such controversial issues in American education as access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media in historical perspective.

C191C. Economics of Education. (4) Introductory course in microeconomic and macroeconomic techniques applied to education. Methodologies illustrated principally in context of current issues in American education. Concurrently scheduled with course C244.

C191D. Politics of Education. (4) Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as a foundation for public policy analysis; interest groups in education policy formation and implementation. Concurrently scheduled with course C207.

C191E. Educational Anthropology. (4) Recommended preparation: Anthropology 9. Study of education through research and method of the cultural anthropologist. Interdependence of culture and education, with emphasis on cross-cultural studies of enculturation, schooling, values, cognition, language, and cultural change. Concurrently scheduled with course C203.

191F. Educational Psychology. (4) 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.

191G. Adolescent Psychosocial Development: Problems and Potentialities. (4) (Formerly numbered 197C.) Adolescence as developmental stage involving construction of personal identity, a narrative dialogical mental structure underlying meaning and direction, life choices, and integration of values and commitments. Current prevention approaches to youth deviance and dysfunction.

191H. Education and Law. (4) (Formerly numbered 197L.) Exploration of American legal system and how it influences education. Introduction to legal reasoning and analysis and examination of past and current controversies to discover patterns and synthesize policy implications.

192A. Theory and Practice of Teaching and Learning Function. (4) (Formerly numbered 192.) Lecture, three hours. Requisite: course 180. Analysis of learning theory and teaching practice in light of research on student characteristics, learning environments, student/instructor interaction, and outcomes of instruction. Application of theory and research to practice.

192B. Teaching Practicum in Social Psychology of Higher Education. (4) (Formerly numbered 181.) Lecture, three hours. Requisite: course 192A. Examination of intellectual and personal development of college students through differential environments and instructional experiences. Students assist in teaching and preparation of instructional materials for course 180.

192C. Dynamics of Peer Teaching. (4) (Formerly numbered 197N.) Proficiency in learning principles and procedures relevant to peer teaching in a variety of circumstances provided and undergraduates trained to present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives.

192D. Development of Academic Workshops. (4) (Formerly numbered 197N.) Requisite: course 192C. Survey of issues in bilingualism and language assessment, study of language, linguistic competence/proficiency, biliteracy, review of current language assessment instruments. Preparation and analysis of naturalistic data using concepts developed through readings and discussion.

192E. Evaluation of Peer Teaching. (4) (Formerly numbered 197N.) Requisite: course 192D. Continuation of course 192D. Survey of issues in bilingualism and language assessment, study of language, linguistic competence/proficiency, biliteracy, review of current language assessment instruments. Preparation and analysis of naturalistic data using concepts developed through readings and discussion.

193A. Community Service Learning. (4) (Formerly numbered 197K.) Lecture, two hours; discussion, two hours; fieldwork, five hours. Based on experiential-education learning theory, course involves undergraduates in promoting academic achievement of high school and junior high school students through tutoring and curriculum development, addressing cognitive and motivation theory and service learning.

193B. Academic Motivation. (4) (Formerly numbered 197L.) Study of critical theories of learning and motivation with applications to academic performance. Exploration of how to improve academic motivation through fieldwork observations and study of research on achievement motivation. Attribution theory, intrinsic motivation, generative learning, self-efficacy, locus of control, and learned helplessness.

194A. Language, Literacy, and Human Development. (6 to 8) Lecture, three hours; laboratory, two hours (optional); field practicum, two hours. Provides opportunities to combine theory and practice in study of human development in educational contexts. Use of ethnographic methods to document learning. Focus on relationship between theories of development, culture, and language. May be taken independently for credit. Letter grading.

194B. Culture, Gender, and Human Development. (6 to 8) Lecture, three hours; laboratory, two hours (optional); field practicum, two hours. Provides opportunities to combine theory and practice in study of human development in educational contexts. Use of ethnographic methods to document learning. Focus on relationship between theories of development, culture, and gender. May be taken independently for credit. Letter grading.

194C. Culture, Communications, and Human Development. (6 to 8) Lecture, three hours; laboratory, two hours (optional); field practicum, two hours. Provides opportunities to combine theory and practice in study of human development in educational contexts. Use of ethnographic methods to document learning. Focus on relationship between theories of development, culture, and technologies. May be taken independently for credit. Letter grading.

197A-197Z. Current Issues in Education. (4) Lecture, three to four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Consult *Schedule of Classes* for topics and instructors:

197F. Laboratory in Education of Exceptional Individuals. Lecture, one hour; laboratory, six to eight hours. Requisite: course 125A. Six to eight hours per week of observation, research, and teaching of children with severe behavioral/emotional disorders and/or mental retardation in UCLA Neuropsychiatric Institute and Hospital School.

197G. Advanced Laboratory in Education of Exceptional Individuals. Lecture, one hour; laboratory, six to eight hours. Requisite: course 197F. Six to eight hours per week of research, teaching, and multidisciplinary team participation with children with severe behavioral/emotional disorders and/or mental retardation in UCLA Neuropsychiatric Institute and Hospital School.

199. Special Studies. Limited to seniors. To be arranged with faculty member who directs the study.

Graduate Courses

200A. Historical Research and Writing. (4) 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.

200B. Survey Research Methods in Education. (4) Requisite: course 210A. Problems of conceptualization, organization, and gathering nonexperimental and quasi-experimental quantitative and qualitative data.

200C. Analysis of Survey Data in Education. (4) Lecture, three hours; laboratory, two hours. Requisite: course 200B. Introduction to techniques of processing and analyzing nonexperimental and quasi-experimental quantitative data.

M201C. History of American Education. (4) (Same as History M264.) History of educational thought and of social forces impinging on American education from the 1880s to the present. Analysis of relation between these ideas and forces, and aims and practices of American education today.

202. Evaluation Theory. (4) Prevalent evaluation theories, systems for categorizing these theories, and process of theory development in educational evaluation.

C203. Educational Anthropology. (4) Recommended preparation: Anthropology 9. Study of education through research and method of the cultural anthropologist. Interdependence of culture and education, with emphasis on cross-cultural studies of enculturation, schooling, values, cognition, language, and cultural change. Concurrently scheduled with course C191E.

204A. Introduction to Education and the Social Sciences. (4) Interdisciplinary course intended to introduce students to study of educational issues, texts, and movements of thought through social sciences and comparative perspectives.

204B. Introduction to Comparative Education. (4) Examination of conceptual and methodological questions underlying comparative education. Particular attention to development of the field and to styles of social analysis which may be applied to comparative and cross-national studies in education.

204C. Education and National Development. (4) 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 the world.

204D. Minority Education in Cross-Cultural Perspective. (4) 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.

204E. International Efforts in Education. (4) Designed for graduate students. Critical analysis of complex world of "development cooperation," with particular reference to bilateral and multilateral efforts in education.

204F. Nonformal Education in Comparative Perspective. (4) 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.

205. Computers in the Educational Process. (4) Introduction to theory, experimentation, evaluation, and future of computer systems in education, with emphasis on computer-assisted instruction (CAI), and use of computers to teach programming and to foster development of writing, computational, and filing skills.

206A. Philosophy of Education: Introduction. (4) Systematic introduction to the field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values.

206C. Introduction to Conceptual Analysis. (4) Conceptual analysis of recurrent and contemporary themes in the field. Emphasis on development of logical and linguistic skills used in analysis of educational problems and issues.

C206D. Philosophy of Education: Ethics and Values. (4) Study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation. Concurrently scheduled with course C191A.

C207. Politics of Education. (4) Preparation: one approved research methods course required for master's or doctoral degree. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as a foundation for public policy analysis; interest groups in education policy formation and implementation. Concurrently scheduled with course C191D.

208A. Perspectives on the Sociology of Education. (4) 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.

208C. Explanation in the Social Sciences and Educational Research. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Overview of basic strategies and forms of explanation relevant to inquiry in education from vantage point of various social and behavioral sciences disciplines.

209A. History of Higher Education. (4) Examination of development of postsecondary education in the U.S., with attention to social context and to scope and variety of institutions.

209C. Problems in Research and Evaluation in Higher Education. (4) Critical review of research and evaluation studies of higher education, with special attention to need for studies of new programs and problems, and to design and methodology of evaluative research.

209D. System of Higher Education. (4) Analysis of structure and function of American postsecondary education from systems perspective. Emphasis on structure of system and comparative characteristics (faculties, student bodies, finances, outputs) of different types of institutions.

211A. Measurement of Educational Achievement and Aptitude. (4) Requisite: course 230A. Critical study of tests of achievement and aptitude, with emphasis on group tests; relation of achievement to aptitude; social implications of measurement of intelligence; elements of validity and reliability. S/U or letter grading.

211B. Measurement in Education: Underlying Theory. (4) Requisite: course 211A. Measurement theory as applied to testing, focusing primarily on classical test theory; implications of theories for test construction and selection; current status of validity and reliability theory.

211C. Item Response Theory. (4) Requisites: courses 211B, 230C. Item response theory, applications to educational achievement tests, item bias, test information, test equating, computerized adaptive testing. S/U or letter grading.

212A. Learning and Education. (4) Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction.

212B. Motivation and Affect in Educative Process. (4) Requisites: courses 212A, 230A. Review of theoretical and empirical literature on motivational factors in school settings and conditions for acquisition of affective outcomes. S/U or letter grading.

212C. Cognition and Creativity in Education. (4) Requisite: course 212A. Review of theoretical and empirical literature on cognitive processes in school learning, including knowledge acquisition, comprehension, metacognition, and creativity.

213A. Counseling Psychology in School and Community. (4) Analysis and in-class application of student personnel service theory and methods, with emphasis on student assessment and development, task groups, and evaluation.

213B. Legal and Ethical Issues in Counseling Psychology. (4) Requisite: course 213A. Ethical and legal codes relevant to psychological services in schools and community; relation of value systems and personality; case studies in implications of personal values in counseling situations.

213C. Group Counseling Theory and Process. (4) Lecture, three hours; discussion, one hour. Requisites: courses 213A, 214A, 214B. Group productivity, leadership in groups, social perception, attitude formation, and effect of behavior changes in individuals and groups. Evaluation of social, psychological, and educational principles related to therapeutic experiences of individuals in small groups.

213D. Assessment in Counseling and Student Affairs. (4) Overview of assessment issues and methods used in counseling and student affairs activities. Emphasis on concepts of testing and measurement, applications of measurement theory, and contemporary issues that are significant in influencing assessment in student affairs programs.

214A. Counseling Theory and Practice. (4) Alternatives in counseling practice in relation to theories of personality development and functioning, research on effectiveness of counseling, professional issues in counseling, educational aspects of counseling.

214B. Advanced Counseling Theory and Practice. (4) Limited to advanced degree candidates whose major interest is counseling and to selected high school and college counselors. Counseling procedures, educational planning, and methods for helping students handle personal problems that interfere with school progress; critical evaluation of procedures.

214D. Career Counseling. (4) Depth study of current theories, principles, problems, and practices of career counseling.

214E. Substance Abuse and Addiction. (4) Theory and practice of prevention and intervention in substance abuse and addiction from perspective of counseling and educational practice.

214F. Student Problems: Social Context. (4) Designed to assist students in understanding the configuration of social forces that lead to student dysfunctions. Consideration of a number of contemporary social problems that are of concern to school counselors, educators in general, and behavioral scientists.

M215. Personality, Motivation, and Attribution. (4) (Same as Psychology M239.) Current research and theory relating personality variables (e.g., attributional styles, self-esteem) to motivational concerns such as persistence and intensity of behavior. Perceived causes of outcomes in achievement and affiliative domains.

216. Counseling Models from a Cross-Cultural Perspective. (4) Requisite: course 213A. Research related to psychological, educational, and sociological characteristics of counseling clients within a cross-cultural perspective and implications for counseling models. Evaluation of counseling practices through analysis of school, community, and mental health settings.

M217A. Social Development and Education. (4) (Same as Psychology M242D.) Biological and familial, school, and other influences on the child; 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.

217B. Cognitive Development and Education. (4) Designed for graduate students. Critical review of theories and research in cognitive development, focusing on work of Piaget and Vygotsky, and relation of this work to issues in educational practice.

M217C. Personality Development and Education. (4) (Same as Psychology M245.) 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.

217D. Language Development and Education. (4) Research and theory on how children develop their first language; sociolinguistic and psycholinguistic issues in preschool and primary years; bilingual and dialectical issues.

217F. Human Development and the Educational Process. (4) Cognitive and social development; cultural, family, peer, and schooling influences on human development; application of developmental theory and research to educational practice.

M217G-M217H-M217I. Child Abuse and Neglect. (2-2-1). (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300.5A-M300.5B-M300.5C, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M290E-M290F-M290G.) Lecture, two hours. Course M217G is requisite to M217H, which is requisite to M217I. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. S/U or letter grading.

219. Laboratory: Advanced Topics in Research Methodology. (4) 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.

220A. Inquiry into Schooling: Organization and Change. (4) 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.

220B. Inquiry into Schooling: Curricular Problems and Policy Issues. (4) Inquiry into curriculum of schooling. Critical analysis of relationship of curricular decision making to social system and contextual variables.

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.

M222A. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) (Same as Anthropology M236Q, Psychiatry M235, and Psychology M295.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.

222B. Design Issues in Naturalistic Research. (4) Lecture, three hours; discussion, one hour. Requisite: course M222A. Issues in conceptualization and design of naturalistic research studies, particularly within educational settings. Specific topics include problem definition and focus, units of observation, sampling, controlled comparisons and meaningful variation, and reliability/validity concerns in observational research. Special attention to ethnographic studies.

222C. Qualitative Data Reduction and Analysis. (4) Lecture, two hours; discussion, two hours. Requisite: course M222A or 222B. Theory of and practice in qualitative data reduction and analysis. Discussion of data storage and retrieval systems, data manipulation techniques such as typologies and attribute spaces, and specific analytic perspectives. Interfacing qualitative and quantitative data.

222D. Qualitative Inquiry: Special Topics. (4) Lecture, four hours. Requisite: course M222A. Special topics course on some field or aspect of qualitative inquiry different from or covered in more depth than topics and techniques in courses M222A, 222B, and 222C. Topics may include classroom language ethnography, advanced ethnographic writing, discourse analysis, and microethnography. Letter grading.

223. Aesthetics and the Curriculum. (4) Lecture, two hours; discussion, two hours. Examination of various ideas and theories in aesthetics and application of these in schooling contexts.

224. Problems and Issues in Bilingual and Multicultural Education. (4) Introduction to development and implementation of bilingual and multicultural programs in the U.S. Analysis of program goals, models, typologies, and effectiveness.

225A. Issues in Education of Exceptional Individuals. (4) Designed for graduate students. Analysis of major research regarding contemporary trends, issues, and programs for the exceptional; consideration of commonalities and differences among exceptional individuals.

225B. Advanced Issues in Education of Exceptional Individuals. (4) Synthesis of developmental and educational theory relevant to study of exceptional individuals, including consideration of historical context of current research and applied issues in special education.

226. Seminar: Special Topics in Writing, Rhetoric, and Educational Methodology. (4) Special topics seminar on writing in education that could focus on history of writing about education, social and political dimensions of it, its variation by discipline, and its uses in professional and public contexts.

227A. Research on Learning Characteristics of Exceptional Individuals. (4) Requisite: course 225B. Overview of research and theory regarding learning characteristics of exceptional individuals and discussion of application of this work to educational practice.

227B. Research on Cognitive and Language Characteristics of Exceptional Individuals. (4) Requisite: course 227A. Review of empirical and theoretical literature regarding language and cognitive development of exceptional individuals; focus on intervention programs developing language and cognition.

227C. Research on Behavioral and Social Characteristics of Exceptional Individuals. (4) Requisite: course 227B. Analysis of social and emotional development of exceptional individuals and development of social competence in special education programs.

228. Observation Methods and Longitudinal Studies. (4) Lecture, two hours; discussion, two hours. Requisite: course 230A. Design of observational and longitudinal studies. Formulation of study conclusions concerning influences on children's development. Conduct of observations; processing and analysis of data. Use of portable computers for recording observations. S/U or letter grading.

229. Seminar: Special Topics in Urban Schooling. (4) 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.

230A. Introduction to Research Design and Statistics. (4) (Formerly numbered 210A.) 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.

230B-230C. Linear Statistical Models in Social Science Research. (4-4) (Formerly numbered 210C, 218A.) Lecture, four hours. Requisite: course 230A or passing score on screening examination. Integrated and unified approach to applications of linear statistical models in regression, analysis of variance, and experimental and quasi-experimental designs. In Progress and letter grading (credit to be given only on completion of course 230C).

230X. Applied Research Design and Statistics for Social Sciences. (4) (Formerly numbered 210B.) Requisite: course 230A or passing score on screening examination. Introduction to commonly used statistical methods in social sciences, including regression, analysis of variance, contingency tables. Emphasis on application and interpretation.

231A. Multivariate Analysis. (4) (Formerly numbered 210D.) Requisites: courses 230B-230C. Review of multiple regression analysis, analysis of covariance. Introduction to matrix algebra. Introduction to multivariate normal distribution. Multivariate analysis of variance. Linear discriminant function. Analysis of repeated measurements. Canonical correlation. Principal components.

231B. Factor Analysis. (4) (Formerly numbered 210E.) Requisites: courses 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis.

231C. Analysis of Categorical and Other Nonnormal Data. (4) (Formerly numbered 218D.) Requisites: courses 230B-230C. Regression analysis with dichotomous and polytomous dependent variables, log-linear modeling, coefficients of association for categorical variables, factor analysis, and structural equation modeling.

231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis. (4) (Formerly numbered 218B.) Requisites: courses 230B-230C. Examination of conceptual, substantive, and methodological issues in analyzing multilevel data (i.e., on individuals in organizational settings such as schools, corporations, hospitals, communities); consideration of alternative analytical models.

231E. Structural Equation Modeling. (4) (Formerly numbered 218C.) Requisites: courses 231A, 231B. Extends path analysis (causal modeling) by considering models with measurement errors and multiple indicators of latent variables. Confirmatory factor analysis, covariance structure modeling, and multiple-group analysis. Identification, estimation, testing, and model building considerations.

232. Instructional Analysis. (4) Theoretical and empirical analysis of instructional variables as they relate to diverse types of instructional strategies. Development of skill in techniques of conducting instructional research.

233A. Professional Writing in Education. (4) Designed for first- and second-year doctoral students and 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.

233B. Professional Writing in Education. (4) Designed for students at proposal or dissertation stage, with focus on development, organization, and coherence of these scholarly documents, their conceptualization and method, and issues of audience and style.

234. Education and Social Stratification. (4) Relationship between education and components of social stratification, including occupations and earnings. Competing theories used in studying education and social stratification; relevant research. Conclusions regarding individual career decisions, social policies, and theories of society.

236. Human Abilities. (4) Requisite: course 230A. Nature, development, and measurement of intellectual abilities and their relations to learning and instruction. Review of research and theory of models of ability and test development. S/U or letter grading.

237. Law and Urban Education. (4) (Formerly numbered 229.) Lecture, four hours. Examination of recent legal controversies that may impact ability of urban educators to meet needs of students in a 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) 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.

- 239. Organization and Governance of Educational Systems. (4)** Academic organizations, precollegiate and postsecondary, are most appropriately studied as complex, professionalized organizations. Emphasis on characteristics of educational institutions and systems as organizations: environmental relations, governance structures, processes, and patterns of decision making and policy-making.
- 240. Cultural Foundations of U.S. Education: Policy and Practice. (4)** Designed for graduate students. Cultural foundations of persistent and troubling issues and tensions in American educational policy-making and practice.
- 241. Research Methodology in School Administration. (4)** Examination of research problems and strategies in school administration.
- 242. Quantitative Foundations for Educational Policy and Planning. (4)** Introductory research course focusing on quantitative foundations for descriptive, tactical, and strategic policy analysis in education.
- C244. Economics of Education. (4)** Introductory course in microeconomic and macroeconomic techniques applied to education. Methodologies illustrated principally in context of current issues in American education. Concurrently scheduled with course C191C.
- 245. Seminar: Cost-Benefit Analysis in Education. (4)** Conceptual and theoretical underpinnings of cost-benefit analysis, critical analysis of current cost-benefit studies, and procedures for conduct of cost-benefit studies.
- 246A. Decision Analysis and Advanced Computer Methods for Educational Policy and Planning. (4)** Requisite: course 242. 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.
- 247. Special Topics in Law and Educational Policy. (4)** (Formerly numbered 447.) Lecture, four hours. Policy-based inquiry with focus on specific law-related debates that inevitably influence both K-12 and higher education communities. Identification of strategies that have been successfully employed by those who have sought to use law to shape educational policy. Letter grading.
- 249B. Seminar: Institutional Research and Program Evaluation. (4)** Critical review of institutional evaluation studies, with consideration of scope of information needed for various purposes and problems of interrelating this information to appraise overall institutional functioning and effectiveness.
- 250A. Organizations and Systems of Higher Education. (4)** Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute the division, with emphasis on underlying social and political issues that shape higher education and organizational change.
- 250B. Topical Issues in Higher Education. (4)** Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute the division, with emphasis on underlying social and political issues that shape higher education and organizational change.
- 250C. Theoretical Frameworks of Higher Education. (4)** (Formerly numbered 410C.) 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.
- 251A. Seminar: Philosophy of Education, Epistemology. (4)** Seminar, four hours. S/U or letter grading.
- 251C. Seminar: Philosophy of Education, Social Science Problems — Methodological Perspectives. (4)** Requisite: course 206C.
- 251D. Seminar: Philosophy of Education, Problems in Ethics and Values. (4)** Requisite: course C206D.
- 251E. Seminar: Philosophy of Education, Selected Issues. (4)** Seminar, four hours. S/U or letter grading.
- 252A. Seminar: Educational Organizations. (4)** Requisite: course 208A.
- 252B. Seminar: Education and Social Change. (4)** Requisite: course 208A.
- M252C. Human Resources and Economic Development. (4)** (Same as Community Health Sciences M236.) Lecture, four hours. Examination, in context of the developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments. S/U or letter grading.
- 253A. Seminar: Current Problems in Comparative Education. (4)** Seminar, four hours. S/U or letter grading.
- 253B. Seminar: African Education. (4)** 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.
- 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.
- 253E. Seminar: European Education. (4)** Seminar, four hours. S/U or letter grading.
- 253F. Seminar: Education in Revolutionary Societies. (4)** Multidisciplinary and comparative study of socialist educational theory examined through writings of Marx, Lenin, Mao, and others. Implementation of this theory in specific case studies, along with comparative assessments of nonsocialist nations.
- 253G. Seminar: The Asian American and Education. (4)** Basic issues and topics related to Asian Americans in the field of education. Examples of issues and topics include Asian Americans and the community, socioeconomic status, education-to-work transition, language and culture question.
- 253H. Seminar: The Chicano/Hispanic and Education. (4)** Basic issues and topics related to the Chicano 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).
- 253I. Education and Social Change in the Middle East and Islamic World. (4)** 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 the Middle East and Islamic world (including Pacific Rim, South and Central Asia).
- 254. Seminar: History of Education. (4)** Requisite: course M201C. Study of current movements in historiography of education and critical reading of texts in history of education.
- 255A-255B-255C. Seminars: Special Topics. (4)** May be repeated for credit. **255A.** Measurement; **255B.** Design; **255C.** Data Analysis.
- 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.
- 257. Seminar: Research in Counseling Psychology. (4)** In-depth analysis of selected research approaches/areas in counseling psychology.
- 258A. Seminar: Problems in Instructional Research. (4)** Seminar, four hours. S/U or letter grading.
- 258B. Seminar: Problems in Instructional Development. (4)** Seminar, four hours. S/U or letter grading.
- 259A. Seminar: Research on Characteristics of Students. (4)** Analysis of concepts, methodology, and conclusions or implications underlying and resulting from major research on student characteristics. Emphasis on differential impact of higher education on student and faculty development.
- 260. Seminar: Principles of Curriculum and Instruction. (4)** Seminar, four hours. S/U or letter grading.
- 261F. Seminar: Cognitive and Personal Development of College Students. (4)** Examination of cognitive development of college students; issues of personal and social development, including leadership, and interpersonal relations and skills.
- 262B. Seminar: Reading. (4)** Seminar, four hours. S/U or letter grading.
- 262F. Seminar: Research Topics in Bilingual/Multicultural Education. (4)** Seminar, four hours. S/U or letter grading.
- 263. Seminar: Higher Education. (4)** Seminar, four hours. S/U or letter grading.
- 264. Seminar: Teacher Education. (4)** 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.
- 265. Higher Education Policy. (4)** Requisites: courses 250A, 250B. Understanding public policy for higher education requires understanding of both issues and policy process. Review of major topics on which the U.S. government is active, as well as key actors and their influence.
- 266. Feminist Theory and Social Sciences Research. (4)** 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, a distinctive critical theory methodology now widely used in social sciences.
- 267. Seminar: Educational Technology. (4)** Seminar, four hours. S/U or letter grading.
- 268. Theorizing Reading: Rhetorics of Academic Discourse. (4)** Lecture, two hours; discussion, two hours. Designed for graduate students. Introduction to theoretical approaches to reading, such as post-structuralist, feminist, deconstruction, reader reception, and semiotics, and to core ideas of some leading theorists of reading, such as Roland Barthes, Wolfgang Iser, Barbara Johnson, Stanley Fish, and Gayatri Spivak.
- 269. Representations of Education in Cinema. (4)** Lecture, two hours; discussion, two hours. Designed for graduate students. Exploration of ways in which we draw on diverse "texts," particularly films set in or around schools, to illuminate contemporary issues in American secondary education (e.g., issues pertaining to representation of teachers, students, parents, and administrators and curriculum in popular films about high school and adolescents).
- 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 a goal of cultural studies. Letter grading.
- 271A. Proseminar: Educational Psychology. (2)** Introduction to a variety of research issues in the field of educational psychology, including topics related to human development, learning and instruction, counseling, and special education, and to different methodological approaches used to study them. S/U grading.

272. Case-Study Research in Education Policy and Practice. (4) 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.

273A. Structure and Dynamics of Educational System. (4) Lecture, two hours; discussion, two hours. Overview of school administration, teaching, curriculum, and policy studies. Focus on American education as an institutional system wherein federal, state, and local policy, school administration, curriculum theory and design, and teaching are inextricably connected in the delivery of education.

273B. Social Foundations of Education. (4) Introduction to literature on multiculturalism and teachings in diverse social, cultural, and economic contexts. Exploration of debates over multiculturalism and teaching for democratic citizenship by review of a diverse number of anthropological, sociological, educational curricula and literatures.

274. Science, Technology, and Social Research after Eurocentrism. (4) A philosophy of natural sciences for social scientists which 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.

275. Race and Education. (4) Designed for graduate students. Examination of role of race in educational policy-making. Exploration of a 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.

276. Contemporary Theories of Writing. (4) Review of current theories of writing and literacy research and examination of relationships among writing and literacy, culture, and human development. In particular, examination of history of writing research over last three decades as part of a broader intellectual history.

277. Language in the Classroom. (4) (Formerly numbered 424C.) Seminar/fieldwork. Survey of language and literacy theories and examination of relationship between literacy learning and social practices of classrooms/schools. Study and utilization of qualitative methods of inquiry and discourse analysis.

278. Social Contexts of Literacy Learning. (4) Survey of range of sociocultural theories of learning and literacy, in particular, theories of literacy and language socialization, cultural historical theories of human development, and their relevance to school-based literacy.

280A. Seminar: Selected Topics in Special Education. (2 to 6) Focus on research and clinical problems in special education. Introduction to a range of clinical services and research strategies. Exploration of current topics in the field.

280B. Seminar: Exceptional Individuals. (4) Limited to doctoral students.

282. Students at Risk: Reconsideration. (4) Designed for second-year graduate students. Notion of "at risk" has become standard element of biomedical/public health and educational/social sciences discourse. Consideration of "risk" from range of disciplines and modes of inquiry.

283. Social Research in a Multicultural and Postcolonial World. (4) A philosophy of social sciences that focuses on how to think fruitfully about two issues: (1) inevitability of nonneutral procedures and results of research conducted within a liberal state that must be committed to value-neutrality and (2) challenges that multicultural and postcolonial social theory have raised to conventional research theories and methodologies.

288. Research Apprenticeship Course. (2) Discussion, two hours. Course facilitates a mentorship model of training Ph.D. 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.

290. Educational Policy Analysis: Research, Theory, and Practice. (4) Broad overview of development of educational policy from the 1950s to the present. Examination of current issues and debates within educational policy in the U.S. through different theoretical lenses. Exploration of major bodies of research on educational policy and alternative paradigms.

291. Organizational and Leadership Theory in Education. (4) Introduction to contemporary and historical conceptions of organization and leadership in context of formal schooling. Exploration of these conceptions through inquiry into school and college settings.

292. Curriculum Theory, Research, and Practice. (4) Survey of history of theories and perspectives shaping what is taught in schools, providing graduate students broad understanding of various values, beliefs, and power relations shaping K-12 curriculum in the U.S.

293. Teaching Studies: Research and Theory into Practice. (4) Exploration of historical, theoretical, and empirical perspectives related to teaching and teacher education, providing graduate students with broad overview of relevant literature and current issues shaping teaching profession in the U.S.

296A-296F. Seminars: Research Topics in Education (2-2). Discussion, 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.

299A-299B-299C. Research Practicum: Education (4 to 8 each). May be repeated for credit.

300. Dissertation Writing Workshop: Interdivisional Seminar. (4) Seminar, one hour; discussion, two hours; laboratory, one hour. Limited enrollment. Introduction for doctoral candidates to dissertation writing as a genre that can be analyzed or broken down with its constituent parts and, vice versa, which is constructed out of materials that can be identified and analyzed. S/U grading.

309. Methodologies for English Language Learners. (4) (Formerly numbered 309A.) Lecture, two hours; discussion, two hours. Limited to credential program students. Pedagogy for bilingual and English development instruction. Topics include legal foundations of bilingual programs, educational issues, organizational approaches, and communicative approach; strategies and activities. Discussion of competencies needed by all content area teachers of English language, including strategies for teaching in and through English. Letter grading.

310. Professional Communication for Graduate Students in Education. (2) Writing workshop on students' papers in progress to ensure professional standards. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. S/U grading.

311. Principles and Methods of Computer Literacy and Classroom Application — K-12. (2) Lecture, one hour; laboratory, 30 minutes. Introduction to use of computers in educational environment. Discussion of issues on why and how to integrate computers into curriculum and hands-on practice which allows students to demonstrate skills discussed. S/U grading.

312. Basic Principles of Curriculum and Instruction. (4) Analysis and practice of basic principles and concepts for planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of a variety of instructional strategies and their application in elementary and secondary schools.

314A. Principles and Methods for Curriculum, Instruction, and Leadership in Mathematics. (6 to 12) Problem solving, curriculum development, implementation of California Mathematics Framework, strategies for encouraging women and minorities into mathematics, and leadership development. S/U grading.

315A-315B. Principles and Methods for Teaching Reading for Multiple Subject Instruction. (2-2) Course 315A is requisite to 315B. 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. S/U grading.

316A-316B. Principles and Methods for Teaching Reading for Single Subject Instruction. (2-2) Course 316A is requisite to 316B. Reading instruction in secondary 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. S/U grading.

318A-318B-318C. Principles and Methods for Multiple Subject Instruction. (2-2) (Formerly numbered 318A-318B.) Lecture, two hours; laboratory, one hour. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in elementary schools. S/U grading.

320A-320B. Principles and Methods for Single Subject Instruction. (2-2) Course 320A is requisite to 320B. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in secondary schools. Observation and participation in schools. S/U grading.

327. Principles and Methods for Teaching Spanish Effectively. (6 to 12) 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-330C. Student Teaching (2 to 6 each). (Not the same as courses 330B, 330C prior to Fall Quarter 1996.) Site-based fieldwork, 10 to 15 hours. Requisite: course 330A. Students are assigned to student teach in 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.

330D. Classroom Residency and Teaching. (8) Site-based fieldwork, 10 to 15 hours. Students are employed by local school districts to teach as residents in school sites with racially, culturally, and linguistically diverse student populations. Students also work in collaborative teams through the Teacher Education Program to initiate a change project in their local school and/or complete a case study on the project. S/U grading.

360A-360B-360C. Team Seminars (6-6-6) (Formerly numbered 360.) Seminar, four hours; laboratory, two hours. Analysis and practice 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 conduct ethnographic inquiry of the local community of their demonstration school. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

400. Foundations of Education Policy Analysis. (4) Principles of decision making and policy formation, implementation, and analysis in context of the educational system. Critical perspectives include effectiveness and equity of educational delivery systems and programs, and complex nature of educational governance in contemporary America.

401. Structure and Functions of Schools as Complex Organizations. (4) Critical analysis of alternative assumptions about organizations, how they function, and why people in organizations behave as they do. Application to special circumstances of schools and to contemporary issues and problems in school leadership, improvement, and reform.

402. Curriculum Principles and Practices. (4) Critical analysis of major concepts, underlying assumptions, policy issues, and processes in development and implementation of curriculum in the educational setting. Problems in formulation of purposes, selection of learning experiences, organization of curriculum, and curriculum evaluation.

403. Teaching: Principles and Problems. (4) Current knowledge concerning good teaching and theoretical/conceptual, empirical, and/or ideological bases for these assertions. Alternative models of classroom teaching, their assumptions, and evidence of worth. Current policy issues and problems in generating and sustaining effective teaching.

406A-406B-406C. Social Foundations and Cultural Diversity in American Education (2-2-2). (Formerly numbered 100A-100B.) 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.

407A-407B. Psychological Foundations of Education. (4-4) (Formerly numbered 112.) 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.

409. Language Structure, Acquisition, and Development. (4) (Formerly numbered 409A.) Lecture, four hours. Limited to credential program students. Theoretical foundations of language structure and first and second language acquisition, with focus on major themes of current research that provide a 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.

410A-410B. Issues in Higher Education and K-12. (4) Two-course sequence providing overview of higher education systems. **410A.** Designed to develop knowledge, understanding, and sensitivity to contemporary critical and emerging issues that impact higher education, with focus on both theory and practice. Study of relationships between issues in K-12 schooling and higher education. **410B.** Exploration of issues that effect both higher education and K-12 schooling, including restructuring and reform, standards, access and accountability, and new technologies. Emphasis on both theory and practice.

411A. Introduction to Educational Evaluation. (4) Introduction to systematic evaluation as it applies to appraising educational programs. Consideration of program evaluation as means of improving quality of educationally relevant decisions.

411B. Procedural Problems in Evaluation. (4) 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 the decision context, and reporting evaluation results.

412A. Criterion-Referenced and Norm-Referenced Test Construction. (4) Requisite: course 211A. Construction of criterion- and norm-referenced assessment instruments. Appropriateness of different assessment devices considered in relation to research, development, and evaluation.

412B. Intersecting Dimensions of Teaching and Testing. (4) Designed to develop acquisition of insights and skills based on symbiotic relationship between assessment and instruction when high-stakes educational achievement tests are used.

413A. Methodology for Primary Language Instruction. (3) Lecture, two hours; discussion, one hour. Offered and required for Spanish and Korean BCLAD credential. 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.

413B. Culture of Emphasis. (3) Lecture, two hours; discussion, one hour. Offered and required for Spanish and Korean BCLAD credential. Conducted in Spanish and Korean. 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.

414E. Administration of Student Affairs. (4) Overview of general knowledge and processes essential to effectively administer a program or service under student affairs. Examination of relationship between environmental factors and strategies for governing, planning, and managing student affairs programs and services.

415A. Assessment in Counseling Psychology. (4) Requisites: courses 211A, 230A. Overview of rationale for and procedures used by counseling psychologists for assessing individuals in a multicultural society. Emphasis on standardized cognitive assessment instruments and specialized techniques for diagnosis, evaluation, and development of counseling strategies for at-risk populations. S/U or letter grading.

415B. Advanced Assessment in Counseling Psychology. (4) Requisite: course 415A. Advanced course in assessment for counseling psychologists. Survey and demonstration of instruments of achievement, affective, and personality appraisal, with emphasis on testing and interplay between assessment and psychological functioning for reducing risks of failure in academic, personal, and social areas.

420A. Principles of Curriculum. (4) Critical examination of basic concepts underlying determination of objectives, selection and organization of learning experiences, and evaluation process.

421A. Programs and Research in Early Childhood Education. (4) Preparation: one course from development series. Examination of child care programs and research in early childhood education, including review of relation of research in developmental psychology and education to goals of early childhood education and day care.

421D. Parents and Community Agents in Child Development. (4) Preparation: one course from development series. Critical review of theoretical basis and effectiveness of training programs for parents of young and elementary school-aged children; relation of preschool parent programs to family development and role of programs in the community.

421F. Issues in Application of Child Development and Educational Research to Social Policy. (4) Relationships among policymakers and social scientists in development, implementation, and evaluation of policies affecting children and their families. Students learn to design and conduct interviews, analyze legislative documents, and present analyses to policymakers.

422. Inquiry into Schooling: Basic Issues. (4) Critical examination of basic issues and problems in organization and reconstruction of precollegiate schooling. Consideration of historical development and changing functions of schooling in American society; school organization; schooling alternatives; problems in management of educational change.

423. The Humanistic Curriculum. (4) Consideration of philosophical and cultural foundations of humanistic curricular strategies. Review of techniques and procedures of affective education with a view to their place in overall theory of teaching and learning.

424A. Social Studies in the Curriculum. (4) Advanced study in social studies curriculum development; problems in defining objectives and organizing single and multidisciplinary programs; critical review of literature on cognitive and affective learning in social science, with emphasis on experimental study of instructional programs.

424B. Reading in the Curriculum. (4) Requisite: course 230A. Study of reading curricula and instructional procedures, with emphasis on rationale and research underlying their development and research comparing their effectiveness. S/U or letter grading.

424G. Curriculum Design for Bilingual Education. (4) Advanced study of curriculum design for bilingual educational programs. Philosophical basis for bilingual programs; theories of learning and instruction applied to bilingual learner; language assessment; development of instructional component; program evaluation.

425. Principles for Teaching Exceptional Individuals. (4) (Formerly numbered 125B.) Approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Field observation in local schools. Letter grading.

431A. Administration in Higher Education. (4) Overview of college and university administration and introduction to policy research and analysis in postsecondary institutions. Case studies of administrative problems, policies, and practices. Management information systems, resource allocation, and issues related to responsibility, authority, and participation in administrative decisions.

431B. Curriculum and Instruction in Higher Education. (4) Principles of curriculum and instruction in postsecondary programs. Theory and practices in goal setting, testing, media selection, and related instructional responsibilities. Preparing to teach college-level students.

432. Seminar: Professional Topics in Higher Education. (4) Seminar, four hours. S/U or letter grading.

433A. Instructional Product Development. (4) Examination of procedures employed in systematic development of instructional products. Students acquire competencies associated with those procedures.

433B. Technological Development in Educational Media. (4) Requisite: course 433A. Theory, current problems, and anticipated trends in instrumentation and systems development for instructional applications and research, including computer-aided instruction, communication satellites, and other advanced systems; theory and laboratory practice with instrumentation in educational research.

440C. Administration of the Instructional Program. (4) 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.

441A. Instructional Supervision A. (4) 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.

441B. Instructional Supervision B. (4) Requisite: course 441A. Basic techniques of script-taping instructional episodes, planning teacher conferences through analysis of script-tapes, conducting and analyzing growth-evoking teacher conferences. Conducting mini-lessons to demonstrate elements of good instruction.

442B. Legal Aspects of Educational Management and Practice. (4) Examination of structures and kinds of law governing educational systems in the 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.

443. Policy Analysis in Education. (4) 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 process).

444B. Equality of Educational Opportunity through Desegregation and Finance Case Law. (4) Requisite: course 442B. Concentrated review of definition of equality of educational opportunity as it is being developed by the courts in cases concerning desegregation and educational finance.

447. Seminar: Educational Policy and Planning, Special Studies. (1 to 4) S/U or letter grading.

448A. Urban School Leadership. (4) Analysis of problems of urban school leadership. Emphasis on changing nature of the urban principalship, with considerable attention to role of other school and community agencies that interact with the urban school leader.

448B. Urban Leadership Laboratory. (4) Analysis of and opportunity to practice human and technical skills requisite for success as an urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming, and group dynamics.

460. Seminar: Special Issues in Evaluation. (4) Topics and instructors vary each term. Recent emphases included evaluation utilization and cost-effectiveness evaluation.

462. Seminar: Community College. (4) Topics include problems and practices in community college formation, instruction, student flow, administration, and/or evaluation.

470A. Seminar: Large Systems and Individual Schools. (4) Seminar, four hours. S/U or letter grading.

470B. Seminar: Educational Government. (4) Seminar, four hours. S/U or letter grading.

481. Knowledge and Inquiry in the Classroom. (4) 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.

489. Instructional Strategies in Education. (4) Methods for academic instruction, including research and active participation in the adversary approach, forms of debate, role playing, interaction process analysis, and feedback instruments. Practical emphasis on social sciences and humanities instruction, K-12.

490A. Instructional Decision Making. (4) 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.

491A. Curricular Decision Making. (4) Examination of alternative solutions for practical problems that classroom teachers face in making curricular decisions. Analysis of the influence of psychological, societal, and institutional factors in curricular decisions.

492. Evaluation of Teaching and Learning. (4) Relationship between appraisal instruments and information required for making decisions about teachers, pupils, and materials. Recent developments in evaluation of teaching and learning; use of modern appraisal techniques in classroom settings.

498A-498B-498C. Directed Field Experience (4 to 8 each). May be repeated for credit.

499A-499B-499C. Advanced Directed Field Experience (4 to 8 each). May be repeated for credit.

501. Cooperative Program in Special Education (2 to 8). 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. (6 to 12) Individual study or research for graduate students. May be repeated for credit.

597. Preparation for Master's Comprehensive Examinations or Doctoral Qualifying Examinations. (6 to 12) Individual study for master's comprehensive examinations or for Ph.D. or Ed.D. qualifying examinations. May be repeated for credit. S/U grading.

598. Thesis Research. (6 to 12) Research for and preparation of master's thesis. May be taken for a maximum of 12 units. S/U grading.

599. Dissertation Research. (6 to 12) Research for and preparation of doctoral dissertation. May be repeated for credit. S/U grading.

ELECTRICAL ENGINEERING

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John D. Villasenor, Ph.D., *Vice Chair*

Professors

Asad A. Abidi, Ph.D.
A.V. Balakrishnan, Ph.D.
Elliott R. Brown, Ph.D.
Frank M.C. Chang, Ph.D.
Harold R. Fetterman, Ph.D.
Tatsuo Itoh, Ph.D. (*TRW Professor of Electrical Engineering*)
Stephen E. Jacobsen, Ph.D., *Associate Dean*
Rajeev Jain, Ph.D.
Chandrashekhar J. Joshi, Ph.D.
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Jason C.S. Woo, Ph.D.
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Professors Emeriti

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Frederick W. Schott, Ph.D.
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Donald M. Wiberg, Ph.D.
Jack Willis, B.Sc.

Associate Professors

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Ioannis Kanellakopoulos, Ph.D.
Helen R.L. Na, Ph.D.
Gregory J. Pottie, Ph.D.
Behzad Razavi, Ph.D.
Ali H. Sayed, Ph.D.
Mani B. Srivastava, Ph.D.
Ingrid M. Verbauwhede, Ph.D.

Assistant Professors

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Jack W. Judy, Ph.D.
William H. Mangione-Smith, Ph.D.
Fernando G. Paganini, Ph.D.
Lieven Vandenberghe, Ph.D.
Richard D. Wesel, Ph.D.
C.-K. Ken Yang, Ph.D.

Adjunct Professors

Nicolaos G. Alexopoulos, Ph.D.
Donald Arnush, Ph.D.
Giorgio Franceschetti, Ph.D.
Paul T. Greiling, Ph.D.
Brian H. Kolner, Ph.D.
Neville C. Luhmann, Jr., Ph.D.
Joel Schulman, Ph.D.
Pyotr Y. Ufimtsev, Ph.D.

Adjunct Associate Professors

Nicholas Bambos, Ph.D.
Kenneth W. Iliff, Ph.D.
Warren B. Mori, Ph.D.
Kristofer S.J. Pister, Ph.D.

Adjunct Assistant Professors

Charles Chien, Ph.D.
Robert J. Greenberg, Ph.D.

Scope and Objectives

The Electrical Engineering Department emphasizes teaching and research in the fields of communications and telecommunications, control systems, electromagnetics, integrated circuits and systems, microwave and millimeter wave electronics, operations research, photonics and optoelectronics, plasma electronics, signal processing, and solid-state electronics. In each of these fields, the department has state-of-the-art research programs exploring exciting new concepts and developments. Undergraduate students receive a B.S. degree in Electrical Engineering. Graduate research and training programs leading to the M.S. and Ph.D. degrees are also offered.

Laboratories are available for research in the following areas: analog and digital electronics,

hybrid integrated circuits, integrated semiconductor devices, microwave and millimeter wave electronics, solid-state electronics, fiber optics, lasers and quantum electronics, and applied plasma physics. The department is associated with the Center for High-Frequency Electronics and the Institute of Plasma and Fusion Research, two research centers at UCLA.

Undergraduate Study

Electrical Engineering B.S.

The ABET-accredited electrical engineering curriculum gives an excellent background for either graduate study or employment. The two main objectives are to provide (1) a deep and fundamental education in electrical engineering as well as in basic sciences and mathematics and (2) specialized education in one branch of electrical engineering so that students develop expertise in it.

The Major

Course requirements are as follows (188 minimum units required):

(1) One engineering breadth course from Civil and Environmental Engineering 108, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 103, M105A (or Chemical Engineering M105A).

(2) Electrical Engineering 10, M16 (or Computer Science M51A), 101, 102, 103, 110, 113, 115A, 121A, 131A, 132A, 141, 161, 172, Mathematics 113 or 132, Mechanical and Aerospace Engineering 192A.

(3) Any five major field elective courses selected from those offered by the Electrical Engineering Department, including at minimum four units of laboratories and one design course. With approval of the adviser, two may be selected from courses related to electrical engineering in other departments.

(4) Chemistry and Biochemistry 20A, 20B, 20L; Computer Science 32; Electrical Engineering 1, 2, 5C (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details. Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements.

Biomedical Engineering Option

Course requirements are as follows (195 minimum units required):

(1) Electrical Engineering 10, M16 (or Computer Science M51A), 101, 102, 103, 110, 113, 115A, 121A, 131A, 132A, 141, 161, Mathematics 113 or 132, Mechanical and Aerospace Engineering 103, M105A, 192A.

(2) Life Sciences 1 (satisfies SEAS GE life sciences requirement), 2, 3.

(3) Four technical elective courses, including two bioengineering courses selected from the Electrical Engineering Department or other departments in the school and two courses selected from Electrical Engineering 114, 115B, 115C, 142, 172.

(4) Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L; Electrical Engineering 1, 2, 5C (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details. Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements.

Computer Engineering Option

Course requirements are as follows (189 minimum units required):

(1) One engineering breadth course from Civil and Environmental Engineering 108, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 103, M105A (or Chemical Engineering M105A).

(2) Computer Science 111, 180, Electrical Engineering 10, M16 (or Computer Science M51A), 101, 102, 103, 110, 113, 115A, 115C, 116B, M116C (or Computer Science M151B), M116D (or Computer Science M152B), M116L (or Computer Science M152A), 121A, 131A, Mathematics 113 or 132, Mechanical and Aerospace Engineering 192A.

(3) Three technical elective courses, with at least one from item a and one from item b: (a) Electrical Engineering 132A, either Computer Science 118 or Electrical Engineering 132B; (b) Electrical Engineering 114, 115B, 115D, 141, 142.

(4) Chemistry and Biochemistry 20A; Computer Science 32, 33; Electrical Engineering 1, 2, 5C (or Computer Science 31); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details. Electrical Engineering majors are also required to satisfy the ethics and professionalism requirement by completing Engineering 95 or History 2A, which may be applied toward either the humanities or social sciences section of the GE requirements.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*.

Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Electrical Engineering offers the Master of Science (M.S.) degree in Chemical Engineering.

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE).

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.ee.ucla.edu>. Forms are also available by writing to the Electrical Engineering Department, 56-125B Engineering IV, Box 951594, Los Angeles, CA 90095-2647, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Areas of Study

Communications and Telecommunications

Communication and telecommunication principles and engineering applications; channel and source coding; spread spectrum communication; cryptography; estimation and detection; algorithms and processing in communication and radar; satellite communication systems; stochastic modeling in telecommunication engineering; mobile radio engineering; telecommunication switching, queuing system, communication networks, local-area, metropolitan-area, and wide-area computer communication networks.

Control Systems

State-space theory of linear systems, optimal control of deterministic linear and nonlinear systems, stochastic control, Kalman filtering, stability theory of linear and nonlinear feedback control systems, and computer-aided design of control systems.

Electromagnetics

Electromagnetic theory; propagation and scattering; antenna theory measurement and design; microwave and millimeter wave sources; integrated microwave and millimeter wave circuits; printed circuit antennas; integrated and fiber optics; holography; electromechanics.

Integrated Circuits and Systems

Analysis and design of analog and digital integrated circuits; architecture and layout of large-scale integrated processors; high-speed ana-

log and digital integrated circuit design; implementations of signal processing algorithms; device and circuit intersections; computer aids for VLSI design and synthesis.

Operations Research

Continuous and combinatorial optimization theory, including linear and nonlinear programming, network flows, graphs, and integer programming, and applications to problems of engineering design; applied stochastic processes, including renewal theory, Markov processes, fluctuation theory, stochastic dynamic programming, and applications to telecommunication and computer networks.

Photonics and Optoelectronics

Laser principles including saturation, power, pulse evolution in amplifiers and oscillators, resonator modes, beam propagation, coherence phenomena, specific laser systems, and typical applications, and optical logic circuits.

Optoelectronic principles including electro-optics, magneto-optics, acousto-optics, nonlinear optics, opto-optics, modulation, deflection, detection, holography, Brillouin scattering and Raman scattering.

Plasma Electronics

Fundamental plasma waves and instability; interaction of microwaves and laser radiation with plasmas; plasma diagnostics; controlled nuclear fusion.

Signal Processing

Digital signal processing theory; analysis and design of digital filters; digital speech processing; digital image processing; multirate digital signal processing; adaptive filtering; neural networks; communications signal processing.

Solid-State Electronics

Solid-state physical electronics; semiconductor device physics and design.

Course Requirements

At least nine courses are required, of which at least five must be graduate courses. In the thesis plan, seven of the nine must be formal courses, including at least four from the 200 series. The remaining two may be 598 courses involving work on the thesis. In the comprehensive examination plan, no units of 500-series courses may be applied toward the minimum course requirement. A majority of the courses must be in or related to electrical engineering and belong to one of the following specialized major fields described below.

Note: The following undergraduate courses are required for the B.S. degree in Electrical Engineering and cannot be used for the master's degree: Electrical Engineering 10, 110, 115A, 121A, 121B, 132A, 141, 161.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical

Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Communications and Telecommunications

Requisite. B.S. degree in Engineering or equivalent.

Minimum Course Requirements. Nine four-unit courses, of which at least six must be graduate courses.

Thesis Plan. Electrical Engineering 230A, 232A; two additional 200-level electrical engineering courses in the communications and telecommunications engineering area; three or more courses, of which at least two must be 200-level electrical engineering courses, subject to the approval of the student's adviser. Eight units (two courses) of Electrical Engineering 598 must be taken to cover the research work and preparation of the thesis. Both 598 courses count toward the minimum of nine courses.

Comprehensive Examination Plan. Electrical Engineering 230A, 232A; two additional 200-level electrical engineering courses in the communications and telecommunications engineering area; five or more courses, of which at least two must be 200-level electrical engineering courses, subject to the approval of the student's adviser.

Control Systems

Requisite. A B.S. degree in Electrical Engineering or equivalent.

Thesis Plan. Seven graduate-level courses, of which at least five must be chosen from the list of courses covering the control systems fundamentals, and a thesis. The remaining courses are subject to the approval of the student's adviser. In addition, eight units (two courses) of Electrical Engineering 598 must be taken to cover the research work and thesis preparation.

Comprehensive Examination Plan. Nine courses, of which seven must be graduate level, and at least five must be chosen from the following list of courses covering the control systems fundamentals. The remaining courses are subject to the approval of the student's adviser.

Basic graduate courses in control systems: Electrical Engineering M240A, 240B, M240C, 241A, 241B, 241C, M242A.

Electromagnetics

Requisite. B.S. degree in Electrical Engineering or equivalent.

Thesis Plan. Eight units (two courses) of Electrical Engineering 598 must be offered to cover the research work and preparation of the thesis. Both 598 courses count toward the minimum of nine courses, but only one can count toward the requirement of five graduate-level

courses. A minimum of four graduate courses is to be selected from the Group II list.

The remaining courses may, subject to the approval of the student's adviser, be chosen as free electives from the 100 or 200 series in order to meet the overall requirements given above.

Comprehensive Examination Plan. At least seven courses must be chosen from those listed below in Groups I and II, and at least four of the seven courses must be chosen from Group II.

The remaining two courses may, subject to the approval of the student's adviser, be chosen as free electives from the 100 or 200 series in order to meet the overall requirements given above.

Group I: Electrical Engineering 162A, 162B, 163A, 163B, 163C, 172, M185.

Group II: Electrical Engineering 221C, 260A, 260B, 261, 262, 270.

Integrated Circuits and Systems

Requisite. B.S. degree in Electrical Engineering containing courses in electronics and integrated circuits equivalent to Electrical Engineering 115B, 115C, and 121A. A written qualifying examination may be used to verify the background of beginning M.S. students who have not taken the courses. Those not passing the examination must take the 100-level courses before proceeding with graduate-level courses.

Minimum Course Requirements. Nine courses, of which at least five must be at the graduate level. A thesis must be completed under the direction of a faculty adviser.

Thesis Plan. All of the courses listed in Group I must be completed. In addition, three courses must be chosen from Groups II and III with, at most, one taken from Group III. The remaining two are free electives.

Group I: Electrical Engineering 215A, 215B, M216A.

Group II: Electrical Engineering 115D, 212A, 213A, 215D, 221A, 221B.

Group III: Computer Science 251A, 252A, 258D.

Free Electives. With some exceptions, all 100- and 200-level courses are acceptable as free electives subject to the approval of the faculty adviser. However, it is strongly recommended that courses from the fields of signal processing, solid-state, or communications be used as the free electives. Undergraduate School of Engineering and Applied Science core courses and Electrical Engineering 10, 110, 115A, 121A, 141, and 161 may not be used as free electives.

The normal courseload approved by a faculty adviser is such that it requires a full-time presence on campus and, as a rule, precludes part-time off-campus employment. The M.S.

program should normally take four quarters and a summer for completion.

Operations Research

Minimum Course Requirements. At least nine courses, of which at least five must be at the graduate level. For the requisite structure, consult the department.

In consultation with an adviser, students may elect the thesis plan or the comprehensive examination plan. M.S. students in either plan must take at least three courses from Group I and at least two courses from Group II.

Group I: Optimization (Mathematical Programming): Electrical Engineering 232E, 236A, 236B, 236C.

Group II: Applied Stochastic Processes and Dynamic Programming: Electrical Engineering 232A, 232B, 232C, 237.

Thesis Plan. Under the thesis plan, students offer eight units (two courses) of Electrical Engineering 598 to represent thesis preparation and research. Only four of these units may be used to satisfy the graduate course requirement; however, the eight units can be used to satisfy the total course requirement.

Comprehensive Examination Plan. Under the comprehensive examination plan, students may not apply any 500-level courses toward the course requirements.

Photonics and Optoelectronics

Requisite. A B.S. degree in Engineering or Physics or equivalent.

Thesis Plan. Electrical Engineering 270, 271, either 272 or 273, 598 (twice), and four additional courses, of which at least one must be a 200-level course.

Comprehensive Examination Plan. Electrical Engineering 270, 271, either 272 or 273, and six additional courses, of which at least two must be 200-level courses.

Additional Courses. With a few exceptions, all 100- and 200-level courses in the *UCLA General Catalog* are acceptable, subject to the approval of the adviser. The exceptions are the following courses (which are not acceptable for any M.S. program in Electrical Engineering): (1) all school undergraduate core courses and (2) all department undergraduate core courses. Consult the departmental adviser for lists of the courses.

Plasma Electronics

Requisite. A B.S. degree in Engineering or Physics or equivalent.

Thesis Plan. Electrical Engineering M185, 285A, 285B, 598 (twice), and four additional courses from the list below. Of these, at least two must be 200-series courses, of which at least one must be in electrical engineering. If Electrical Engineering M185 was taken as an undergraduate, it may be replaced by any engineering course on the list below.

Comprehensive Examination Plan. Electrical Engineering M185, 285A, 285B, and six addi-

tional courses from the list below. Of these, at least three must be in the 200 series and at least one must be in electrical engineering. Of the remainder, at least one other course must be in engineering. If Electrical Engineering M185 was taken as an undergraduate, it may be replaced by any course on the list below. Other courses may be substituted with the consent of the department adviser.

Additional Courses. Electrical Engineering 115A, 115AL, 115B, 115BL, 115C, 122AL, 123A, 123B, 124, 162A, 163A, 163B, 164AL, 172, M208A, M208B, 270, 271, 272, M287; Mechanical and Aerospace Engineering 135, 150A, 150B, 250A, 252A, 252B; Physics 160, 180E, 222A, 222B, 222C, 231A, 231B.

Signal Processing

Requisite. B.S. degree in Electrical Engineering.

Course Requirements. Nine four-unit courses, of which at least seven must be at the graduate level (200 series). A thesis must also be completed under the direction of a faculty adviser. Eight units (two courses) of Electrical Engineering 598 can be used to cover the research work and preparation of the thesis. Both Electrical Engineering 598 courses count toward the minimum of nine courses, but only one can count toward the seven graduate-level courses that are required. All four courses listed in Group I must be completed. At least two courses must be chosen from Group II. The two courses from Group II may be substituted by other 200-level electrical engineering courses with the approval of the student's faculty adviser. The remaining courses may be chosen as free electives and/or Electrical Engineering 598.

Group I: Electrical Engineering 210, 211A, 212A, 214A.

Group II: Electrical Engineering 211B, 212B, 213A, 214B, M216A.

Free Electives. All 100- and 200-level courses in the *UCLA General Catalog* are acceptable with the exception of undergraduate core courses in the School of Engineering and Applied Science and undergraduate Electrical Engineering Department core courses. The choice of free electives must be approved by the faculty adviser.

Solid-State Electronics

Requisite. B.S. degree in Engineering or equivalent.

Minimum Course Requirements. Nine courses, of which at least five must be at the graduate level. The program must include all core courses listed below with the remaining courses chosen from the options list. Additional options may be used with the consent of the adviser.

Eight units (two courses) of Electrical Engineering 598 must be included to cover the research work and preparation of the thesis. Both 598 courses count toward the minimum

of nine courses, but only one can count toward the five required graduate-level courses.

Solid-State Physical Electronics Requirements. Core: Electrical Engineering 123B, 124, and 223. Options: at least two courses from Electrical Engineering 221A, 221B, 221C, 224, and 225, with the remaining courses from graduate courses and those upper division courses that are not required for the B.S. degree in Electrical Engineering, on approval of the graduate adviser.

Semiconductor Device Physics and Design Requirements. Core: Electrical Engineering 123B, 124, 221A, 221B. Options: At least two courses from Electrical Engineering 221C, 222, 223, 224, 225, and 298 (in solid-state electronics), with the remaining courses from graduate courses and those upper division courses that are not required for the B.S. degree in Electrical Engineering, on approval of the graduate adviser.

Comprehensive Examination Plan

Communications and Telecommunications

A written comprehensive examination is administered by the communications and telecommunications field committee. In case of failure, students may be reexamined once with the consent of the graduate adviser. The examination may be given as part of the written Ph.D. preliminary examination in the communications and telecommunications field.

Control Systems

A written comprehensive examination administered by a three-person committee, which is chaired by a member of the controls field committee, must be taken during the last quarter of study toward the M.S. degree. In case of failure, students may be reexamined once with the consent of the graduate adviser.

Electromagnetics

A common six- to eight-hour comprehensive examination is offered once every quarter to students in this M.S. program. The examination must be taken during the quarter at the end of which students are expected to graduate. In case of failure, students may be reexamined once with the consent of the graduate adviser.

Integrated Circuits and Systems

The comprehensive examination plan is not offered.

Operations Research

Students take a common written examination during their last quarter of coursework. This examination is normally offered at the end of the Fall and Spring Quarters. In case of failure, students may be reexamined once with the consent of the graduate adviser.

Photonics and Optoelectronics

Consult the department. In case of failure of the comprehensive examination, students may be reexamined once with the consent of the graduate adviser.

Plasma Electronics

Consult the department. The majority of M.S. candidates proceed to the Ph.D. The Ph.D. qualifying examination may be taken to satisfy the M.S. comprehensive examination requirement.

Signal Processing

The comprehensive examination plan is not offered.

Solid-State Electronics

The comprehensive examination plan is not offered.

Thesis Plan

Consult the department for information on the thesis plan for the areas of communications and telecommunications, control systems, electromagnetics, operations research, photonics and optoelectronics, and plasma electronics.

Integrated Circuits and Systems

Students are expected to find a faculty adviser to direct a research project which culminates in an M.S. thesis. The thesis research must be conducted in the Integrated Circuits and Systems Laboratory concurrently with the coursework.

Signal Processing

A thesis must be completed under the direction of a faculty adviser.

Solid-State Electronics

A thesis is required. Consult the department for details.

Doctoral Degree**Admission**

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. degree in Electrical Engineering are required to take the General Test of the Graduate Record Examination (GRE).

Students entering the Engineer or Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having the M.S. degree.

For information on completing the Engineer degree, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.ee.ucla.edu>. Forms are also available by writing to the Electrical Engineering Department, 56-125B Engineering IV, Box 951594, Los Angeles, CA 90095-1594, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-

1601. Students are encouraged to apply on-line.

Major Fields or Subdisciplines

Communications and telecommunications; control systems; electromagnetics; integrated circuits and systems; operations research; photonics and optoelectronics; plasma electronics; signal processing; solid-state electronics.

Course Requirements

There is no formal course requirement for the Ph.D. degree, and students may theoretically substitute coursework by examinations. Normally, however, students take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one major field and two minor fields. A detailed syllabus describing each major field can be obtained in the department office. The major field has a scope corresponding to a body of knowledge contained in six courses, at least four of which are graduate courses, plus the current literature in the area of specialization. Each major field named above is described in a Ph.D. major field syllabus. Each minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. Grades of B- or better, with a grade-point average of at least 3.33 in all courses included in the minor field, are required. If students fail to satisfy the minor field requirements through coursework, a minor field examination may be taken (once only). The minor fields are usually chosen to support the major field and are usually subsets of other major fields.

Written and Oral Qualifying Examinations

The written qualifying examination is known as the Ph.D. preliminary examination in the School of Engineering and Applied Science. After mastering the body of knowledge defined in the major field, students take a preliminary examination in the major field. The examination typically consists of both a written part and an oral part, and students pass the entire examination and not in parts. The oral part does not exceed two hours, and in some major fields is not required at all. Students who fail the examination may repeat it once only, subject to the approval of the major field committee. The major field examination, together with the three courses in each of the two minor fields, should be completed within six quarters after admission to the Ph.D. program.

After passing the written qualifying examination described above, students are ready to take the University Oral Qualifying Examination, which should occur within three quarters after completing the written examination. The nature and content of the examination are at the discretion of the doctoral committee, but ordinarily include a broad inquiry into the student's preparation for research. The doctoral

committee also reviews the prospectus of the dissertation at the oral qualifying examination

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are "inside" members and must hold appointments at UCLA in the student's major department in the School of Engineering and Applied Science. The "outside" member must be a UCLA faculty member outside the student's major department.

Electrical Engineering**Lower Division Courses**

1. Physics for Electrical Engineers. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisites: Mathematics 32B, 33B, Physics 1A, 1B. Introduction to modern physics and electromagnetism with an engineering orientation. Emphasis on mathematical tools necessary to express and solve Maxwell equations. Relation of these concepts to waves propagating in free space, including dielectrics and optical systems. Letter grading.

2. Physics for Electrical Engineers. (4) (Not the same as course 2 prior to Winter Quarter 1999.) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 1. Introduction to modern physics necessary to understand solid-state devices, including elementary quantum theory, Fermi energies, and concept of electrons in solids. Derivation of electrical properties of holes and junctions. Letter grading.

3. Principles and Advances in Electrical Engineering. (4) (Formerly numbered 2.) Lecture, three hours; outside study, nine hours. Open to freshmen and sophomores outside the School of Engineering and Applied Science. Designed to meet general education requirements of nonengineering students. Particularly intended for humanities and arts students. Topics include elementary treatment of fundamental concepts and advances in electrical engineering. Letter grading.

5C. Introduction to UNIX and C. (4) Lecture, three hours; recitation, one hour; laboratory, five hours; outside study, three hours. Introduction to UNIX environment and C programming language. UNIX basics: file structure and manipulation. Technical document preparation. C-shell programming. Elementary C language concepts: input/output, variable types, operators, statements, arrays, and functions. Letter grading.

10. Circuit Analysis I. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 1 or Physics 1C. Corequisite: Mathematics 33A. Introduction to linear circuit analysis. Resistive circuits, Kirchhoff laws, operational amplifiers, node and loop analysis, Thevenin and Norton theorem, capacitors and inductors, duality, first-order circuits, step response, second-order circuits, natural response, forced response. Letter grading.

M16. Logic Design of Digital Systems. (4) (Same as Computer Science M51A.) Lecture, four hours; recitation, two hours; outside study, six hours. Requisite: Physics 1C. 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.

Upper Division Courses

100. Electrical and Electronic Circuits. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisites: course 1 or Physics 1C, Mathematics 33A, 33B. 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.

101. Engineering Electromagnetics. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: course 1 or Physics 1C, Mathematics 32A and 32B, or 33A and 33B. 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.

102. Systems and Signals. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: course 1 or Physics 1C, Mathematics 33A, 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.

103. Applied Numerical Computing. (4) Lecture, three hours; recitation, one hour; outside study, 11 hours. Requisites: course 5C or Computer Science 31 or Civil Engineering 15 or Mechanical and Aerospace Engineering 20, Mathematics 33B. Introduction to numerical analysis and computing techniques: root finding, matrix computations for systems of linear equations, systems of nonlinear equations, numerical methods for ordinary differential equations, least squares, eigenvalue/eigenvector problem, applications to engineering problems. Letter grading.

110. Circuit Analysis II. (6) Lecture, three hours; recitation, one hour; laboratory, four hours; outside study, 10 hours. Requisite: course 10. Corequisite: course 102. 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. Introduction to use of measuring instruments in laboratory sessions, enabling experimental verification of circuit laws. Letter grading.

110L. Circuit Measurements Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 10 or 100. 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.

113. Digital Signal Processing. (4) Lecture, three hours; recitation, one hour; outside study, nine hours. Requisites: courses 102, 110. 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.

113L. Digital Signal Processing Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 113. Recommended: Computer Science 151B. 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. Letter grading.

114. Introduction to Speech and Image Processing. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 113. Basic principles of data acquisition, filtering, feature extraction, transforms. Acoustic theory of speech production, speech analysis techniques, and modeling perceptual mechanisms in first half of course; image representation and basic image processing techniques in second half. Lecture supplemented by computer laboratory assignments. Letter grading.

115A. Analog Electronic Circuits I. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 110. Semiconductor diode and transistor circuits. Operational amplifier systems. Equivalent circuit modeling of semiconductor devices. Design of single-stage amplifiers using SPICE circuit simulation tools. SPICE analysis of small and large signal operation of nonlinear circuits and systems. Letter grading.

115AL. Analog Electronics Laboratory I. (2) Laboratory, four hours; outside study, two hours. Requisite: course 110L. Recommended: course 115A. Experimental determination of device characteristics, resistive diode circuits, single-stage amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers. Letter grading.

115B. Analog Electronic Circuits II. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 115A. Electron device/circuit/environment interactions, with emphasis on multi-stage amplifiers. Tuned amplifier considerations. Non-linear situations requiring graphical method of solution. Emphasis on design techniques, including economics, reliability, and realization of performance specifications. Letter grading.

115BL. Analog Electronics Laboratory II. (4) Laboratory, four hours; outside study, eight hours. Requisite: course 115AL. Recommended: course 115B. Experimental and computer studies of multistage, wideband, tuned, and power amplifiers, and multiloop feedback amplifiers. Introduction to thick film hybrid techniques. Construction of amplifier using hybrid thick film techniques. Letter grading.

115C. Digital Electronic Circuits. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisites: course 115A, Computer Science M51A. Recommended: courses 115B, 121A. Transistor-level digital circuit analysis and design. Modern logic families (TTL, ECL, NMOS, CMOS), integrated circuit (IC) layout, MSI digital circuits (flipflops, registers, counters, PLAs, etc.), computer-aided simulation of digital circuits. Letter grading.

115D. Design Studies in Electronic Circuits. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 115B, 115C, 118. Applications of distributed circuits. Operational amplifier applications and limitations. Power amplifiers. Feedback and stability. Precision analog circuits. Letter grading.

116B. VLSI System Design. (4) Lecture, three hours; recitation, one hour; laboratory, four hours; outside study, four hours. Requisites: courses 115C, M116C (or Computer Science M151B), M116D (or Computer Science M152B). Familiarity with digital circuit, logic design, and computer architecture assumed. VLSI design from a system perspective, with focus on (1) core VLSI architecture concepts such as datapath design, clocking, power, speed, area trade-off, input/output packaging, etc. and (2) behavioral, register-transfer, logic, and physical-level structured VLSI design using CAD tools and hardware description languages such as VHDL. Letter grading.

M116C. Computer Systems Architecture. (4) (Formerly numbered 116C.) (Same as Computer Science M151B.) Lecture, four hours; recitation, two hours; outside study, six hours. Requisites: course M16 or Computer Science M51A, Computer Science 33. Recommended: course M116L or Computer Science M152A. Machine organization and design, formal descriptions, comparative study of machine instruction sets and formats, data representation and floating-point, addressing structures, mechanization of procedure calls, memory organization and management, microprogramming, input/output (I/O) processing and interrupts, and reliability aspects. Letter grading.

M116D. Digital Design Project Laboratory. (4) (Same as Computer Science M152B.) Laboratory, four hours; recitation, two hours; outside study, six hours. Requisite: course M116C or Computer Science M151B. 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.

M116L. Introductory Digital Design Laboratory. (2) (Same as Computer Science M152A.) Laboratory, four hours; outside study, two hours. Requisite: 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.

121A. Physical Principles of Semiconductor Devices. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisites: course 2 or Physics 1C, Materials Science 14. Introduction to physics of semiconductors; survey of equilibrium and nonequilibrium electronic processes in semiconductors; principles of operation and design of p-n junction devices. Fabrication of semiconductor devices. Letter grading.

121B. Principles of Semiconductor Device Design. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 121A. Introduction to principles of operation of bipolar and MOS transistors, equivalent circuits, high-frequency behavior, voltage limitations. Letter grading.

122AL. Semiconductor Devices Laboratory. (4) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 121A, 121B (may be taken concurrently). Design fabrication and characterization of p-n junction and transistors. Students perform various processing tasks such as wafer preparation, oxidation, diffusion, metallization, and photolithography. Letter grading.

123A. Fundamentals of Solid-State I. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: 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, three hours; outside study, nine hours. Requisite: course 123A. Discussion of solid-state properties, lattice vibrations, thermal properties, dielectric, magnetic, and superconducting properties. Letter grading.

124. Semiconductor Physical Electronics. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 123A. Band structure of semiconductors, experimental probes of basic band structure parameters, statistics of carriers, carrier transport properties at low fields, excess carrier transport properties, carrier recombination mechanisms, heterojunction properties. Letter grading.

129D. Semiconductor Processing and Device Design. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 121A, 121B. Introduction to CAD tools used in integrated circuit processing and device design. Device structure optimization tool is based on PISCES; process integration tool is based on SUPREM. Course familiarizes students with the tools. Using CAD tools, a CMOS process integration to be designed. Letter grading.

131A. Probability. (4) Lecture, four hours; recitation, one hour; outside study, 10 hours. Requisites: course 102, 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.

131B. Introduction to Stochastic Processes. (5) Lecture, four hours; outside study, 11 hours. Requisite: course 131A. Introduction to concepts of stochastic processes, emphasizing continuous- and discrete-time stationary processes, correlation function and spectral density, linear transformation, and mean-square estimation. Applications to communication, control, and signal processing. Introduction to computer simulation and analysis of stochastic processes. Letter grading.

132A. Introduction to Communication Systems. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: courses 102, 131A. Properties of signals and noise. Baseband pulse and digital signaling. Bandpass signaling techniques. Communication systems: digital transmission, frequency-division multiplexing and telephone systems, satellite communication systems. Performance of communication systems in presence of noise. Letter grading.

132B. Data Communications and Telecommunication Networks. (5) Lecture, four hours; recitation, one hour; outside study, 10 hours. Requisite: 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.

136. Introduction to Engineering Optimization Techniques. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: course 103, Mathematics 32A, 33A. Introduction to optimization techniques for engineering and science students. Minimization of unconstrained functions of several variables: steepest descent, Newton/Raphson, conjugate gradient, and quasi-Newton methods. Rates of convergence. Methods for constrained minimization: introduction to linear programming and gradient projection methods. Lagrangian methods. Students expected to use SEASnet computers. Letter grading.

141. Principles of Feedback Control. (4) Lecture, three hours; recitation, one hour; laboratory, one hour; outside study, seven hours. Requisite: course 102. Classical methods of analysis and design of feedback control systems as applied to problems selected from engineering, biology, and related areas. Letter grading.

142. Linear Systems: State-Space Approach. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102. State-space methods of linear system analysis and synthesis, with application to problems in networks, control, and system modeling. Letter grading.

150DL. Photonic Sensor Design Laboratory. (4) Lecture, two hours; laboratory, four hours; outside study, eight hours. Limited to seniors. Multidisciplinary course with lectures and laboratory experiments on optical sensors. Fundamentals of intensity and interference-based transducers, polarimeters, multiplexing and sensor networks, physical and biomedical sensors. Design and implementation of optical gyroscope, computer interfacing, and signal processing. Letter grading.

151A. Micromachining and Design of Microelectromechanical Systems. (4) Lecture, three hours; laboratory, four hours; outside study, five hours. Requisites: Chemistry 10B or 20B, Physics 6C or 8C. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Different methods of micromachining and how these methods can be used to produce a variety of MEMS, including microsensors and microactuators. Students fabricate a variety of MEMS in a microfabrication laboratory. Letter grading.

151DL. Microelectromechanical Systems Design. (4) (Formerly numbered 151D.) Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisites: courses 115A, 115B. Microelectromechanical systems design, combining lecture and laboratory instruction on microsensor and microactuator fundamental operating principles and high-resolution electronic measurement methods for transducers. Emphasis on design of transducers and interface systems using device and system-level tools. Letter grading.

161. Electromagnetic Waves. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisite: course 101. 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.

162A. Wireless Communication Links and Antennas. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 161. 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.

162B. Antenna Design II. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 162A. Radiation patterns of horns, slots, and microstrip antennas. Equivalent source representations. Synthesis of sum and difference patterns. Dolph/Chebyshev excitation. Design of slot arrays with mutual coupling. Design of traveling wave antennas, reflectors, and lenses. Letter grading.

163A. Introductory Microwave Circuits. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 161. Transmission lines description of waveguides, impedance transformers, power dividers, directional couplers, filters, hybrid junctions, nonreciprocal devices. Letter grading.

163B. Microwave and Millimeter Wave Active Devices. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: courses 121A, 121B. MESFET, HEMT, HBT, IMPATT, Gunn, small signal models, noise model, large signal model, load-pull method, parameter extraction technique. Letter grading.

163C. Active Microwave Circuits. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 115A, 161. Theory and design of microwave transistor amplifiers and oscillators; stability, noise, distortion. Letter grading.

164AL. Microwave Measurements Laboratory. (2) Lecture, one hour; laboratory, two hours; outside study, three hours. Requisite: course 161. Measurement techniques and instrumentation for active and passive microwave components; cavity resonators, waveguides, wavemeters, slotted lines, directional couplers. Design, fabrication, and characterization of microwave circuits in microstrip and coaxial systems. Letter grading.

164BL. Active Microwave Circuit Design Laboratory. (2) Lecture, one hour; laboratory, two hours; outside study, three hours. Requisite: course 161. Application of contemporary analytic design techniques to development of microwave amplifiers and oscillators incorporating state-of-the-art commercially available microwave transistors (silicon bipolar and GaAs MESFET). Letter grading.

172. Introduction to Lasers and Quantum Electronics. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 101. Physical applications and principles of lasers, Gaussian optics, resonant cavities, atomic radiation, laser oscillation and amplification, cw and pulsed lasers. Letter grading.

172L. Laser Laboratory. (4) Laboratory, four hours; outside study, eight hours. Requisite or corequisite: course 172. Properties of lasers, including saturation, mode-locking, and relaxation effects. Laser applications, including optics, modulation, communication, holography, interferometry, and nonlinear effects. Letter grading.

173. Photonic Devices. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 101. Introduction to basic principles of photonic devices. Topics include crystal optics, dielectric optical waveguides, waveguide couplers, electro-optic devices, magneto-optic devices, acousto-optic devices, second-harmonic generation, optical Kerr effect, optical switching devices. Letter grading.

173L. Photonics and Communication Laboratory. (4) Laboratory, four hours; outside study, eight hours. Requisite: course 102. Recommended: course 132A. Introduction to measurement of basic photonic devices, including LEDs, lasers, detectors, and amplifiers; fiber-optic fundamentals and measurement of fiber systems. Modulation techniques, including A.M., F.M., phase and suppressed carrier methods. Letter grading.

174. Semiconductor Optoelectronics. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 172. Introduction to semiconductor optoelectronic devices for optical communications, interconnects, and signal processing. Basic optical properties of semiconductors, pin photodiodes, avalanche photodiode detectors (APD), light-emitting diodes (LED), semiconductor lasers, optical modulators and amplifiers, and typical photonic systems. Letter grading.

175. Fourier Optics. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisites: courses 102, 161. Two-dimensional linear systems and Fourier transforms. Foundation of diffraction theory. Analysis of optical imaging systems. Spatial filtering and optical information processing. Wavefront reconstruction and holography. Letter grading.

176. Lasers in Biomedical Applications. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisite: course 101. Study of different types of laser systems and their operation. Examination of their roles in current and projected biomedical applications. Specific capabilities of laser radiation to be related to each example. Letter grading.

M185. Introduction to Plasma Electronics. (4) (Same as Physics M122.) Lecture, three hours; outside study, nine hours. Requisite: course 101 or Physics 110A. Senior-level introductory course on electrodynamics of ionized gases and applications to materials processing, generation of coherent radiation and particle beams, and renewable energy sources. Letter grading.

190D. Systems Design. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Requisites: courses 113, 132A, 141. Advanced systems design integrating communications, control, and signal processing subsystems. Different project to be assigned yearly in which student teams create high-performance designs that manage trade-offs among subsystems. Letter grading.

199. Special Studies (2 to 8 units). Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Only two units may be applied toward degree; the two units must be approved by petition and can be used only as a replacement for a regular electrical engineering laboratory course. Students may take additional 199 courses, but they may not be applied toward degree. Letter grading.

Graduate Courses

M208A. Analytical Methods of Engineering I. (4)

(Same as Mechanical and Aerospace Engineering M291A.) Lecture, four hours; outside study, eight hours. Requisites: Mathematics 131A, 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration, L_2 theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering. S/U or letter grading.

M208B. Analytical Methods of Engineering II. (4)

(Same as Mechanical and Aerospace Engineering M291B.) Lecture, four hours; outside study, eight hours. Requisite: course M208A or Mechanical and Aerospace Engineering M291A. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second-order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems. S/U or letter grading.

208C. Semigroups of Linear Operators and Applications. (4)

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. Applications. S/U or letter grading.

210. Adaptive Filtering. (4)

Lecture, four hours; outside study, eight hours. Requisites: courses 113, 131B, Mathematics 115A. Optimal filtering and estimation, Wiener filters, linear prediction. Steepest descent and stochastic gradient algorithms. Frequency-domain adaptive filters. Method of least squares, recursive least squares, fast fixed-order and order-recursive (lattice) filters. Misadjustment, convergence, and tracking analyses, stability issues, finite precision effects. Connections with Kalman filtering. Nonlinear adaptive filters. Letter grading.

211A. Digital Image Processing I. (4)

Lecture, three hours; laboratory, four hours; outside study, five 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.

211B. Digital Image Processing II. (4)

Lecture, three hours; laboratory, four hours; outside study, five hours. Requisite: course 211A. Advanced digital image processing theory and techniques. Topics include modeling, restoration, still-frame and video image compression, tomographic imaging, and multiresolution analysis using wavelet transforms. Letter grading.

212A. Theory and Design of Digital Filters. (4)

Lecture, three hours; outside study, nine 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.

212B. Multirate Systems and Filter Banks. (4)

Lecture, three hours; outside study, nine hours. Requisite: course 212A. Fundamentals of multirate systems; polyphase representation; multistage implementations; applications of multirate systems; maximally decimated filter banks; perfect reconstruction systems; paraunitary filter banks; wavelet transform and its relation to multirate filter banks. Letter grading.

213A. Advanced Digital Signal Processing Circuit Design. (4)

Lecture, three hours; outside study, nine hours. Requisites: courses 212A, M216A. Digital filter design and optimization tools, architectures for digital signal processing circuits; integrated circuit modules for digital signal processing; programmable signal processors; CAD tools and cell libraries for application-specific integrated circuit design; case studies of speech and image processing circuits. Letter grading.

214A. Digital Speech Processing. (4)

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; computer assignments, two hours; outside study, seven hours. Requisite: course 214A. 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; outside study, eight 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, three hours; outside study, nine hours. Requisites: courses 115C, M216A. Analysis and comparison of modern logic families (CMOS, bipolar, BiCMOS, GaAs). MSI digital circuits (flipflops, registers, counters, PLAs). VLSI memories (ROM, RAM, CCD, bubble memories, EPROM, EEPROM) and VLSI systems. Letter grading.

215C. Analysis and Design of RF Circuits and Systems. (4)

Lecture, four hours; outside study, eight 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; outside study, eight 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.

M216A. LSI in Computer System Design. (4)

(Same as Computer Science M258A.) Lecture, four hours; laboratory, four hours. Limited to graduate computer science and electrical engineering students. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on a chip. S/U or letter grading.

M216B-M216C. LSI in Computer System Design. (4-4)

(Same as Computer Science M258B-M258C.) Lecture, four hours; laboratory, four hours. Requisite: course M216A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. In Progress and S/U or letter grading.

M217. Biomedical Imaging. (4)

(Formerly numbered 217.) (Same as Biomedical Engineering M217.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: course 114 or 211A. Mathematical principles of medical imaging modalities: X-ray, computed tomography, positron emission tomography, single photon emission computed tomography, magnetic resonance imaging. Topics include basic principles of each imaging system, image reconstruction algorithms, system configurations and their effects on reconstruction algorithms, specialized imaging techniques for specific applications such as flow imaging. Letter grading.

219A. Special Topics in Circuits and Signal Processing. (4)

Lecture, three hours; outside study, nine hours. Advanced treatment of topics selected from research areas in circuit theory, integrated circuits, or signal processing. Letter grading.

221A. Physics of Semiconductor Devices I. (4)

Lecture, four hours; outside study, eight hours. Requisite: course 121A. Physical principles and design considerations of junction devices. S/U or letter grading.

221B. Physics of Semiconductor Devices II. (4)

Lecture, four hours; outside study, eight hours. Requisite: course 121A. Principles and design considerations of field effect devices and charge-coupled devices. S/U or letter grading.

221C. Microwave Semiconductor Devices. (4)

Lecture, four hours; outside study, eight hours. Requisite: course 121A. Physical principles and design considerations of microwave solid-state devices: Schottky barrier mixer diodes, IMPATT diodes, transferred electron devices, tunnel diodes, microwave transistors. S/U or letter grading.

222. Integrated Circuits Fabrication Processes. (4)

Lecture, four hours; outside study, eight hours. Requisites: courses 118, 121A. 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 metalization. Introduction of advanced process simulation tools. S/U or letter grading.

223. Solid-State Electronics I. (4)

Lecture, four hours; outside study, eight hours. Requisites: courses 124, 270. Energy band theory, electronic band structure of various elementary, compound, and alloy semiconductors, defects in semiconductors. Recombination mechanisms, transport properties. S/U or 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. Superlattices and Quantum Wells. (4)

Lecture, four hours; outside study, eight hours. Requisite: course 223. Theoretical methods for circulating electronics and optical properties of semiconductor quantum wells, superlattices, and tunnel structures. Quantum size effects and low-dimensional systems. Application to semiconductor devices, including negative resistance diodes, transistors, and detectors. S/U or 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. S/U or letter grading.

229S. Advanced Electrical Engineering Seminar. (2)

Seminar, two hours; outside study, six hours. Preparation: successful completion of Ph.D. 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 a tutorial topic and on a research topic in their dissertation area. May be repeated for credit. S/U grading.

230A. Estimation and Detection in Communication and Radar Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Applications of estimation and detection concepts in communication and radar engineering; random signal and noise characterizations by analytical and simulation methods; 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. S/U or letter grading.

230B. Digital Communication Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 132A, 230A. Basic concepts of digital communication systems; representation of bandpass waveforms; signal space analysis and optimum receivers in Gaussian noise; comparison of digital modulation methods; synchronization and adaptive equalization; applications to modern communication systems. S/U or letter grading.

230C. Algorithms and Processing in Communication and Radar. (4) Lecture, four hours; outside study, eight hours. Requisite: course 230A. Concepts and implementations of digital signal processing algorithms in communication and radar systems. Optimum dynamic range scaling for random data. Algorithms for fast convolution and transform. Spectral estimation algorithms. Parallel processing, VLSI algorithms, and systolic arrays. S/U or letter grading.

230D. Signal Processing in Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 230C. Basic digital signal processing techniques for estimation and detection of signals in communication and radar systems. Optimization of dynamic range, quantization, and state constraints; DFT, convolution, FFT, NTT, Winograd DFT, systolic array; spectral analysis-windowing, AR, and ARMA; system applications. S/U or letter grading.

231A. Information Theory: Channel and Source Coding. (4) Lecture, four hours; outside study, eight hours. Requisite: course 230A. Fundamental concepts of information theory with applications to digital communications. Entropy, information, and data compression; noisy compression (rate distortion theory); channel capacity; block and convolutional codes and decoding algorithms. Letter grading.

231D. Spread Spectrum Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 231A. Spread spectrum digital communication for personal communication systems. Review of digital modulations, channel coding; fading channels and diversity techniques; direct sequence and frequency-hopped spread spectrum systems; multiple-access schemes; application to cellular radio. Letter grading.

231E. Channel Coding Theory. (4) Lecture, four hours; outside study, eight hours. Requisite: course 231A. Fundamentals of linear codes and decoding algorithms based on theory of finite fields such as Bose/Chaudhuri/Hocquenghem and Reed/Solomon codes; introduction to combined coding and modulation such as lattice codes and trellis coded modulation; constellation shaping; applications. Letter grading.

232A. Stochastic Modeling with Applications to Telecommunication Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Introduction to stochastic processes as applied to study of telecommunication systems and traffic engineering. Renewal theory; discrete-time Markov chains; continuous-time Markov jump processes. Applications to traffic and queueing analysis of basic telecommunication system models. S/U or letter grading.

232B. Telecommunication Switching and Queueing Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232A. Queue modeling and analysis with applications to space-time digital switching systems and to integrated-service telecommunication systems. Fundamentals of traffic engineering and queueing theory. Queue size, waiting time, busy period, blocking, and stochastic process analysis for Markovian and non-Markovian models. S/U or letter grading.

232C. Telecommunication Architecture and Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232B. Analysis and design of integrated-service telecommunication networks and multiple-access procedures. Stochastic analysis of priority-based queueing system models. Queueing networks; network protocol architectures; error control; routing, flow, and access control. Applications to local-area, packet-radio, satellite, and computer communication networks. S/U or letter grading.

232D. Telecommunication Networks and Multiple-Access Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232B. Performance analysis and design of telecommunication networks and multiple-access communication systems. Topics include architectures, multiplexing and multiple-access, message delays, error/flow control, switching, routing, protocols. Applications to local-area, packet-radio, local-distribution, computer and satellite communication networks. S/U or letter grading.

232E. Graphs and Network Flows. (4) Lecture, four hours; outside study, eight hours. Requisite: course 136. Solution to analysis and synthesis problems which may be formulated as flow problems in capacity constrained (or cost constrained) networks. Development of tools of network flow theory using graph theoretic methods; application to communication, transportation, and transmission problems. S/U or letter grading.

233B. Systems and Hardware Design for Wireless Communications. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 113, M216A, 230B. Multidisciplinary course bringing together aspects of wireless data communications, signal processing, and baseband hardware design. Topics include wireless signal propagation and channel modeling, complete receiver design: timing, carrier and AGC acquisition and tracking, multipath mitigation, and hardware implementation of key receiver blocks. A selected wireless standard at center of course, with emphasis on design and implementation of end-to-end system for that standard. Letter grading.

233C. Mobile Multimedia Information Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: course 232C, Computer Science 218. Interdisciplinary course covering mobile networked computing, wireless communication, and multimedia processing for systems capable of ubiquitous transport and processing of multimedia information. Topics include radio propagation, wireless channels, cellular systems, network mobility management, low-power portable node architecture, middle ware, OS, and application issues. Letter grading.

236A. Linear Programming. (4) Lecture, four hours; outside study, eight 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. Nonlinear Programming. (4) Lecture, four hours; outside study, eight hours. Requisite: course 236A. Basic graduate course in nonlinear programming. Convex sets and functions. Engineering applications and convex optimization. Lagrange duality, optimality conditions, and theorems of alternatives. Unconstrained minimization methods. Convex optimization methods (interior-point methods, cutting-plane methods, ellipsoid algorithm). Lagrange multiplier methods and sequential quadratic programming. Letter grading.

236C. Optimization Methods for Large-Scale Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 236B. Theory and computational procedures for decomposing large-scale optimization problems: cutting-plane methods, column generation, decomposition algorithms. Techniques for global continuous optimization: branch-and-bound methods, reverse convex programming, bilinear and biconvex optimization, genetic algorithms, simulated annealing. Introduction to combinatorial optimization. Letter grading.

237. Dynamic Programming. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 232A, 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.

239AS. Topics in Communication. (4) Lecture, four hours; outside study, eight hours. Topics in one or more special aspects of communication systems, such as phase-coherent communication systems, optical channels, time-varying channels, feedback channels, broadcast channels, networks, coding and decoding techniques. May be repeated for credit with topic change. S/U or letter grading.

239BS. Topics in Operations Research. (4) Lecture, four hours; outside study, eight hours. Treatment of one or more selected topics from areas such as integer programming; combinatorial optimization; network synthesis; scheduling, routing, location, and design problems; implementation considerations for mathematical programming algorithms; stochastic programming; applications in engineering, computer science, economics. May be repeated for credit with topic change. S/U or letter grading.

M240A. Linear Dynamic Systems. (4) (Formerly numbered 240A.) (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 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.

240B. Linear Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 141, M240A. Introduction to optimal control, with emphasis on detailed study of LQR, or linear regulators with quadratic cost criteria. Relationships to classical control system design. S/U or letter grading.

M240C. Optimal Control. (4) (Formerly numbered 240C.) (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; outside study, eight hours. Requisite: course 131B. Fundamentals and applications of second-order theory stochastic processes. Correlation and spectral density. Gaussian process, processing by dynamic systems, Bayes rule and conditional expectation; mean-square estimation and Kalman filtering. S/U or letter grading.

241B. Kalman Filtering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M240A, 241A. Statistical estimation theory, estimation of signal parameters in additive noise. Kalman filter theory: basic theory, steady state and frequency domain analyses, on-line estimation and colored noise. Likelihood ratios, Gaussian signals in Gaussian noise. S/U or letter grading.

241C. Stochastic Control. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 240B, 241B. Estimation and control of linear discrete-time and continuous-time stochastic systems; separation theorem and applications; Kalman filtering. S/U or letter grading.

M242A. Nonlinear Dynamic Systems. (4) (Formerly numbered 242.) (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. Liapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

243. Robust and Optimal Control by Convex Methods. (4) Lecture, four hours; outside study, eight hours. Requisite: course 240B. Multivariable robust control, including H₂ and H-infinity optimal control and robust performance analysis and synthesis against structured uncertainty. Emphasis on convex methods for analysis and design, in particular linear matrix inequality (LMI) approach to control. Letter grading.

249S. Topics in Control. (4) Seminar, four hours; outside study, eight hours. Thorough treatment of one or more aspects of control theory and applications, such as computational methods for optimal control; stability of distributed systems; identification; adaptive control; nonlinear filtering; differential games; applications to flight control, nuclear reactors, process control, biomedical problems. May be repeated for credit with topic change. S/U or letter grading.

250A. MEMS Device Physics and Fabrication. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Recommended preparation: integrated circuit processing knowledge. Introduction to physics and fabrication of microelectromechanical systems (MEMS) components. Surface, bulk, and other silicon micromachining principles. Material deposition and etching methods. Electronic, mechanical, and thermal properties of materials for MEMS. Fundamental transducer and actuator principles. Letter grading.

250B. MEMS System Design. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 250A. Introduction to microelectromechanical systems (MEMS) design methods, design rules, and state-of-the-art foundry capabilities. Capabilities and limitations of integration methods for MEMS electronics, sensors, and actuators. Electronic systems for MEMS transducers and actuators. Computer-aided design methods for MEMS integration. Design project required. Letter grading.

250C. Microsensors and Microinstruments. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Requisite: course 250B. Fundamentals of microelectromechanical systems (MEMS) microsensors and microinstruments. Measurement principles for MEMS transducers. Design methods and design constraints for sensitivity and stability. Implementation of control methods for improving measurement sensitivity, linearity, and reproducibility. Design project required, with emphasis on integration of sensors and actuators. Letter grading.

259S. Seminar: Microelectromechanical Systems. (2) Seminar, two hours; outside study, four hours. Seminar on microelectromechanical systems (MEMS). Letter grading.

260A-260B. Advanced Engineering Electrodynamics. (4-4) Lecture, four hours; outside study, eight hours. Requisites: courses 161, 162A. Advanced treatment of concepts in electrodynamics and their applications to modern engineering problems. Waves in anisotropic, inhomogeneous, and dispersive media. Guided waves in bounded and unbounded regions. Radiation and diffraction, including optical phenomena. Partially coherent waves, statistical media. S/U or letter grading.

261. Microwave and Millimeter Wave Circuits. (4) Lecture, four hours; outside study, eight 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. S/U or letter grading.

262. Antenna Theory and Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 162A, 162B. 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. S/U or 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. S/U or letter grading.

266. Computational Methods for Electromagnetics. (4) Lecture, four hours; outside study, eight 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. S/U or letter grading.

270. Applied Quantum Mechanics. (4) Lecture, four hours; outside study, eight 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. Requisite: course 172. 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 Optics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 172, 270. Nonlinear optical susceptibilities. Coupled-wave formulation. Crystal optics, electro-optics, and magneto-optics. Sum- and difference-frequency generation. Harmonic and parametric generation. Stimulated Raman and Brillouin scattering. Four-wave mixing and phase conjugation. Field-induced index changes and self-phase modulation. Letter grading.

279S. Special Topics in Quantum Electronics. (4) Lecture, four hours; outside study, eight hours. Current research topics in quantum electronics, lasers, nonlinear optics, optoelectronics, ultrafast phenomena, fiber optics, and lightwave technology. May be repeated for credit. S/U or letter grading.

285A. Plasma Waves and Instabilities. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101, and M185 or Physics M122. Wave phenomena in plasmas described by macroscopic fluid equations. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydro-magnetic 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. S/U or letter grading.

M287. Fusion Plasma Physics and Analysis. (4) (Same as Mechanical and Aerospace Engineering M237B.) Lecture, four hours; outside study, eight hours. Requisite: course M185. 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. S/U or letter 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.

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.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

475C. Manufacturing Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 475B. Modeling and analysis of manufacturing systems. Assembly and transfer lines. Facility layout and design. Group technology and flexible manufacturing systems. Planning and scheduling. Task management, machine setup, and operation sequencing. Manufacturing system models. Manufacturing information systems. Social, economic, environmental, and regulatory issues. Letter grading.

596. Directed Individual or Tutorial Studies (2 to 8 units). 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 M.S. Comprehensive Examination (2 to 12 units). Tutorial, to be arranged. Limited to graduate electrical engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations (2 to 16 units). Tutorial, to be arranged. Limited to graduate electrical engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). 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 M.S. Thesis (2 to 12 units). Tutorial, to be arranged. Limited to graduate electrical engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation (2 to 16 units). 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

*School of Engineering and Applied
Science*

UCLA
6426 Boelter Hall
Box 951601
Los Angeles, CA 90095-1601
(310) 825-2826
<http://www.seas.ucla.edu/>

Professors Emeriti

Edward P. Coleman, Ph.D.
J. Morley English, Ph.D.
Alfred C. Ingersoll, Ph.D.
Herbert B. Nottage, Ph.D.
Allen B. Rosenstein, Ph.D.
Bonham Spence-Campbell, E.E.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Engineering Executive Program offers the Master of Engineering (M.Engr.) degree.

Admission

The Engineering Executive Program enrolls a limited number of students in a two-year work-study program. It is specifically designed for experienced professionals who intend to go on to high-level executive positions in industry and government.

In addition to the University minimum requirements, the following are required: (1) five years of responsible full-time professional experience in engineering; (2) some formal study in statistics; (3) the Graduate Record Examination

(GRE) General Test and Subject Test in Engineering, Mathematics, Business, or a related field. A screening interview with the coordinator of the Engineering Executive Program is required.

More information can be obtained from the Office of Academic and Student Affairs, 6426 Boelter Hall, School of Engineering and Applied Science, (310) 825-1704.

Areas of Study

Engineering management.

Course Requirements

A total of 12 graduate courses are required for the Master of Engineering degree: Engineering 470A-470B-470C, 471A-471B-471C, 472A through 472D, 473A-473B.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Individual departments within the school may impose certain restrictions on the applicability of other undergraduate courses toward graduate degrees. Students should consult with the graduate adviser on departmental requirements and restrictions.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

None.

Engineer Degree

The School of Engineering and Applied Science offers an Engineer (Engr.) degree at a level equivalent to completion of preliminaries in the Ph.D. program. The Engineer degree represents considerable advanced training and competence in the engineering field but does not require the research effort involved in a Ph.D. dissertation.

Admission

For information on admission to the program, see the Admission section for the corresponding departmental doctoral program.

Areas of Study

Consult the department.

Course Requirements

Requirements for the Engineer degree are identical to those of the Ph.D. degree up to and including the oral preliminary examination, except that the Engineer degree is based on coursework. The minimum requirement is 15 (at least nine graduate) courses beyond the

bachelor's degree, with at least six courses in the major field (minimum of four graduate courses) and at least three in each minor field (minimum of two graduate courses in each).

The Ph.D. and Engineer degree programs are administered interchangeably in the sense that students in the Ph.D. program may either exit with an Engineer degree or earn the Engineer degree enroute to one of the Ph.D. degrees offered by the school. Similarly, students in the Engineer degree program may continue to the Ph.D. after receiving the Engineer degree. The time spent in either of the two programs applies toward the minimum residence requirements and to the time limitation for the other program.

Written and Oral Qualifying Examinations

Requirements for the Engineer degree are identical to those of the Ph.D. in Engineering up to and including the oral preliminary examination, except that the Engineer degree is based on coursework.

Graduate Certificate of Specialization

A certificate of specialization is available in all areas of specialization offered by the School of Engineering and Applied Science, except computer science. Requirements for admission are the same as for the M.S. degree.

Each graduate certificate program consists of five courses, at least two of which must be at the 200 level. No work completed for any previously awarded degree or credential may be applied toward the certificate. Successful completion of a certificate program requires an overall minimum B average in all courses applicable to the certificate. In addition, graduate certificate candidates are required to maintain a minimum B average in 200-series courses used in the certificate program. A minimum of three quarters of academic residence is required. The time limitation for completing the requirements of a certificate program is two calendar years. Details regarding the certificate programs may be obtained from each department office.

Courses completed for a Certificate of Specialization in the School of Engineering and Applied Science may subsequently be applied toward master's or doctoral degrees.

Engineering

Lower Division Courses

95. Ethical and Professional Issues in Engineering and Computer Science. (4) Lecture, four hours; outside study, eight hours. Selected lectures, discussion, and oral and written reports related to profession of engineering. Lectures by practicing engineers, case studies, and small group projects on issues that involve conflicting demands on society. Letter grading.

97. Introduction to Engineering Disciplines. (4)

Lecture, four hours; discussion, four hours; outside study, four hours. Introduction to engineering as a professional opportunity for freshman students by exploring difference between engineering disciplines and functions engineers perform. Development of skills and techniques for academic excellence through the team process. Investigation of national need underlying current effort to increase participation of historically underrepresented groups in the U.S. technological work force. P/NP grading.

Graduate Courses

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

470A-470D. The Engineer in the Technical Environment. (3-3-3-3) Lecture, three 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-471B-471C. The Engineer in the General Environment. (3-3-1.5) Lecture, three hours (courses 471A-471B)/90 minutes (course 471C). 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 (course 471A); In Progress and S/U or letter grading (courses 471B-471C).

472A-472D. The Engineer in the Business Environment. (3-3-3-1.5) Lecture, three hours (courses 472A-472B-472C)/90 minutes (course 472D). Limited to Engineering Executive Program students. Language of business for the 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 and S/U or letter grading (credit to be given on completion of courses 472B and 472D).

473A-473B. Analysis and Synthesis of a Large-Scale System. (3-3-3) Lecture, two and one-half hours. Limited to Engineering Executive Program students. 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 a goal-oriented technical group. In Progress and S/U grading.

495. Teaching Assistant Training Seminar. (4) Seminar, four hours; outside study, eight hours. Preparation: appointment as a 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.

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

College of Letters and Science

UCLA
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Los Angeles, CA 90095-1530
(310) 825-4173
<http://englishwww.humnet.ucla.edu>

Thomas R. Wortham, Ph.D., *Chair*
Claire E. McEachern, Ph.D., *Vice Chair*
Vincent P. Pecora, Ph.D., *Vice Chair*

Professors

Michael J.B. Allen, Ph.D., D.Litt.
Blake Allmendinger, Ph.D.
Calvin B. Bedient, Ph.D.
A.R. Braunmuller, Ph.D.
Joseph Bristow, Ph.D.
Frederick L. Burwick, Ph.D.
Michael J. Colacurcio, Ph.D.
Donald J. Cosentino, Ph.D.
James E. Goodwin, Ph.D.
Christopher W. Grose, Ph.D.
Janet R. Hadda, Ph.D.
N. Katherine Hayles, Ph.D.
Henry Ansgar Kelly, Ph.D.
Gordon L. Kipling, Ph.D.
V.A. Kolve, Ph.D. (*The UCLA Foundation Professor*)
Kenneth R. Lincoln, Ph.D.
Anne K. Mellor, Ph.D.
Donka Minkova, Ph.D.
Joseph F. Nagy, Ph.D.
Michael A. North, Ph.D.
Maximilian E. Novak, D.Phil., Ph.D.
Felicity Nussbaum, Ph.D.
Barbara L. Packer, Ph.D.
Vincent P. Pecora, Ph.D.
Jonathan F.S. Post, Ph.D.
Karen E. Rowe, Ph.D.
Gregory M. Sarris, Ph.D.
Debora K. Shuger, Ph.D.
Valerie A. Smith, Ph.D.
Robert N. Watson, Ph.D.
Samuel Weber, Ph.D.
Thomas R. Wortham, Ph.D.
Stephen Yenser, Ph.D.

Professors Emeriti

Paula Gunn Allen, Ph.D.
Martha Banta, Ph.D.
Charles A. Berst, Ph.D.
Vinton A. Dearing, Ph.D.
Robert W. Dent, Ph.D.
John J. Espey, B.Litt., M.A.
Reginald A. Foakes, Ph.D.
Patrick K. Ford, Ph.D.
Robert A. Georges, Ph.D.
Gerald J. Goldberg, Ph.D.
George R. Guffey, Ph.D.
Paul A. Jorgensen, Ph.D.
Jascha Kessler, Ph.D.
Robert S. Kinsman, Ph.D.
Richard A. Lanham, Ph.D.
Richard D. Lehan, Ph.D.
Waldo W. Phelps, Ph.D.
Florence Ridley, Ph.D.
Alan Roper, Ph.D.
George S. Rousseau, Ph.D.
William D. Schaefer, Ph.D.
Paul R. Sellin, Ph.D.
Paul D. Sheats, Ph.D.
Georg B. Tennyson, Ph.D.
Peter L. Thorslev, Jr., Ph.D.
Alexander Welsh, Ph.D.

Associate Professors

Charles L. Batten, Jr., Ph.D.
Ali Behdad, Ph.D.
King-Kok Cheung, Ph.D.
Edward I. Condren, Ph.D.
Helen Deutsch, Ph.D.

Lowell Gallagher, Ph.D.
Albert D. Hutter, Ph.D.
Eric Jager, Ph.D.
Jack Kolb, Ph.D.
Jayne E. Lewis, Ph.D.
Arthur L. Little, Jr., Ph.D.
Robert M. Maniquis, Ph.D.
Claire E. McEachern, Ph.D.
Harryette R. Mullen, Ph.D.
Raymund A. Paredes, Ph.D.
Rafael Perez-Torres, Ph.D.
Kenneth Reinhard, Ph.D.
Sonia Saldivar-Hull, Ph.D.
Jennifer A. Sharpe, Ph.D.
Richard A. Yarborough, Ph.D.

Assistant Professors

Jennifer Fleissner, Ph.D.
Deborah M. Garfield, Ph.D.
Rachel C. Lee, Ph.D.
Jinqi Ling, Ph.D.
David Wong Louie, M.F.A.
Mark McGurl, Ph.D.
Judith A. Rosen, Ph.D.

Senior Lecturers

Jerome Cushman, A.B., B.S.L.S., *Emeritus*
David Stuart Rodes, Ph.D.

Adjunct Professors

Carolyn See, Ph.D.
Murray Roston, Ph.D.

Scope and Objectives

The Department of English is dedicated to the study of the literatures and cultures of those parts of the world in which English is the primary language, and to the study of the history and structure of the English language itself. Although committed to no single method or approach, the department encourages an emphasis on British, American, and world literary history and requires of its undergraduate majors a firsthand acquaintance with many of the more influential writers who have helped during the past millennium to make English a global language that possesses richly diverse and highly influential literary cultures. Within the department, students are able to pursue a variety of approaches to the study of literary culture beyond the strictly historical — literary criticism, for example, or those that draw on the resources of such disciplines as sociology, psychology, and philosophy. Within the B.A. degree in English, qualified students may elect a concentration either in creative writing or in world literature. The department also offers a Bachelor of Arts degree in American Literature and Culture.

An understanding and appreciation of literature can furnish lifelong rewards. In addition to such personal benefits, the department seeks to impart the capacity to make balanced critical judgments and the ability to write the English language persuasively, with point and effect. Such skills are essential to success in a variety of professions for which the major in English can provide excellent preparation, including law, administration, business, and teaching.

A graduate program leading to the Master of Arts degree is available for students who wish to continue the study of literature at an advanced level. A parallel program continues to the Ph.D. degree. Because the Ph.D. program

may require five years or more, it is intended only for qualified students who are seriously committed to advanced literary scholarship and, in some cases, to a career in college or university teaching.

Undergraduate Study

Admission to Courses in English

Students must have completed the Subject A requirement before taking any courses in English (other than English Composition A or 2). For further information regarding Subject A, see the Undergraduate Study section of this catalog.

Extra-Departmental Requirement in Foreign Literature or Foreign Language

All English majors must have completed either (1) level five or equivalent in any one foreign language or (2) level three or equivalent in one foreign language and two additional courses in foreign language or foreign literature, including foreign literature in translation (see course listings under Foreign Literature in Translation later in this chapter). Italian 46 may not be applied. Transfer students who have satisfied the College of Letters and Science foreign language requirement at the high school level through the IGETC program may satisfy the departmental requirement with five foreign literature in translation courses. The courses may be taken on a P/NP grading basis.

English B.A.

The Bachelor of Arts degree has concentrations in creative writing and in world literature. An international students program in English is also offered.

Preparation for the Major

Required: English Composition 3, English 4, 10A, 10B, 10C taken in the stated sequence (each course is a requisite for the next course). A grade of C or better is required in each course.

The Major

Required: Twelve upper division English courses, including 141A or 141B, 142A, 142B, 143, at least one course from each of the 150 and 180 series, one course from 160 through 164, and five additional courses of which three must be selected from 140A, 140B, 142C, or 150A through M197D.

Students are encouraged to choose additional electives from courses 140A through M197D. English 140A is especially recommended if they plan graduate work in literature. They may wish to select several courses in the relevant classical and postclassical foreign literatures and thought.

Optional Concentrations and Special Programs

The department offers optional concentrations in creative writing and in world literature, as well as a special program for international stu-

dents. For all programs, the regular Preparation for the Major sequence as well as the departmental foreign language requirement apply. Because of the specialized nature of these programs, students should consult the departmental counselor before selecting and declaring one of them as a concentration.

Creative Writing Concentration

The creative writing concentration consists of English 142A and 142B and a minimum of 10 additional upper division English courses: three creative writing courses from 133 or 134, taken in a single genre (poetry or short story), three literature courses paralleling the creative writing genre, and four electives selected from courses 140A through 190. Students may declare this program as a concentration only after they have completed three creative writing workshops in a single genre. Students may not enroll in more than one workshop (course 133, 134, or 135) per term or in more than two workshops with the same instructor. No student may take for credit more than three workshops in any one creative writing genre. Students planning to select this program should contact the departmental counselor for further details.

World Literature Concentration

The world literature concentration consists of nine upper division courses in English or American literature and six upper division courses in foreign literatures (at least one of which must be taught in the original language). The nine English courses must include 141A, 141B, or 143; 142A and 142B; at least one course from the 150 series; and four electives selected from courses 140A through 190 (students intending graduate work in literature are especially encouraged to take English 140A). A listing of acceptable courses may be obtained from the department.

International Students Program

The department offers a special program in English to bona fide international students whose native language is other than English. For this program, students must satisfy all requirements listed under Preparation for the Major; they may fulfill the departmental foreign language requirement with their own native language. The following 12 courses are required for the program itself: English as a Second Language 103, 106, 109; two courses from English 100 through 199; 122; 142A, 142B; and four additional courses from 140A through M197D. Students who complete this program and wish to pursue graduate study should consult the departmental counselor about programs of study and requirements for admission.

American Literature and Culture B.A.

Preparation for the Major

Required: English Composition 3, English 4, 10A, 10B, 10C taken in the stated sequence (each course is a requisite for the next course).

A grade of C or better is required in each course.

The Major

Required: Thirteen upper division courses, including six in American literature selected from English 170A through 179, two of which must be devoted to literature written before 1900 (courses 170A, 170B, 171A, 171B, 173A, 174A); two courses from 142A, 142B, 143; one seminar from 187, 188, 189, or when treating American topics, 180X; one course from M102A, M102B, 103, M104A, M104B, M104C, M105A, M105B, 106, M107A (also M107C when treating American topics or figures), or 109; and three courses from 100 through 199 or from courses pertaining to American culture offered by other departments (of those courses applied toward the major from outside the Department of English, all three must usually come from one department or program and appear on a list of approved courses for the major).

Honors Program

Admission

The honors program is open to majors with a 3.5 departmental and a 3.25 overall grade-point average. Students with lower GPAs may petition for admission to the program, but these grade-point averages must be achieved before graduation in order to qualify for honors. Students should apply by Winter Quarter of the junior year. For application forms and further information, contact the departmental counselor.

Requirements

All honors students are required to take English 140A during the junior year and one seminar from the English 180 through 189 sequence, preferably before the senior year. In Spring Quarter of the junior year, they must take course 199HA. During Fall and Winter Quarters of the senior year, they take courses 199HB and 199HC, in which they write a thesis under the direction of a faculty member. The thesis determines whether they receive high honors, honors, or no honors.

Waiver for Instructional Credential in English

Students interested in obtaining a single subject secondary school credential in English should consult with a departmental counselor regarding the requirements for a waiver from the English Single Subject Assessment Test (SSAT) and the Praxis Examination, both of which are required by the California Commission on Teacher Credentialing. Students should meet with a departmental counselor as early in their undergraduate careers as possible, because the program does require additional courses beyond the major requirements. Students interested in elementary school education are strongly urged to participate in the Diversified Liberal Arts Program (DLAP), administered by the College Counseling Service,

A316 Murphy Hall. For additional information on courses leading to the credential, consult the Department of Education at (310) 825-8328.

English/Greek B.A.

See Classics.

English/Latin B.A.

See Classics.

English Minor

The English minor is designed for students who wish to enhance their major program with the benefits of intensive study of English language and literatures, including a better understanding and appreciation of literatures in English and improvement in critical thinking, reading, and writing skills.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed English 10A with a grade of C or better, and (if not already completed) be enrolled in course 10B. Students should be aware that requisites for course 10A are English Composition 3 and English 4. For further information, contact the Undergraduate Counseling Office in 2222 Rolfe Hall, (310) 825-1389.

Required Lower Division Courses (15 units): English 10A, 10B, and 10C, with grades of C or better.

Required Upper Division Courses (20 units): Five courses selected from English 100 through M197D, including course 142A and one other course that focuses on literature in English written before 1900.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The department does not accept students whose sole objective is the Master of Arts (M.A.) degree in English.

Areas of Study

Literatures in English. See Course Requirements below.

Course Requirements

All graduate students in the M.A. program are required to take a minimum of 12 units or three courses per quarter.

Though all students are admitted directly into the Ph.D. program, students can decide to leave the program with an M.A. if they complete an acceptable thesis. Nine letter-graded English courses are required for the M.A. degree; these courses must be at the graduate level (200 or above).

All students at any stage of the program may take courses for S/U grades, but such courses cannot be used to satisfy any requirements for a degree. The work required for an S must be agreed on in advance with the instructor of the course.

Comprehensive Examination Plan

Students in the Ph.D. program receive the M.A. after they have satisfied one foreign language requirement and passed the first qualifying examination (see Written and Oral Qualifying Examinations under Doctoral Degree below).

Thesis Plan

Students elect the thesis plan for the M.A. after a maximum of two years in the program. They must request a committee from the vice chair a minimum of two quarters before completion of the program. The committee consists of three faculty members who meet as a group with the student to consider the thesis proposal. The thesis must not be less than 40 pages (10,000 words) nor more than 60 pages (15,000 words) in length.

Doctoral Degree

Admission

All students who are admitted into the graduate program of the Department of English at UCLA enter the first phase of the doctoral program, successful completion of which results in the Master of Arts degree in English. Those who enter UCLA with the master's degree may waive certain course requirements but must pass the first qualifying examination (which also grants admission into the second phase of the doctoral program). Those who decide they want a terminal Master of Arts degree from UCLA must write a thesis.

Admission to the program leading to the Ph.D. degree in English is based on a thorough review of the applicant's academic record. Ordinarily, holders of the B.A. are expected to meet these minimum requirements: an undergraduate major or program that prepares one for advanced study of literature; a grade-point average in English courses and in the junior and senior years of at least 3.5; and a score on the Graduate Record Examination (GRE) within the last five years of above 650 on both the verbal section of the General Test and the Literature in English Subject Test, or a combined score of 1,300. Applicants who hold the M.A. are expected to have a grade-point average of at least 3.7 in all graduate courses and a corre-

spondingly higher score on the Subject Test. Applicants must submit a minimum of three letters of recommendation attesting to their ability to succeed in graduate study. A writing sample is also required. Care should be taken with the statement of purpose and the writing sample, since the quality of thought and argument these exhibit, as well as their style, weigh significantly in admissions decisions. For an application, write to the department.

Major Fields or Subdisciplines

Literatures in English.

Course Requirements

Fourteen letter-graded courses are required. The courses must be at the graduate level (200 or better). With the approval of the vice chair, Ph.D. students may take up to three of the courses in departments other than English (such as literature in another language, history, art history, Afro-American studies, film). English 201A and 201B are highly recommended.

Students take the first qualifying examination and to pursue the doctorate take English 596 each quarter, either under an individual professor or the vice chair. Students who elect to write an M.A. thesis take English 598 each quarter.

Breadth. Of the 14 letter-graded courses for the Ph.D., students are required to take a minimum of three courses in periods before 1800 and three in periods after 1800. Courses that straddle this chronological break, such as most of those in Romanticism, may satisfy either the pre- or the post-1800 requirement, but not both. (Classes in literary theory do not ordinarily satisfy the breadth requirement.)

Philology. All Ph.D. students must take English 210 or any two courses from 211, 212, or 213. When offered, either English 214 or 240 may be substituted for 210.

All students at any stage of the program may take courses for S/U grades, but such courses cannot be used to satisfy any requirements for a degree. The work required for an S must be agreed on in advance with the instructor of the course.

Written and Oral Qualifying Examinations

First Stage Evaluation. At the beginning of the second year in the program, the graduate committee reviews students' files, which include the faculty's written reports on coursework as well as grades, and instructs the vice chair to advise students as to their progress in the program. Students who entered the program with an M.A. may petition the committee to grant credit toward the 14 course requirement for graduate courses taken elsewhere; at the committee's discretion, a maximum of six such courses may be credited toward the UCLA degree.

First Qualifying Examination. After students satisfy the 14-course requirement (including the breadth requirement and the philology requirement), ordinarily sometime early in their

third year, they take the first qualifying examination. In anticipation of the oral portion of this examination, students are asked to designate the three fields in which they are examined. At least two of these fields must be historical, chosen in most cases from among the following: Anglo-Saxon, Middle English, Renaissance, earlier 17th century, Restoration and 18th century, Romantic, Victorian, 20th-century British, earlier American, 19th-century American, 20th-century American. If students wish, the third field may be a genre or a special field: novel, drama, poetry, literary criticism, folklore/mythology, Celtic studies, African American literature, women's writing, history of the language, rhetoric, Asian American literature. The graduate committee also considers petitions for third fields designed by students themselves and not specified on this list.

Taking into account the fields designated, the vice chair appoints three faculty members to serve as the examining committee. Before it is appointed, students, without giving an explanation, may exempt one person from the committee. Students are told the names of their committee members approximately two weeks before the examination. At that time, students submit to them the written work from any two seminars that they feel best reflects their performance. In most cases, this means two substantial seminar papers. The committee's review of these papers constitutes the first stage of the examination. A two-hour oral examination in the three fields designated constitutes the second stage of this examination. On the basis of overall performance, the committee decides whether students passed the examination as a whole and submits the results to the graduate committee. Students may retake the examination once, but before any failed examination is retaken, the graduate committee reviews the record as a whole and offers, through the vice chair, advice on how students should proceed.

There are no fixed reading lists for the oral examination; the department believes that part of students' intellectual maturity at this stage should be the capacity to determine what needs to be read in a particular field. Students need to remember that an oral examination can move readily from texts that they have not read to ones that they have. For general guidance, however, the department does provide extensive lists of suggested works in each field, doing so in full recognition that most students are not able to "master" the entire lists, and that they may well use the oral examination to demonstrate knowledge of works that do not appear on the lists at all.

Second Stage. As soon as possible after successful completion of the first qualifying examination, students select a dissertation director and begin to prepare the dissertation prospectus. Once students advance to this stage, they may take up to eight units of English 597 either under an individual professor or the vice chair, so that they can concentrate on the prospec-

tus. Students are also encouraged to take any seminars that might prove useful.

Second Qualifying Examination. After students pass the second language requirement, and they and their dissertation director conclude that they are sufficiently prepared (but no later than three quarters after they have passed the first qualifying examination), they take the second qualifying examination (also called the University Oral Qualifying Examination). The examination is administered by a committee of four, consisting of a chair and two other members from the English Department and one member from outside the department, nominated and appointed according to the regulations governing doctoral committees. The departmental members may but need not be the same as those on the first qualifying examination committee.

At least two weeks before the examination, students must submit their prospectus to each member of the committee. The prospectus must be a substantially researched overview of the proposed dissertation. The second qualifying examination, which normally lasts for about two hours, focuses on the issues raised by the proposed dissertation and attempts to ascertain both the feasibility of the project and students' preparation for it. Though this examination concentrates on the prospectus, students should be prepared to discuss a wide range of works that bear on the proposed dissertation. Students are encouraged to consult their committee in advance of the examination. The grading on the examination is pass or fail. Candidates may, at the discretion of the committee, repeat the examination, but only one repetition is allowed.

Third Stage. When students pass the second qualifying examination, they may advance to candidacy and receive the Candidate in Philosophy (C.Phil.) degree. Students now proceed with the writing of the dissertation and enroll each quarter in English 599. Students are encouraged to enroll in seminars in their field whenever they are offered. All course requirements (oral reports and term papers) may be satisfied through work connected with the dissertation.

English

Lower Division Courses

4. Critical Reading and Writing. (4) Lecture, four 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 four papers (three to five pages each) and two in-class essays. P/NP or letter grading.

4H. Critical Reading and Writing (Honors). (4) 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 four papers (three to five pages each) and two in-class essays.

10A. English Literature to 1660. (5) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Enforced requisites: English Composition 3, English 4. Study of selected works of the period, beginning with selections from Old English poetry and including writings by Chaucer, Spenser, Shakespeare, Donne, and Milton. Minimum of three papers (three to five pages each) or equivalent.

10B. English Literature, 1660 to 1832. (5) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Enforced requisites: English Composition 3, English 4, 10A. Study of selected works of the period, including writings by Dryden, Pope, Swift, Wordsworth, and Keats. Minimum of three papers (three to five pages each) or equivalent.

10C. English Literature, 1832 to the Present. (5) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Enforced requisites: English Composition 3, English 4, 10A, 10B. Study of selected works of the period, including writings by Tennyson, Arnold, Browning, Joyce, and Eliot. Minimum of three papers (three to five pages each) or equivalent.

20. Introduction to Creative Writing. Preparation: satisfaction of Subject A requirement, submission of creative or expository writing samples to a screening committee. Enforced requisite: English Composition 3. 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.

70. Major British Authors before 1800. Preparation: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 10A or 10B. Study of selected masterpieces of English literature before 1800, including works of such writers as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, Johnson, and Fielding.

75. Major British Authors, 1800 to the Present. (4) Preparation: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 10B or 10C. Study of selected masterpieces of English literature from 1800 to the present, including works of such writers as Wordsworth, Coleridge, Keats, Tennyson, Dickens, Browning, Yeats, Joyce, and Eliot.

80. Major American Authors. (4) Preparation: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for any courses in the 170 series. Introduction to the chief American authors, with emphasis on poetry, nonnarrative prose, and short fiction of such writers as Poe, Dickinson, Emerson, Whitman, Twain, Frost, and Hemingway.

85. The American Novel. (4) Lecture, three hours; discussion, one hour. Preparation: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for any 170-series courses. Development, with emphasis on form, of the American novel from its beginning to the present day. Includes works of such novelists as Hawthorne, Fitzgerald, Faulkner, Ellison, and Morrison. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Special Topics in English. (4 each) Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading. **88A.** Medieval Literature; **88B.** Renaissance Literature; **88C.** 17th-Century Literature; **88D.** 18th-Century Literature; **88E.** Romantic Literature; **88F.** Victorian Literature; **88G.** 20th-Century British Literature; **88H.** Colonial American Literature; **88I.** 19th-Century American Literature; **88J.** 20th-Century American Literature; **88K.** History of English Language; **88L.** Folklore and Mythology; **88M.** Literature and Society.

90. Shakespeare. (4) Preparation: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 142A or 142B. Survey of Shakespeare's plays, including comedies, tragedies, and histories, selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement.

95A. Introduction to Poetry. (4) Preparation: satisfaction of Subject A 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 a selection of representative poems. P/NP or letter grading.

95B. Introduction to Drama. (4) Preparation: satisfaction of Subject A 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.

95C. Introduction to Fiction. (4) Preparation: satisfaction of Subject A 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.

96. The Short Story in England and America. (4) Preparation: satisfaction of Subject A requirement. Historical survey of the short story as a genre, from the 19th century to the present. P/NP or letter grading.

97H. Honors Seminar for Freshmen and Sophomores. (4) Seminar, three hours. Enforced requisites: English Composition 3, English 4. Limited to 15 students. Recommended for lower division students who anticipate entering English honors program during their junior year. Content varies; see departmental counselor for information.

Upper Division Courses

100. Introduction to Special Topics and Genres. (4) Preparation: satisfaction of Subject A requirement. Study of a particular topic, genre, or subgenre in literature such as satire, biography, parody, or a specialized classification of literature. May be repeated for credit. P/NP or letter grading.

M101A. Lesbian and Gay Literature before Stonewall. (4) (Formerly numbered 101.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M101A and Women's Studies M101A.) Lecture, four hours. Preparation: satisfaction of English Composition requirement. Survey of lesbian and gay literature in English from earlier periods through the 1960s. Works by such authors as Walt Whitman, Oscar Wilde, Radclyffe Hall, E.M. Forster, Willa Cather, Virginia Woolf, James Baldwin, Christopher Isherwood, William S. Burroughs, John Rechy, Audre Lorde, and Edward Albee. P/NP or letter grading.

M101B. Lesbian and Gay Literature after Stonewall. (4) (Formerly numbered 101.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M101B and Women's Studies M101B.) Lecture, four hours. Preparation: satisfaction of English Composition requirement. Survey of lesbian and gay literature in English since 1969, year of Stonewall Riots in New York City, commonly recognized as beginning of modern lesbian and gay culture. Works by such authors as Adrienne Rich, Jane Rule, Maureen Duffy, Brigid Brophy, Larry Kramer, Bertha Harris, Edmund White, Rita Mae Brown, Alan Hollinghurst, and Emma Donahue. P/NP or letter grading.

M102A. Asian American Literature to 1980. (4) (Formerly numbered M102.) (Same as Asian American Studies M112A.) Preparation: satisfaction of Subject A requirement. Survey of Asian American literature from early period of formation to cultural nationalist movement of late 1960s and 1970s. Works of such authors as Edith Eaton, Carlos Bulosan, Hisaye Yamamoto, Louis Chu, and Maxine Hong Kingston included. P/NP or letter grading.

M102B. Asian American Literature since 1980. (4) (Formerly numbered M102.) (Same as Asian American Studies M112B.) Preparation: satisfaction of Subject A requirement. Survey of contemporary Asian American literature with emphasis on its growing ethnic diversity following influx of new immigrants. Works of such authors as Theresa Cha, Bharati Mukherjee, David Wong Louie, Garrett Hongo, and Jessica Hagedorn included. P/NP or letter grading.

103. Jewish American Fiction. (4) Preparation: satisfaction of Subject A requirement. Study of the fiction of Jewish writers in America, such as Bellow, Malamud, and Roth, focusing on encounter of Jewish ethical ideals and social values with the contemporary environment.

M104A. Early Afro-American Literature. (4) (Same as Afro-American Studies M104A.) Preparation: satisfaction of Subject A requirement. Introductory survey of black American literature from the 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, David Walker, Frances Harper, Frederick Douglass, Harriet Jacobs, Paul Laurence Dunbar, Charles W. Chesnut, Booker T. Washington, and Pauline Hopkins.

M104B. Afro-American Literature from the Harlem Renaissance to the 1960s. (4) (Same as Afro-American Studies M104B.) Preparation: satisfaction of Subject A requirement. Introductory survey of 20th-century black American literature from New Negro Movement of post-World War I period to the 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, and Ralph Ellison.

M104C. Afro-American Literature since the 1960s. (4) (Same as Afro-American Studies M104C.) Preparation: satisfaction of Subject A requirement. Introductory survey of diverse forms of Afro-American literary expression produced from rise of Black Arts Movement of the 1960s to the present by writers such as Amiri Baraka, Nikki Giovanni, Alice Walker, Etheridge Knight, Toni Morrison, Martin Luther King, Jr., Paule Marshall, Ernest Gaines, Ishmael Reed, and Audre Lorde. P/NP or letter grading.

M105A. Early Chicana/Chicano Literature. (4) (Formerly numbered M105.) (Same as Chicana and Chicano Studies M105A.) Preparation: satisfaction of Subject A requirement. Survey of Chicana/Chicano literature from the 16th century through Zoot Suit Riots (1943), including both oral and written forms of literary expression (corridos, folktales, essays, memoirs, novels, and poetry) by such authors as Cabeza de Vaca, Juan Seguin, Americo Paredes, and Maria Ruiz Amparo Burton. P/NP or letter grading.

M105B. Recent Chicana/Chicano Literature. (4) (Formerly numbered M105.) (Same as Chicana and Chicano Studies M105B.) Preparation: satisfaction of Subject A requirement. Survey of Chicana/Chicano literature since 1943, beginning with reactions to Zoot Suit Riots and continuing through Chicana/Chicano Movimiento to contemporary literature. Drama, novels, memoirs, essays, and poetry by such authors as Luis Valdez, Cherrie Moraga, Sandra Cisneros, Rodolfo Anaya, Rolando Hinojosa, Oscar Zeta Acosta, and Ana Castillo. P/NP or letter grading.

106. Native American Literary Studies. (4) Preparation: satisfaction of Subject A requirement. Study of Native American oral cultures through translated documents (song-poems, life-stories, myths, tales, dream visions, speeches) and/or images in writing about Native Americans (poetry, fiction, history, anthropology, sociology).

M107A. American Women Writers. (4) (Same as Women's Studies M107A.) Preparation: satisfaction of Subject A requirement. Survey of literary works by American women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by American women.

M107B. British Women Writers. (4) (Same as Women's Studies M107B.) Preparation: satisfaction of Subject A requirement. Survey of literary works by British women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by British women.

M107C. Special Topics in Women and Literature. (4) (Same as Women's Studies M107C.) Preparation: satisfaction of Subject A requirement. Variable specialized studies course in women and literature, with emphasis on a period, genre, particular theme, or nonnational literary grouping.

108A-108B. The English Bible as Literature. (4) Preparation: satisfaction of Subject A requirement. Principal literary monuments of the Old and New Testaments in King James Version. **108A.** Old Testament; **108B.** New Testament.

108C. The English Bible as Literature: Special Topics. (4) Preparation: satisfaction of Subject A requirement. Study of the English Bible, with attention to particular literary themes, motifs, and genres. Possible discussion of influence of the Bible on discrete periods or individual authors in English literature. May be repeated for credit.

109. Interdisciplinary Approaches to Literature. (4) Preparation: satisfaction of Subject A requirement. Study of British or American literature in relation to other disciplines such as history, politics, philosophy, psychology. May be repeated for credit.

110. Studies in Individual Authors. (4) Preparation: satisfaction of Subject A requirement. Specialized study of the work of a single poet, dramatist, prose writer, or novelist. May be repeated for credit.

M111A. Literature of Myth and Oral Tradition. (4) (Same as Folklore M111.) Preparation: satisfaction of Subject A requirement. Study of myth, dramatic origins, oral epic, folktales, and ballad, emphasizing Indo-European and Semitic examples.

M111B. Anglo-American Folk Song. (4) (Same as Ethnomusicology M124 and Folklore CM106.) Survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values.

M111C. British Folklore and Mythology. (4) (Same as Folklore M121.) Preparation: satisfaction of Subject A requirement. Designed for juniors/seniors. Survey of folklore of the peoples of Britain, with attention to their history, function, and regional differences.

M111D. Celtic Mythology. (4) (Same as Folklore M122.) Lecture, three hours; discussion, one hour. Survey of early materials, chiefly literary, for study of mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales.

M111E. Survey of Medieval Celtic Literature. (4) (Same as Folklore M112.) Preparation: satisfaction of Subject A requirement. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to the 14th century.

M111F. Celtic Folklore. (4) (Same as Folklore M127.) Requisite: Folklore 101. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research.

M111G. Oral Traditions in Africa. (4) (Same as Folklore M155.) Designed for juniors/seniors. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

112. Children's Literature. (4) Preparation: satisfaction of Subject A requirement. Study of historical backgrounds and development of types of children's literature, folklore and oral tradition, levels of interest, criticism and evaluation, illustration and bibliography.

113. Literature for Adolescents and Young Adults. (4) Preparation: satisfaction of Subject A requirement. Analysis and evaluation of literature intended mainly for students in junior and senior high schools. Review of mature books that are popularly suggested for this age group; study of interests and reading habits of young adults.

114. World Literatures in English. (4) Preparation: satisfaction of Subject A requirement. Survey of contemporary literature from English-speaking regions of the world, reviewing major genres from several countries and making cross-comparisons with the literatures. Generalizations concerning the nature of the English used by such writers. May be repeated for credit.

115A. American Popular Literature. (4) Preparation: satisfaction of Subject A requirement. Study of main currents of popular and cultural taste as reflected in such genres as dime novels, detective fiction, and Western stories.

115B. British Popular Literature. (4) Preparation: satisfaction of Subject A requirement. Readings in the literature of the British masses, from 16th-century broadsides to contemporary novels. Examination of social functions of literature.

116. Science Fiction. (4) Preparation: satisfaction of Subject A requirement. Study of science fiction and speculative literatures.

117. Detective Fiction. (4) Preparation: satisfaction of Subject A requirement. Study of British and American detective fiction and the literature of detection.

118. Film and Literature. (4) Preparation: satisfaction of Subject A requirement. Study of interdisciplinary relationships between film and literature, including theme and structure, and focusing on cinematic adaptations of literary works.

119. Literature of California and the American West. (4) Preparation: satisfaction of Subject A requirement. Study of literature in English dealing with exploration, settlement, and emergent cultural awareness of the Western U.S. P/NP or letter grading.

121. History of the English Language. (4) Preparation: satisfaction of Subject A requirement. Study directed toward English majors of main features in grammatical, lexical, and phonetic condition of the English language from Indo-European time to the present.

122. Introduction to Structure of Present-Day English. (4) Preparation: satisfaction of Subject A requirement. Introduction to techniques of linguistic description as applied to pronunciation, grammar, and vocabulary of modern English.

133. Creative Writing: Poetry. (4) (Formerly numbered 133A-133B-133C.) Preparation: satisfaction of Subject A requirement, submission of writing samples. Requisites: English Composition 3, English 4. Weekly exercises in writing of poetry, with practice in standard forms and meters and study of techniques. Classroom discussion based on student use. Enrollment in more than one section per term not permitted. May be repeated for a total of 12 units. No more than eight units may be completed with same instructor. P/NP or letter grading.

134. Creative Writing: Short Story. (4) (Formerly numbered 134A-134B-134C.) Preparation: satisfaction of Subject A requirement, submission of writing samples. Requisites: English Composition 3, English 4. Three average-length stories to be completed each term. Some stories may, with instructor's consent, be substantial revisions of other stories presented. Classroom discussion based on stories presented. Enrollment in more than one section per term not permitted. May be repeated for a total of 12 units. No more than eight units may be completed with same instructor. P/NP or letter grading.

135. Creative Writing: Drama. (4) (Formerly numbered 135A-135B-135C.) Preparation: satisfaction of Subject A requirement, submission of writing samples. Requisites: English Composition 3, English 4. Exploration of capacity of each student to write for the theater. Class discussion of student writing, individual conferences, rehearsed readings, and laboratory productions. Enrollment in more than one section per term not permitted. May be repeated for a total of 12 units. No more than eight units may be completed with same instructor. P/NP or letter grading.

137. Advanced Computer Techniques for Students of English. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C, Program in Computing 1, 10A. Concurrent instruction in writing computer programs for literary study and in the kinds of literary research that can be aided by computers. BASIC is taught; students must know how to operate a computer. Principles of computer science neither assumed nor taught.

140A. Criticism: History and Theory. (4) Requisites: courses 10A, 10B. Study of some major historical documents and theoretical statements in history of literary criticism, including works by such writers as Plato, Aristotle, Horace, Sidney, Dryden, Johnson, Kant, Coleridge, Wordsworth, Shelley, Arnold, James, Croce, and T.S. Eliot, with emphasis on major critical positions posed and developed by these writers, basis of their theoretical positions, and practical consequences of those positions. Possible discussion of recent trends in criticism.

140B. Criticism: Special Topics. (4) Requisites: courses 10A, 10B. Study of limited periods and specialized issues and approaches in history of literary criticism, including moral, biographical, sociological, psychological, formal, structural, and deconstructionist. Area of concentration determined by instructor and listed in *Schedule of Classes*. Some study of literary texts, to illuminate the value and practical application of the approach, may be required.

141A. Chaucer: *The Canterbury Tales*. (4) 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, *The Canterbury Tales*. Satisfies department's Chaucer requirement.

141B. Chaucer: *Troilus and Criseyde* and Selected Minor Works. (4) Requisites: courses 10A, 10B. Intensive study of *Troilus and Criseyde* and selected minor works of Chaucer, such as *The Book of the Duchess*, *The House of Fame*, *The Parliament of Fowls*, etc. Satisfies department's Chaucer requirement.

142A. Shakespeare: Poems and Early Plays. (4) Lecture, four hours; discussion, one hour. Requisites: courses 10A, 10B. Intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet*.

142B. Shakespeare: Later Plays. (4) Lecture, four hours; discussion, one hour. Requisites: courses 10A, 10B. Intensive study of representative problem plays, major tragedies, Roman plays, and romances.

142C. Shakespeare: Selected Topics. (4) Requisites: courses 10A, 10B. Designed for students interested in further study of Shakespeare. Limits of investigation set by individual instructors.

143. Milton. (4) Requisites: courses 10A, 10B. Study of major works of Milton, with emphasis on *Paradise Lost*.

150A. Early Medieval Literature. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B. Reading knowledge of Old English not required. Major prose and poetry of Anglo-Saxon England (600 to 1100), 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.

150B. Later Medieval Literature. (4) (Formerly numbered 150.) Requisites: courses 10A, 10B. Reading and historical explication of major writers of the 14th and 15th centuries (e.g., the Gawain-poet, Langland, Gower, Malory, miracle and morality plays, prose, and lyrics). The more difficult texts read in modernized form.

151. Elizabethan Literature. (4) Requisites: courses 10A, 10B. Study of English literature of the 16th century, with special emphasis on development and interrelationships of poetry, prose, fiction, and literary theory and criticism during reign of Elizabeth I.

152A. Drama from the Beginning to 1576. (4) Requisites: courses 10A, 10B. English drama from its Latin and Anglo-Norman roots to opening of first public playhouse. P/NP or letter grading.

152B. Drama, 1576 to 1642. (4) Requisites: courses 10A, 10B. Non-Shakespearean English drama from opening of first public playhouse to closing of the theaters. P/NP or letter grading.

153. Literature of the Early 17th Century, 1600 to 1660. (4) Requisites: courses 10A, 10B. Study of major works as literary documents and as products of 17th-century thought. Work of Milton excluded.

154. Literature of the Restoration and Earlier 18th Century, 1660 to 1730. (4) Requisites: courses 10A, 10B. Study of major works as literary documents and as products of the Restoration and earlier 18th-century thought.

155. Literature of the Later 18th Century, 1730 to 1798. (4) Requisites: courses 10A, 10B. Study of major works as literary documents and as products of later 18th-century thought.

156. Drama, 1660 to 1842. (4) Requisites: courses 10A, 10B. Survey of English drama from the Restoration to the Licensing Act.

157. The Novel to 1832. (4) Requisites: courses 10A, 10B. Survey of works of major English novelists from Defoe through Scott.

160. Earlier Romantic Literature. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. 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.

161. Later Romantic Literature. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. 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.

162. Earlier Victorian Poetry and Prose. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of poetry and prose of the Victorian age from passage of the first Reform Bill through the high Victorian period, including such authors as Tennyson, Browning, Arnold, Carlyle, Mill, and Newman.

163. Later Victorian Poetry and Prose. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of poetry and prose of the later Victorian age from Pre-Raphaelitism through the aesthetic and decadent movements, along with other intellectual trends, including such authors as Ruskin, Swinburne, Pater, Hopkins, Hardy, Wilde, and Yeats.

164. The Novel, 1832 to 1900. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Survey of major English novelists from Dickens through Hardy.

165. 20th-Century British Poetry. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Survey of major British poets, including Yeats, Eliot, Auden, and Hughes, from 1900 to the present.

166. 20th-Century British Fiction. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Survey of major British novelists and short story writers, including Conrad, Joyce, Woolf, and Lawrence, from 1900 to the present.

167. Drama, 1842 to 1945. (4) Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C (for Theater and Film and Television majors the 10A, 10B, 10C requisites are waived). Survey of British and American drama, with its principal continental influences, from 1842 through World War II.

- 168. Drama, 1945 to the Present. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of British and American drama, with its principal continental influences, since World War II.
- 170A. American Literature to 1775. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Historical survey of American literature through the Colonial period. P/NP or letter grading.
- 170B. American Literature, 1775 to 1832. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Historical survey of American literature during Revolutionary and early republic periods. P/NP or letter grading.
- 171A. American Literature, 1832 to 1865. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Historical survey of American literature from Jacksonian era to end of the Civil War. P/NP or letter grading.
- 171B. American Literature, 1866 to 1912. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Historical survey of American literature from end of the Civil War to founding of *Poetry* magazine. P/NP or letter grading.
- 172A. American Literature, 1912 to 1945. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Historical survey of American literature from founding of *Poetry* magazine to end of World War II. P/NP or letter grading.
- 172B. American Literature since 1945. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Historical survey of American literature since end of World War II. P/NP or letter grading.
- 173A. American Fiction to 1900. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American fiction (both novels and short stories) from its beginning to end of the 19th century. P/NP or letter grading.
- 173B. American Fiction, 1900 to 1945. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American novels and short stories from beginning of the 20th century to end of World War II. P/NP or letter grading.
- 173C. American Fiction since 1945. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American novels and short stories since end of World War II. P/NP or letter grading.
- 174A. American Poetry to 1900. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American poetry from Puritan period through end of the 19th century. P/NP or letter grading.
- 174B. American Poetry, 1900 to 1945. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American poetry from beginning of the 20th century to end of World War II. P/NP or letter grading.
- 174C. American Poetry since 1945. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American poetry since end of World War II. P/NP or letter grading.
- 175. American Nonfictional Prose. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American nonfictional prose (essays, autobiographies, travel narratives, and other). Particular genre and/or historical period vary with instructor. P/NP or letter grading.
- 176. American Drama. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of American drama from its beginning to the present day. Historical period may vary with instructor. P/NP or letter grading.
- 177. Special Topics in American Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Focused study of some aspect or theme in American literature. May be repeated for credit. P/NP or letter grading.
- 178. Perspectives in Study of American Culture. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. 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.
- 179. American Literature in Comparative Context. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Study of some aspect of American literature and its relationships to other national literature. P/NP or letter grading.
- 180. Specialized Studies in Medieval Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 180X. Specialized Studies in Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 181. Specialized Studies in Renaissance Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 182. Specialized Studies in 17th-Century Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 183. Specialized Studies in 18th-Century Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 184. Specialized Studies in Romantic Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 185. Specialized Studies in Victorian Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 186. Specialized Studies in 20th-Century British Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 187. Specialized Studies in Colonial American Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 188. Specialized Studies in 19th-Century American Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 189. Specialized Studies in 20th-Century American Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. May be repeated for credit.
- 190. Literature and Society. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4, 10A, 10B, 10C. Intensive study of some aspect of relationship between literature and social, economic, or political history. May be repeated for credit. P/NP or letter grading.
- 196. Interracial Encounters in Contemporary American Literature. (4)** Preparation: satisfaction of Subject A requirement. Requisites: English Composition 3, English 4. Study of recent literary and cinematic texts produced by people from different ethnic backgrounds living in the U.S. and providing comparative cultural perspectives on living in a multiethnic society. P/NP or letter grading.
- M197A. Topics in Afro-American Literature. (4)** (Formerly numbered M197.) (Same as Afro-American Studies M197A.) Variable specialized studies course in Afro-American literature. Topics include the Harlem Renaissance; Afro-American Literature in the Nadir, 1890 to 1914; Contemporary Afro-American Fiction. May be repeated for credit. P/NP or letter grading.
- M197B. Topics in Chicana/Chicano Literature. (4)** (Same as Chicana and Chicano Studies M197B.) Preparation: satisfaction of Subject A requirement. Variable specialized studies course in Chicana/Chicano 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. P/NP or letter grading.
- M197C. Topics in Asian American Literature. (4)** (Same as Asian American Studies M197C.) Preparation: satisfaction of Subject A requirement. Variable specialized studies course in Asian American literature. Topics include specific genres (autobiography, poetry, or drama); specific nationalities within the Asian American community; and themes related to such problems as generational differences, gender politics, or interethnic encounters. May be repeated for credit. P/NP or letter grading.
- M197D. Special Topics in Lesbian and Gay Literature. (4)** (Same as Lesbian, Gay, Bisexual, and Transgender Studies M197D.) Preparation: satisfaction of English Composition requirement. Variable specialized studies course in lesbian and gay literature. Topics focus on a particular problem or issue in terms of its relationship to lesbian and gay culture and writing. May be repeated for credit. P/NP or letter grading.
- 199. Special Studies in English. (2 to 4)** Intensive directed research project. To enroll or obtain information, see departmental counselor.
- 199HA. Honors Seminar. (4)** Requisite: course 140A. Introduction to research techniques and study of various approaches and applications of critical methodology as it relates to interpretation and evaluation of texts.
- 199HB-199HC. Honors Tutorial. (4-4)** Requisite: course 199HA. Tutorial in which students write theses under direction of a faculty member. In Progress grading.
- 199I. Independent Studies for Internships. (2 to 4)** Independent studies course to be supervised jointly by Field Studies Office and faculty supervisor. Further supervision to be provided by business for which student is doing internship. P/NP grading.

Graduate Courses

200. Approaches to Literary Research. (4) Bibliographical tools of English and American literary scholarship; introduction to descriptive bibliography and basic methods of research. Periods covered vary.

201A. Criticism and Interpretation from Classical Era to the Renaissance. (4) Lecture, three hours. Examination of major texts in history of critical theory and interpretation from pre-Socratics to Descartes, including classical literary criticism (Plato, Aristotle, Horace, Longinus), biblical hermeneutics (Bible, Midrash, St. Paul, St. Augustine, St. Thomas Aquinas), and medieval and Renaissance theories of interpretation (Dante, Boccaccio, Sidney).

201B. Aesthetics and Criticism from the Enlightenment to Decadence. (4) Lecture, three hours. Continuation of course 201A, proceeding from neo-classical and Enlightenment critical theory through Victorian and decadent aesthetic and literary criticism. Readings may include texts by Rousseau, Dryden, Pope, Hume, Kant, Schiller, the Schlegels, Coleridge, Hegel, Schelling, Arnold, Pater, Wilde, and Nietzsche. Letter grading.

201C. Developments and Issues in Modern Critical Thought. (4) Lecture, three hours. Study of major figures and ideas in modern and contemporary critical theory. Readings vary from year to year but may include such figures as Freud, Durkheim, Saussure, Heidegger, Shklovskii, Benjamin, Adorno, Levi-Strauss, Lacan, Barthes, Derrida, Deleuze, Fanon, Foucault, Irigaray, Lyotard, Bourdieu, and Bhabha. S/U or letter grading.

202. Enumerative and Descriptive Bibliography. (4) Problems in bibliography, texts, and editions, with practical application in compiling bibliographies, editing texts, and approaching literature through textual criticism.

203. Computers and Literary Research. (4) Prior knowledge in this area not required. Practice in writing and using computer programs for analysis of literary style, content, and authorship.

204. History of Rhetoric. (4) Reading of basic texts in history of rhetoric and selections from standard commentaries. Survey of classical period and medieval-to-modern period in alternate years.

M205. Perspectives in American Folklore Research. (4) (Same as Folklore CM205.) Lecture, three hours. Requisite: Folklore 101. Examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on principal conceptual schemes and research orientations employed in study of folklore in American society.

210. History of the English Language. (4) Detailed study of history, characteristics, and changing forms of the language from its origin until about 1900.

211. Old English. (4) Study of Old English grammar, lexicon, phonology, and pronunciation to enable students to read the literature silently and aloud. Reading of as much of the more interesting Old English prose and poetry as can be read in a term.

212. Middle English. (4) Requisite: course 211. Detailed study of linguistic aspects of Middle English and of representative examples of the better prose and poetry.

213. Early Modern English. (4) Detailed study of phonology, morphology, syntax, and vocabulary of English between 1450 and 1750. Description and analysis of changes in the language in relation to intellectual, political, and social characteristics of the period.

214. Modern English. (4) Description and analysis of modern English phonology, grammar, and vocabulary, using theory and techniques of contemporary linguistics. Survey of the evolution of American English and account of characteristic phonological and grammatical features of major regional varieties of English around the world.

216A-216B. Old Irish. (4) Studies in grammar. Readings in the glosses and other texts. Comparative considerations.

217A-217B. Medieval Welsh. (4) Studies in grammar. Readings in the Mabinogi and other texts. Comparative considerations.

218. Celtic Linguistics. (4) Survey of salient features of Celtic linguistic stock in its Gaelic and British branches, with reference to position of Celtic within Indo-European languages.

230. Workshop: Creative Writing. (2 to 4) Preparation: submission of writing samples in specified genre (poetry, fiction, or drama). May be repeated but may not satisfy more than one of the nine courses required for first qualifying examination nor any of the five courses required for second qualifying examination.

M235. African Myth and Ritual. (4) (Same as Folklore M235.) Seminar on methods of analyzing African and African Diaspora myth and ritual.

240. Studies in History of the English Language. (4) Individual seminars dealing with any single historical period from Old English period to the present or development of a particular linguistic characteristic (phonology, syntax, semantics, dialectology) through various periods. May be repeated for credit.

241. Studies in Structure of the English Language. (4) Topics in various aspects of structure of modern English, especially syntax and semantics. May be repeated for credit.

242. Language and Literature. (4) Application of linguistics to literary analysis. Individual seminars dealing with a historical period (medieval and Renaissance, neoclassical, or 19th century and modern), specific authors, or contributions of specific groups of linguists to literary analysis. May be repeated for credit.

M243A. The Ballad. (4) (Same as Folklore M243A.) Study of English and Scottish popular ballads and their American derivatives, with some attention to European analogues. May be repeated for credit.

M243B. Problems in Ballad Scholarship. (4) (Same as Folklore M243B.) Requisite: course M243A. Intensive investigation of a problem or problems in study of the popular ballad. May be repeated for credit.

244. Old and Medieval English Literature. (4) Studies in poetry and prose of Old and medieval English literature; limits of investigation set by individual instructor. May be repeated for credit.

245. Chaucer. (4) May be repeated for credit.

246. Renaissance Literature. (4) Studies in poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation set by individual instructor. May be repeated for credit.

247. Shakespeare. (4) May be repeated for credit.

248. Earlier 17th-Century Literature. (4) Studies in poetry and prose of 17th-century English literature up to the Restoration; limits of investigation set by individual instructor. May be repeated for credit.

249. Milton. (4) Studies in poetry and prose of John Milton; limits of investigation set by individual instructor. May be repeated for credit.

250. Restoration and 18th-Century Literature. (4) Studies in English poetry and prose, 1660 to 1800; limits of investigation set by individual instructor. May be repeated for credit.

251. Romantic Writers. (4) May be repeated for credit.

252. Victorian Literature. (4) Studies in English poetry and prose of the Victorian period; limits of investigation set by individual instructor. May be repeated for credit.

253. Contemporary British Literature. (4) May be repeated for credit.

254. American Literature to 1900. (4) Studies in Colonial and 19th-century American literature; limits of investigation set by individual instructor. May be repeated for credit.

255. Contemporary American Literature. (4) Studies in contemporary American poetry and prose; limits of investigation set by individual instructor. May be repeated for credit.

256. Studies in the Drama. (4) Studies in drama as a genre from its beginning to the present; limits of investigation set by individual instructor. May be repeated for credit.

257. Studies in Poetry. (4) Studies in various themes and forms of poetry from Old English to the present; limits of investigation set by individual instructor. May be repeated for credit.

258. Studies in the Novel. (4) Studies in evolution of the genre from its beginning to the present; limits of investigation set by individual instructor. May be repeated for credit.

259. Studies in Criticism. (4) May be repeated for credit.

260. Studies in Literature and Its Relationship to the Arts and Sciences. (4) Studies in interrelationships of literature, arts, and sciences; limits of investigation set by individual instructor. May be repeated for credit.

M260A. Topics in Asian American Literature. (4) (Same as Asian American Studies M297A.) Lecture, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit.

261. Studies in Chicana/Chicano Literature. (4) 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.

M262. Studies in Afro-American Literature. (4) (Same as Afro-American Studies M200E.) 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.

263. Celtic Literature. (4) Lecture, three hours. Preparation: knowledge of one of the ancient or modern Celtic languages. Studies in poetry and prose of early and modern Celtic literatures, chiefly Irish and Welsh; limits of investigation set by individual instructor. May be repeated for credit.

264. Studies in Rhetoric. (4) Discussion, three hours. Special topics in classical and modern rhetoric, including substantial practice in rhetorical analysis of literary texts. May be repeated for credit.

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.

M266. 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.

272. Current Issues in Teaching English. (4) Focus on one of a variety of topics of special current interest. May be repeated for credit.

M298. Interdisciplinary Studies in the 17th and 18th Centuries. (4) (Same as History M298.) Topics vary according to participating faculty. May be repeated for credit.

M299. Interdisciplinary American Studies. (6) (Same as History M299.) Discussion, four hours. Readings, discussion, and papers on a common theme, team-taught by faculty from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May not be substituted for any departmental enrollment requirements. May be repeated for credit. S/U grading.

495E. Teaching with Technology. (2 to 4) Seminar, two hours. Enables graduate student instructors to approach challenges of teaching with technology on two fronts: by familiarizing them with range of possible applications and by carrying out a research project on a technology topic of their choice. S/U grading.

501. Cooperative Program (2 to 8 units). 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) 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 grading.

597. Preparation for Ph.D. Examinations. (4 to 12) Limited to second-stage Ph.D. students preparing for second qualifying examination. S/U grading.

598. M.A. Research and Thesis Preparation. (4 or 8) Limited to graduate students. May not be applied toward any course requirement for degree. S/U grading.

599. Ph.D. Dissertation Research. (4 or 8) Limited to Ph.D. students unable to enroll in seminars in their fields or to students concurrently enrolled in such seminars. (Exception to this rule must be requested by petition.) S/U grading.

Yiddish

Upper Division Courses

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. Requisite: course 101A. P/NP or letter grading.

101C. Elementary Yiddish. (4) Lecture, four hours. Requisite: course 101B. P/NP or letter grading.

102A-102B. Accelerated Elementary Yiddish (6-6). Lecture, five hours; laboratory, one hour. Covers material in courses 101A, 101B, 101C in two terms rather than three. P/NP or letter grading.

104. Advanced Yiddish. (4) Lecture, three hours. Requisite: course 101C. 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 a wide range of 19th- and 20th-century literature. P/NP or letter grading.

131A. Modern Yiddish Poetry. (4) Lecture, three hours. Requisite: course 104. Readings in modern Yiddish poetry. P/NP or letter grading.

131B. Modern Yiddish Prose and Drama. (4) Lecture, three hours. Requisite: course 104. Readings in modern Yiddish prose and drama. P/NP or letter grading.

131C. Special Topics in Yiddish Literature. (4) Lecture, three hours. Requisite: course 131A or 131B. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of a wide range of 19th- and 20th-century literature. P/NP or letter grading.

199. Special Studies in Yiddish. (2 to 4) Tutorial, to be arranged. Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Yiddish. (4) Tutorial, to be arranged with faculty member who directs the study or research (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated once. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) Tutorial, to be arranged with faculty member who directs the study (see department for I.D. number). S/U grading.

ENGLISH COMPOSITION (WRITING PROGRAMS)

College of Letters and Science

UCLA
371 Kinsey Hall, Administration
271 Kinsey Hall, Student Services Office
Box 951384
Los Angeles, CA 90095-1384

(310) 206-6815, Administration
(310) 206-1145, Student Services Office
<http://www.humnet.ucla.edu/humnet/wp/wphome.html>

Cheryl Giuliano, Ph.D., *Director*
Bruce Beiderwell, Ph.D., *Assistant Director*

Lecturers

Kathleen Balgley, Ph.D.
Bruce Beiderwell, Ph.D.
Teddi Chichester Bonca, Ph.D.
William Creasy, Ph.D.
Esha De, Ph.D.
Diane Durkin, Ph.D.
Ed Frankel, M.A.
Rachel Fretz, Ph.D.
George Gadda, C.Phil.
Lisa Gerrard, Ph.D.
Patricia Gilmore, Ph.D.
Cheryl Giuliano, Ph.D.
Susan Griffin, Ph.D.
Kathleen Irace, Ph.D.
Janette Lewis, Ph.D.
Bonnie Lisle, Ph.D.
Sonia Maasik, M.A.
Michele Moe, Ph.D.
Susan Popkin Mach, Ph.D.
Sandra Mano, Ph.D.
John Mascaró, Ph.D.
Anita McCormick, Ph.D.
Cynthia Merrill, Ph.D.
Geraldine Moyle, Ph.D.
Mitzi Myers, Ph.D.
Shelby Popham, Ph.D.
Gregory Robinson, Ph.D.
Kim Savelson, Ph.D.
Jeffrey Smith, M.A.
Jennifer Westbay, Ph.D.
Jeffrey Wheeler, Ph.D.

Scope and Objectives

Students need writing proficiency at every stage of their university careers. Although UCLA does not have a composition major, this program offers a series of courses introducing the varieties of university discourse and providing instruction in basic to high-level skills. Besides courses which satisfy the University's Subject A and English Composition requirements, the program offers writing courses linked with courses in other departments, intermediate and advanced courses in exposition, and language and composition courses for teachers. Special programs include the First-Year Intensive Program (FIPW) and the Transfer Intensive Program (TIP).

Undergraduate Study

Subject A

Every student who does not satisfy the Subject A requirement by presenting transfer credit or acceptable test scores is required to take, as early as possible during the first year in residence, either English Composition A or 2. Placement in these courses is determined by performance on the Subject A Examination. For more information regarding Subject A, see Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

English Composition

Lower Division Courses

A. Introduction to University Discourse (No credit). Lecture, five hours. Preparation: appropriate score on Subject A Examination. Displaces four units on student's Study List but yields no credit toward a degree. First course in reading university-level texts and framing written responses that employ a range of rhetorical strategies from paraphrase to analysis. Emphasis on revision, developing syntactic variety and academic vocabulary, and editing for grammar and style. Completion of this course with a grade of C or better or demonstration of minimum competence on Subject A Examination is requisite to course 2.

2. Approaches to University Writing. (4) Requisite: course A (C or better) or appropriate score on Subject A Examination. 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 this course with a grade of C or better meets Subject A requirement.

3. English Composition, Rhetoric, and Language .

(4) Lecture, three hours. Preparation: satisfaction of Subject A requirement. Enforced requisite: course 2 or English as a Second Language 35 (C or better). Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of a minimum of five formal papers (three to five pages each). Completion of this course with a grade of C or better satisfies English Composition requirement. P/NP or letter grading.

3H. English Composition, Rhetoric, and Language (Honors). (4)

Lecture, three hours. Preparation: satisfaction of Subject A requirement. Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of a minimum of five formal papers (three to five pages each).

Upper Division Courses

100. Interdisciplinary Academic Writing. (4) Preparation: satisfaction of Subject A and English Composition requirements. Designed for sophomores/juniors/seniors. Course in academic writing suitable for both lower and upper division students that helps them develop academic papers with a range of complexity and length. Focus on conventions of academic prose and genres across the disciplines. Written assignments include common forms of academic writing such as argument, research paper, and/or critical essay.

110W. Writing Adjunct. (4) Preparation: satisfaction of Subject A and English Composition requirements. Students must be concurrently enrolled in a course offered in conjunction with course 110W (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) Preparation: satisfaction of Subject A 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.

120B. Language Study for Teachers of English: Secondary School. (4) Preparation: satisfaction of Subject A 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.

120C. Language Study for Teachers of Subjects Other Than English: Secondary School. (4) Preparation: satisfaction of Subject A and English Composition requirements. Introduction for teachers of subjects other than English to basic concepts in language acquisition, dialectology, sociolinguistics, and composition.

129A-129D. Academic Writing in the Disciplines. (4) 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 the given discipline. Each course may be taken independently for credit. P/NP or letter grading. **129A.** Literature; **129B.** Social Sciences. Lecture, three hours; discussion, one hour; **129C.** Physical and Life Sciences; **129D.** Fine Arts.

130A. Composition for Teachers: Elementary School. (4) Preparation: satisfaction of Subject A and English Composition requirements. Preparation for future elementary school teachers of English composition in writing and criticism of the kinds of prose discourse usually taught in primary schools.

130B. Composition for Teachers: Secondary School. (4) Preparation: satisfaction of Subject A and English Composition requirements. Preparation for future secondary school teachers of English composition in writing and criticism of the kinds of prose discourse usually taught in secondary schools.

131A-131D. Specialized Writing. (4) Preparation: satisfaction of Subject A 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. Each course may be taken independently for credit. P/NP or letter grading. **131A.** Law and Politics; **131B.** Business and Social Policy; **131C.** Medicine and Public Health; **131D.** Media and Communications.

132A-132D. Topics in Rhetoric and Writing. (4-4-4) Preparation: satisfaction of Subject A and English Composition requirements. Designed for juniors/seniors. Study of specific topics in relationship between rhetoric/writing and social or political history. Each course may be taken independently for credit. P/NP or letter grading. English majors who wish to use course to satisfy departmental prerequisites must take it for a letter grade. **132A.** Gender and Writing; **132B.** Autobiographical Writing; **132C.** Cultural Studies; **132D.** Variable Topics.

136A-136B-136C. Practical Writing and Editing. (4-4-4) Lecture, three hours. Preparation: satisfaction of Subject A requirement, one course from 131 series. Requisite: course 3. Sequence in practical writing and editing ability specifically designed to prepare students for a career. Analysis of prose and literary styles necessary to the variety of writing in professional, nonacademic fields combined whenever possible with practical experience in a variety of writing internships and training in a wide range of editorial skills. In Progress grading for courses 136A-136B only.

197F. Rhetoric in Modern American Culture. (4) Seminar, three hours. Requisite: course 100. One-term field studies course designed to provide students with academic background in and firsthand knowledge of media writing. P/NP or letter grading.

199W. Independent Studies in Writing. (2 to 4) Independent studies course supervised by faculty member. Fieldwork and/or internship may also be supervised by Field Studies Office or organization offering internship.

Graduate Courses

300. Teaching English. (4) Required of candidates for single subject credential in English. Study of theories of rhetoric, composition, reading, and literature as they apply to secondary school English curriculum.

495A-495B. Supervised Teacher Preparation (2-2). Seminar, one hour; laboratory, 30 minutes. In Progress and S/U grading. **495A.** Required of all applicants for a teaching assistantship in English. Practical concerns of designing a course, creating assignments, grading papers, and holding conferences for English Composition 3 classes. **495B.** Must be taken concurrently with first teaching assignment. Examination of specialized problems which occur in teaching English Composition 3 and introduction to techniques for teaching English Composition 2 and ESL.

495C. Supervised Teacher Preparation. (2) Requisites: courses 495A-495B. S/U grading.

ENVIRONMENTAL HEALTH SCIENCES

School of Public Health

UCLA
56-070 Center for the Health Sciences
Box 951772
Los Angeles, CA 90095-1772

(310) 206-1619
<http://www.ph.ucla.edu/ehs/>

Curtis D. Eckhart, Ph.D., Chair

Professors

Climis A. Davos, Ph.D. (*Environmental Policy*)
Curtis D. Eckhart, Ph.D. (*Toxicology, Ecotoxicology*)
John R. Froines, Ph.D. (*Industrial Hygiene and Toxicology*)
William C. Hinds, Sc.D. (*Industrial Hygiene*)
Shane Que Hee, Ph.D. (*Industrial/Environmental Hygiene Chemistry*)
Irwin H. Suffet, Ph.D. (*Environmental Chemistry*)
Arthur M. Winer, Ph.D. (*Air Pollution*)

Professor Emeritus

Robert A. Mah, Ph.D. (*Microbiology*)

Associate Professors

Richard F. Ambrose, Ph.D. (*Ecological Assessment, Restoration*)
Michael D. Collins, Ph.D. (*Developmental Toxicology*)
Jane L. Valentine, Ph.D. (*Environment/Water Quality*)

Assistant Professors

L. Donald Duke, Ph.D. (*Environmental Assessment*)
Wen-Chen Victor Liu, Ph.D., in Residence (*Occupational Ergonomics*)
Wendie A. Robbins, Ph.D., M.S.N.

Lecturer

Mario Panaqua, B.A.

Adjunct Professor

Steve Colome, S.D.

Adjunct Assistant Professor

Pablo Cicero-Fernandez, D.Env.

Assistant Field Program Supervisor

Diane M. Perry, Ph.D. (*International Environmental Health*)

Scope and Objectives

The Department of Environmental Health Sciences focuses its research and educational activities on the protection of human health from biological, chemical, and physical hazards in the environment. Its graduates are highly trained scientists and professionals capable of identifying and measuring agents of environmental concern; evaluating the health, environmental, and all other impacts of such agents; developing means for their effective management; and evaluating alternative policies directed at improving and protecting environments. Such training is accomplished through several degree programs which offer specialized study in selected academic areas of environmental health sciences such as air pollution, environmental chemistry, environmental management, environmental toxicology, industrial hygiene, and water quality. Graduates of the department pursue careers in the private or public sector as researchers, educators, managers, policymakers, and/or practitioners.

The department offers M.S. and Ph.D. degrees in Environmental Health Sciences and, through the School of Public Health, the M.P.H. and Dr.P.H. degrees with a specialization in environmental health sciences (see Public Health Schoolwide Programs). In addition, a unique doctoral degree (Doctor of Environmental Science and Engineering — D.Env.) is offered by the interdepartmental Environmental Science and Engineering Program which is administered through the department.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Environmental Health Sciences offers the Master of Science (M.S.) degree in Environmental Health Sciences. For information on the Master of Public Health (M.P.H.) degree, see Public Health Schoolwide Programs.

Admission

Applicants to the M.S. program should have a bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least three quarters of general chemistry (including quantitative analysis) and two quarters of organic chemistry and/or biochemistry, mathematics through calculus, three quarters of biological sciences, and three quarters of physics. Substitutions for these requirements are considered for applicants with an otherwise superior academic background.

Additional admission requirements for the M.S. in Environmental Health Sciences are the same as for the M.P.H. See the M.P.H. admission section under Public Health Schoolwide Programs.

Areas of Study

Consult the graduate adviser.

Course Requirements

Students must complete at least one year of graduate residence at the University of California and a minimum of 10 full courses, at least five of which must be graduate courses in the 200 or 500 series. Only one 596 course (four units) and one 598 course (four units) may be applied toward the total course requirement; only four units of either course may be applied toward the minimum graduate course requirement. Environmental Health Sciences 597 may not be applied toward the degree requirements. No more than 18 full courses are required for the degree.

Mandatory schoolwide core courses include Biostatistics 100A, 100B, and Epidemiology 100. Each core course may be waived for students who have taken a similar course elsewhere and can pass the waiver examination.

Mandatory departmental core courses include Environmental Health Sciences 200A, 200B, 201, 210, 410A, 410B, M411, and 598 (a maximum of one course may be applied toward the minimum total course requirement). In addition, elective courses should be selected in the student's area of specialization (e.g., air pollution, environmental chemistry, environmental management, environmental toxicology, industrial hygiene, water quality). Each core course may be waived for students who have taken a similar college-level course elsewhere and can pass the waiver examination.

Only courses in which a grade of C- or better is received may be applied toward the requirements for a master's degree. Students must maintain an average of no less than 3.0 (B) in

all courses required or elected during graduate residence at the University of California.

In addition to the above course requirements, students must complete a thesis (Plan I) or a project and a comprehensive examination (Plan II).

Comprehensive Examination Plan

If the comprehensive examination/report option (Plan II) is approved, candidates complete a research activity (Environmental Health Sciences 596) of at least eight units in addition to the course requirements and prepare an in-depth written report which must be approved by the adviser and one other faculty member. A written comprehensive examination on the major area of study must be passed. The examination is prepared by a committee of at least three faculty members. If the examination is failed, students may be reexamined once.

Thesis Plan

If the thesis option (Plan I) is approved, a thesis committee of three faculty members is established. The committee approves the thesis prospectus before the students file for advancement to candidacy. The thesis must be acceptable to the thesis committee.

Doctoral Degree

Admission

In addition to the University minimum requirements, the department requires for the Ph.D. degree in Environmental Health Sciences (1) a bachelor's degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least one year of chemistry (including organic chemistry or biochemistry), physics, biology, and mathematics through calculus; (2) a master's degree in a related field with a grade-point average of at least 3.5 for graduate studies; (3) satisfactory performance on the Graduate Record Examination (GRE); and (4) a score of at least 580 on the Test of English as a Foreign Language (TOEFL) for students whose undergraduate degree is from an institution whose primary language of instruction is not English.

Alternatively, for students who do not have a master's degree and wish to pursue a doctoral degree, the department requires (1) a junior/senior grade-point average of 3.25 (or other evidence of exceptional scholarship); (2) satisfactory performance on the Graduate Record Examination (GRE); (3) acceptance by a doctoral adviser in the department subsequent to filing the application for admission; and (4) a score of at least 580 on the Test of English as a Foreign Language (TOEFL) for students whose undergraduate degree is from an institution whose primary language of instruction is not English.

Major Fields or Subdisciplines

Consult the graduate adviser.

Course Requirements

The courses needed to pass the written examination in the major field depend on the field chosen.

Courses in the major field as recommended by the adviser and guidance committee are required, as are courses in a minor field related to environmental health sciences in a department outside the School of Public Health that grants a Ph.D. or in the Department of Biostatistics. This usually consists of three or four full courses, as specified by the department offering the minor.

For students who do not have a master's degree in the field of public health, the minimum course requirements also include a full course in epidemiology, two full courses in biostatistics, and Environmental Health Sciences 200A and 200B.

Written and Oral Qualifying Examinations

Before advancement to candidacy, students must pass a written examination in the major field and the University Oral Qualifying Examination. Normally no more than one reexamination is allowed. Students must also complete the requirements in the minor field set forth by the offering department.

A doctoral committee, consisting of at least four faculty members who hold professorial appointments at UCLA, is nominated when students are ready to take the University Oral Qualifying Examination. Two of the faculty must be tenured. Three of the four must hold appointments in the Department of Environmental Health Sciences; one must be an outside member who holds an appointment in another department at UCLA; one of the four must be from the minor field.

At least two members of the doctoral committee (one from the Department of Environmental Health Sciences and one from another department) must hold the Ph.D. degree. The doctoral committee administers the oral qualifying examination after students have successfully completed the written examination, advises students on the course of study and reviews the dissertation.

After passing the University Oral Qualifying Examination, students may be advanced to candidacy and commence work on a dissertation in the principal field of study. The doctoral committee guides progress toward completion of the dissertation.

Environmental Health Sciences

Upper Division Courses

100. Introduction to Environmental Health. (4) Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants. P/NP or letter grading.

199. Special Studies. (2 to 4) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only four units may be taken each term. P/NP or letter grading.

Graduate Courses

200A-200B. Foundations of Environmental Health Sciences. (8-8) Lecture, eight hours. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Letter grading. **200A.** Preparation: one year of undergraduate biology, calculus, chemistry, and physics. **200B.** Requisite: course 200A.

200C. Foundations of Environmental Health Sciences: Introduction, History, and Science Review. (2) Lecture, two hours. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction and historical overview of field of environmental health sciences, as well as review of underlying sciences for environmental health. Letter grading.

200D. Foundations of Environmental Health Sciences: Environmental Chemistry. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to definition and relationship of instrumental methods and water and air quality to environmental chemistry; measurements, instruments, spectroscopy, mass spectrometry, chromatography, hyphenated methods and complex matrices, radioactivity, and labeled compounds. Letter grading.

200E. Foundations of Environmental Health Sciences: Physical Agents. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to physical agents, including noise, thermal environment, ionizing radiation, and nonionizing radiation. Letter grading.

200F. Foundations of Environmental Health Sciences: Microbiology. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction and overview of microbial ecology, description of classification of microorganisms, bacterial physiology, basic virology population interactions, biochemical and biogeochemical cycling, microorganism environments. Letter grading.

200G. Foundations of Environmental Health Sciences: Physiology, Pathology, Toxicology. (3) Lecture, three hours. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to principles of toxicology, disposition of toxicants, mechanisms of toxic interactions, nonorgan-directed toxicity, target organ toxicity. Letter grading.

200H. Foundations of Environmental Health Sciences: Exposure Assessment. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to exposure assessment of air pollution in urban areas, occupational exposure assessment for epidemiological inferences, exposure characteristics, air pollution and excess mortality, assessment of exposure to mixture chemicals. multimedia and ecological exposure assessment. Letter grading.

200I. Foundations of Environmental Health Sciences: Occupational Health. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to scope and magnitude of occupational health and safety (OHS) problem, history and characteristics of work environment, law and policy in OHS, occupational epidemiology and toxicology, ergonomics and injury, and recognition, evaluation, control, and prevention in industrial environment. Letter grading.

200J. Foundations of Environmental Health Sciences: Air Pollution. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to air pollution system, structure, properties, and composition of atmosphere, indoor air pollution, atmospheric lifetimes and fates of airborne chemicals, photochemical smog, greenhouse effect, and stratosphere chemistry and ozone depletion. Letter grading.

200K. Foundations of Environmental Health Sciences: Water Quality. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to water cycle, hazardous and nuisance chemicals in aquatic environment, eutrophication, biodegradation in streams and lakes, water treatment, waste treatment and water reuse, and fate of hazardous chemicals in environment. Letter grading.

200L. Foundations of Environmental Health Sciences: Ecology. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to populations and population growth, communities and ecosystems, biodiversity and conservation, and ecological effects of pollution. Letter grading.

200M. Foundations of Environmental Health Sciences: Environmental Management/Policy. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to environmental evaluation and decision making, environmental regulation and control methods, evaluating effectiveness of regulations, and public decisions with environmental consequences. Letter grading.

200N. Foundations of Environmental Health Sciences: Risk Assessment. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Introduction to principles and policy issues related to risk assessment, cancer risk assessment, noncarcinogen risk assessment, regulatory reform, and future issues in risk assessment. Letter grading.

200O. Foundations of Environmental Health Sciences: Integration and Conclusions. (1) Lecture, one hour. Preparation: one year of undergraduate biology, calculus, chemistry, and physics. Use of multidisciplinary and interdisciplinary case histories to integrate information provided in courses 200C through 200N, including environmental management and policy, environmental chemistry, physical agents, microbiology, physiology, pathology, toxicology, exposure assessment, occupational health, air pollution, water quality, and risk assessment. Letter grading.

201. Seminar: Health Effects of Environmental Contaminants. (2) Seminar, two hours. Requisites: courses 200A, 200B, 210, 230, 250. 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 200A, 200B, 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.

210. Public Health and Environmental Microbiology. (4) Lecture, three hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Basic principles: cycling of matter, fates of natural and man-made compounds in the environment, wastewater and drinking water microorganisms and treatment, and public health microorganisms. S/U or letter grading.

211. Science and Politics of Environmental Regulation: Coastal Pollution — Sources and Solutions. (4) Lecture, three hours. Designed for graduate students. Overview of environmental regulations that protect coastal resources, regulatory agencies that have jurisdiction over coastal resources, past and current coastal pollution problems in the U.S., solving pollution problems through treatment, advocacy, enforcement, restoration, remediation, and watershed management. 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.

220. Biological Effects of Air Pollution. (4) Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Survey of biological effects and assessment methods of air contaminants present in urban, industrial, and occupational environments. S/U or letter grading.

225. 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. S/U or letter grading.

230. Environmental Management. (4) Lecture, four hours; discussion, one hour. Requisites: Economics 100, Mathematics M112, 115A, Political Science 140A, 142B. Introduction to foundations and principles of environmental management, decision making, and evaluation of environmental policies and programs. Letter grading.

231. Environmental Decision Systems Analysis. (4) Lecture, four hours; discussion, one hour. Requisite: course 230. Techniques and models of systems analysis and concepts of general system theory as applied to comprehensive study, planning, evaluation, and management of environmental decision systems. Experimentation with relevant computer programs. S/U or letter grading.

232. Environmental Policy Decision Making. (4) Lecture, four hours. Requisites: courses 230, 231. Foundations, principles, and modeling of environmental policy decision making. Critical analysis of normative and behavioral models of action choices for protection and enhancement of environmental health, and development of an alternative model. S/U or letter grading.

234. Critical Readings in Environmental Policy for Scientists and Engineers. (4) Lecture, one hour; discussion, three hours. Requisite: course 230 or 235. Designed for graduate science and engineering students. Critical analysis of environmental policies, regulations, and decisions and their scientific basis. Literature revision, classroom presentation, and research paper required. Letter grading.

235. Quantitative Methods for Environmental Assessment. (4) Lecture, four hours; discussion, one hour. Preparation: bachelor's degree in science, engineering, or public health, one term of statistics, one year of advanced mathematics. Introduction to quantitative methods for evaluating health effects and environmental impacts of human activities; concepts of environmental assessments and planning. Assignments include statistics analysis, risk assessment, economic methods. Examples from U.S. and California regulations, policy, project environmental assessments. Letter grading.

M239. Pollution Prevention. (2) (Same as Urban Planning M262C.) Seminar, one hour. Designed for graduate students. Series of talks by academics, policymakers, industry representatives, and public interest advocates addressing opportunities for and obstacles to adopting principles of pollution prevention, including several case studies of specific policy and industry initiatives in this area. S/U grading.

240. Fundamentals of Toxicology. (4) Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on the human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Letter grading.

241. Environmental Toxicology: Trace Contaminants. (4) Lecture, three hours; discussion, one hour. Preparation: one organic chemistry course. Essentials of toxicology in relation to trace contaminants. S/U or letter grading.

242. Toxicodynamics. (4) (Formerly numbered 298C.) Lecture, two hours; discussion, two hours. Requisite: course 240. Examination of biochemical, cellular, and molecular mechanisms by which chemicals induce toxicity in a wide spectrum of organ systems and in a number of pathological conditions. Letter grading.

243. Embryology and Teratology. (4) Lecture, four hours. Requisite: course 240. Description of normal mammalian embryology at whole animal, cellular, and molecular levels and of biological, chemical, or physical perturbations of normal processes which produce congenital malformations. Letter grading.

M249. Toxics Reduction: Science, Engineering, and Policy Issues. (4) (Same as Chemical Engineering M290U and Urban Planning M262A.) Lecture, three hours. Requisites: Urban Planning 260A, 260B. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. S/U or letter grading.

250. Introduction to Occupational Safety and Health. (4) Lecture, four hours. Scientific, legal policy, and historical issues in occupational health. Introduction to various related disciplines (e.g., occupational medicine, nursing, industrial hygiene, toxicology, epidemiology, health education). S/U or letter grading.

251. Introduction to Occupational Medicine. (3) Lecture, three hours. Requisite: course 250. Introduction to health effects of occupational exposures, including recognition, evaluation, and prevention of occupational diseases. Emphasis on concepts of disease mechanisms, manifestations, and prevention. Letter grading.

252D. 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. S/U or letter grading.

252E. Identification and Measurement of Gases and Vapors. (4) Lecture, three hours; discussion, one hour; other, two hours. Preparation: one year each of chemistry, physics, and calculus. Requisite: course 250. 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 252D, 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; other, four hours. Requisites: courses 200A, 200B, 250, 252D, 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 the Work Environment. (2) Lecture, two hours. Preparation: one year of physics. Requisite: course 250. Physics, measurement methods, health effects, and control methods for radiation (ionizing and nonionizing), noise, and heat in the workplace environment. S/U or letter grading.

254. Health Hazards of Industrial Processes. (4) Lecture, two hours; four field trips. Requisites: courses 250, 255. Industrial processes and operations and occupational health hazards that arise from them. S/U or letter grading.

255. Control of Airborne Contaminants in Industry. (4) Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Requisites: courses 250, 252D. 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.

257. Critical Review of Scientific Basis of Occupational Standards. (4) Seminar, four hours. Requisites: courses 240, 250, 251, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational exposures with disease. Special emphasis on critical evaluations of the literature. Attention specifically to interface of science and regulatory standards. 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. Requisites: courses 250, 252E, Biostatistics 100A. Designed to define, identify, label, and quantify hazardous wastes and how workers should be protected. Provides a critical understanding of all analytical aspects of hazardous wastes, health aspects, and regulation and practice of handling hazardous wastes. Letter grading.

259. Occupational Ergonomics. (2) Lecture, two hours. Requisite: course 250. Exploration of ergonomic principles for study of worker's safety, health, and performance. Letter grading.

259C. Seminar Series: Occupational Ergonomics. (2) Seminar, two hours. Requisites: courses 250, 259. Emphasis on research methodology as applied to prevention and control of worker-related musculoskeletal disorders. Topics include applied anthropometry, biomechanical modeling, strength measurement, postural analysis, fatigue, and medical surveillance of cumulative trauma disorders. S/U grading.

259D. Occupational Safety. (3) Lecture, three hours. Designed for graduate students. Design and modification of products and industrial manufacturing processes to eliminate or control hazards arising out of mechanical, electrical, thermal, chemical, and potential energy sources. Discussion of case studies in industrial manufacturing, construction, and agriculture. Letter grading.

259E. Occupational Safety and Health Program Management. (4) Lecture, four hours. Designed for graduate students. Introduction to application of management principles and techniques for management of safety and health and loss control programs. Letter grading.

261. Chemical Behavior of Aquatic Systems. (4) Lecture, three hours. Requisites: courses 200A, 200B, 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.

262. Environmental Microbiology. (4) Lecture, three hours. Preparation: one course each in microbiology and biochemistry. Basic concepts of eutrophication, indicator organisms, aquatic microbes; assessment of biological treatment practices in water reuse and/or purification. S/U or letter grading.

263. Geochemistry of Groundwater. (2) Lecture, two hours. Requisites: Biostatistics 100A, Chemistry 20A, 103, Earth and Space Sciences 1. Geochemistry of groundwater as impacted by geologic environment and other natural factors and changes in composition due to water use. Letter grading.

264. Fate and Transport of Organic Chemicals in the 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. S/U or letter grading.

400. Field Studies in Environmental Health Sciences. (2 or 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 M.S. minimum course requirement; four units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

401. Environmental Measurements. (4) Lecture, two hours; laboratory, four hours. Requisites: courses 200A, 200B, Chemistry 20A, 30L. 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 200A, 200B. Laboratory techniques and instrumentation used in preparation and analysis of biological, environmental, and occupational samples. Letter grading.

M411. Environmental Health Sciences Seminar. (2) (Same as Environmental Science M411.) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading.

461. Water Quality and Health. (4) Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 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.

462. Environmental Hygiene and Appropriate Technologies. (2) Lecture, two hours. Environmental sanitation of water supplies in rural and developing areas. Review of water quality problems and solutions for nonurban, developing community. Technical, socioeconomic, and cultural problems associated with maintenance and delivery of high water quality. S/U or letter grading.

470. Environmental Hygiene Practices. (2) Lecture, two hours. Prerequisites: courses 200A, 200B, 230, 401, Epidemiology 100. Field principles and practices of environmental sanitation as applicable to the sanitarian. Topics include theory, code enforcement, and inspection procedures for applicable environmental topic areas. 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.

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 eight 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 four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. Only four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

Raymond V. Ingersoll, Ph.D. (*Earth and Space Sciences*)

Antony R. Orme, Ph.D. (*Geography*)

Theodore Porter, Ph.D. (*History*)

Shane Que Hee, Ph.D. (*Environmental Health Sciences*)

Michael K. Stenstrom, Ph.D. (*Civil and Environmental Engineering*)

Irwin H. Suffet, Ph.D. (*Environmental Health Sciences*)

Stanley W. Trimble, Ph.D. (*Geography*)

Richard Turco, Ph.D. (*Atmospheric Sciences*)

Arthur M. Winer, Ph.D. (*Environmental Health Sciences*)

Professor Emeritus

Richard L. Perrine, Ph.D. (*Civil and Environmental Engineering*)

Associate Professors

Richard F. Ambrose, Ph.D. (*Environmental Health Sciences*)

Michael L. Collins, Ph.D. (*Environmental Health Sciences*)

Walter E. Reed, Ph.D. (*Earth and Space Sciences*)

Assistant Professors

L. Donald Duke, Ph.D. (*Environmental Health Sciences*)

Peggy Fong, Ph.D. (*Organismic Biology, Ecology, and Evolution*)

Thomas C. Harmon, Ph.D. (*Civil and Environmental Engineering*)

Assistant Field Program Supervisor

Diane M. Perry, Ph.D. (*Environmental Health Sciences*)

Scope and Objectives

The UCLA Environmental Science and Engineering (ESE) Program was founded in 1973 by Nobel laureate Dr. Willard Libby, who perceived a need to train environmental scientists, engineers, and policymakers in a more interdisciplinary manner than is afforded by traditional Ph.D. programs. As the program enters its third decade, Dr. Libby's vision has in fact been realized with the evolution of the program from an experimental approach into a key component of the overall effort to train environmental professionals at UCLA.

To date the program has awarded the Doctor of Environmental Science and Engineering (D.Env.) degree to over 170 students, and UCLA remains unique in the country in awarding such a degree. Many graduates have gone on to occupy critical positions in environmental research, remediation, and policy throughout the major environmental agencies in California and the nation. Other graduates have risen to senior positions in private sector companies conducting environmental research and remediation. Still other graduates are applying scientific solutions to environmental problems at national laboratories such as Oak Ridge and Lawrence Livermore Laboratories and at research institutes such as the RAND Corporation.

Although many participating interdepartmental faculty members are from the College of Letters and Science and the School of Engineering and Applied Science, the program is administered through the School of Public Health where a core faculty is based in the Department of Environmental Health Sciences. No

undergraduate major or master's degree is offered.

The program is designed to train multidisciplinary professionals with an appropriate balance of breadth and specific skills, based on a strong master's-level foundation in a science or engineering discipline. The curriculum consists of formal coursework across a full spectrum of relevant physical, biological, social, and engineering disciplines, as well as interdisciplinary research training through nine-month problems courses. Because the D.Env. degree is not a specialized research degree in the manner of a Ph.D., the usual extended research training period in residence at UCLA associated with a Ph.D. is replaced by an 18- to 24-month internship in an appropriate government agency, national laboratory, or private industry, during which in-depth study of an environmental problem leads to a dissertation.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Doctoral Degree

Admission

In addition to meeting University minimum standards, applicants to the program leading to the Doctor of Environmental Science and Engineering (D.Env.) degree must have an excellent scholastic record and must be acceptable to the admissions committee. Generally, applicants must have achieved a grade-point average of at least 3.0 in undergraduate work and 3.5 in graduate work. The overall academic record, including Graduate Record Examination (GRE) scores and Test of English as a Foreign Language (TOEFL) scores when applicable, must reflect exceptional verbal and quantitative skills and drive toward academic achievement. The program is also interested in special qualities, awards, and achievements not reflected in the student's academic record. All applicants must file a narrative statement indicating how their professional goals can be met through the D.Env. program and submit three letters of recommendation.

In general, students entering the D.Env. program should have received a master's degree in some field of the sciences or engineering. Generalist master's degrees in such areas as environmental sciences or public health and master's degrees in the social sciences, or medical degrees may be accepted for admission if the applicant presents a record with appropriate courses in the sciences and mathe-

ENVIRONMENTAL SCIENCE AND ENGINEERING

*Interdepartmental Program
School of Public Health*

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Richard F. Ambrose, Ph.D., *Director*

Professors

Birgitte K. Ahring, Ph.D. (*Civil and Environmental Engineering*)

Richard Berk, Ph.D. (*Sociology*)

Trudy Cameron, Ph.D. (*Economics*)

Yoram Cohen, Ph.D. (*Chemical Engineering*)

William G. Cumberland, Ph.D. (*Biostatistics*)

Climis A. Davos, Ph.D. (*Environmental Health Sciences*)

Jody Freeman, LL.B., LL.M., S.J.D. (*Law*)

John R. Froines, Ph.D. (*Environmental Health Sciences*)

Malcolm S. Gordon, Ph.D. (*Organismic Biology, Ecology, and Evolution*)

William C. Hinds, Sc.D. (*Environmental Health Sciences*)

matics and other special qualifications such as research experience.

Before being accepted unconditionally into the program, all students must have taken the following courses, which are considered preparation for the program: (1) biology — one year of introductory biology with laboratory; (2) chemistry — one year of general chemistry with laboratory, including analytical methods, and one quarter of organic chemistry, no laboratory required; (3) computer science — one course or equivalent experience in elementary programming and use of computer hardware and software; (4) geology — one course in introductory geology with laboratory; (5) mathematics — one year of calculus plus one course in elementary statistics; (6) physics — one year of introductory physics with laboratory. Any of the courses may be taken after students have arrived at UCLA.

Admission to the program is made through recommendation of a faculty committee who has reviewed the applicant's file and by concurrence of the program director and the Graduate Division. Subject to available funds, the program offers fellowships to eligible first-year students. Prospective students may write for descriptive brochures to the Director, Environmental Science and Engineering Program.

Major Fields or Subdisciplines

Specialties within the program include, but are not limited to, the assessment and management of hazardous substances in the air, soil, and water environments; migration of contaminants in groundwater; health risks of toxic substances; mitigation of adverse effects on the biological environment; and environmental problems common to the U.S. and Mexico. Also, students may slant their work toward greater emphasis either on the science engineering side or on the science policy side of their specialty.

Course Requirements

Course requirements consist of core courses, breadth courses, environmental science and engineering seminar, and problems courses.

Core and Breadth Courses. Sixteen course requirements must be satisfied, one of which can be waived based on prior coursework. Four of these are core courses (Environmental Health Sciences 212, 225, 235, 264) offered by program faculty. At least seven courses must be at the graduate level. Breadth electives are selected from a list of approved courses. Courses that are not on the list must be approved by the core faculty before they can be used to fulfill a breadth requirement. All core and breadth courses must be taken on a letter grade basis (not S/U). Courses must be taken from the following categories:

Environmental Science (seven courses). Courses which describe the characteristics of terrestrial, air, and water environments; the biota; the geological, biological, chemical, hydrological, and atmospheric processes of the environment; and the interrelationships be-

tween these compartments. Minimum requirements are as follows: Environmental Health Sciences 212, 225, 240, 264, an elective in environmental biology, microbiology, or ecology, an elective in environmental geology, and an elective in atmospheric sciences.

Environmental Engineering (five courses). Courses in engineering, mathematics, and the applied physical and life sciences covering topics such as modeling of environmental systems, fate and effects of environmental contaminants, design and evaluation of pollution control systems, plus courses which describe the tools and methods needed to address environmental problems, such as field and laboratory analytical methods, statistics, computer science, and advanced applied mathematics. Minimum requirements are as follows: Civil and Environmental Engineering 150, 155, and three electives.

Environmental Management, Law, and Policy (four courses). Courses which relate to the social and institutional factors relevant to environmental problem solving such as the development and implementation of regulations; dynamics of public participation; and socioeconomic analysis of current and historical trends in environmental and energy policy. Minimum requirements are as follows: Environmental Health Sciences 235, Urban Planning M264, and two electives.

Credit for Prior Work. Entering environmental science and engineering students may already have completed some of the required courses in their undergraduate and graduate work. One of the 16 required courses (including electives) can be waived based on prior coursework. Any other course requirement satisfied by previous work must be replaced with an elective in any field of environmental science and engineering that is pertinent to the goals of the student. Thus, a minimum of 15 courses must be completed after admission to the program. A minimum of 12 courses must be taken at UCLA or another University of California campus.

Environmental Science and Engineering Seminar and Effective Technical Writing Course. While completing core and breadth requirements, full-time students normally enroll in 18 units per quarter, including Environmental Science and Engineering M411 (seminar) which is required for two quarters each academic year. All students enroll in Environmental Science and Engineering 412 during the first year.

Problems Courses. Problems courses constitute intensive multidisciplinary applied team research directed toward the solution of current environmental problems. Students are required to quantify and measure necessary parameters, perform critical evaluations, edit and process technical and socioeconomic information, meet deadlines, and communicate through a final report to the competent lay person as well as to the technical specialist. Usually two or three faculty from different academic disciplines oversee a team of student researchers. Before proceeding to the problems

courses, students must have completed all but six of the required courses, successfully passed all core courses taken (with grades of B– or better), and maintained a cumulative GPA of 3.0 for all classes taken after entering the program. Twenty-four quarter units of the combined Environmental Science and Engineering 400 and 410 series courses must be completed during the three quarters prior to advancement to candidacy. The requirement may be met by completing three consecutive quarters (eight units per quarter) on a single theme, or as a minimum, at least two consecutive quarters devoted to a single theme plus one quarter participation or activity approved by the faculty. Enrollment in more than one problems course per quarter is not allowed. No more than eight units of other coursework may be taken when enrolled in a problems course.

Normally, problems course credit is only earned through courses offered by the program. However, students may petition the faculty for permission to earn problems course credit through multidisciplinary environmental projects offered in other departments at UCLA.

Written and Oral Qualifying Examinations

A two-tiered examination sequence, consisting of written and oral examinations, is required for advancement to candidacy for the D.Env. degree. The examinations must be successfully completed before the internship can begin. The purpose of the examinations is to test the student's understanding of the core and breadth areas, the master's field, current issues in the environmental field, and subjects covered in students' problems course experience. The written examination is administered by the core faculty of the program. The written examination may be repeated once. The University Oral Qualifying Examination is administered by the doctoral committee, a four-person faculty committee that guides students through the remainder of the program. Generally, the doctoral committee is appointed during the second year of the student's tenure at UCLA. The oral examination may be repeated once.

Internship. After advancement to candidacy, students begin an internship in their field of interest at an outside institution. Arrangements for the internship are the students' responsibility but program faculty assist. The institution and the nature of the appointment must be approved by the doctoral committee and the Environmental Science and Engineering Program director. Supervision during the field training experience is by the doctoral committee and the field program supervisor. A letter of agreement between UCLA and the institution is required. During each long session quarter of internship, students must register at UCLA for eight units of Environmental Health Sciences 599.

No later than nine months after advancement to candidacy, at the beginning of the internship, candidates are required to present a written

prospectus of the dissertation and defend it before the doctoral committee.

Environmental Science and Engineering

Graduate Courses

400A. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Primarily designed for environmental science and engineering doctoral students. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. In Progress grading (credit to be given only on completion of course 400C).

400B. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Requisite: course 400A. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. In Progress grading (credit to be given only on completion of course 400C).

400C. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Requisite: course 400B. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. S/U or letter grading.

400D. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Preparation: successful completion of internship approved by doctoral committee and program director. Requisite: course 400C. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. S/U or letter grading.

410A-410B-410C. Environmental Science and Engineering Workshops. (2-2-2) Discussion, two hours. Primarily designed for environmental science and engineering doctoral students who are conducting problems courses. Development of multidisciplinary skills essential to solution of environmental problems studied within courses 400A through 400D. Development of presentation skills. S/U grading.

M411. Environmental Health Sciences Seminar. (2) (Same as Environmental Health Sciences M411.) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading.

412. Effective Technical Writing. (2) (Formerly numbered 298.) Lecture, one hour. Designed for environmental science and engineering doctoral students. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Emphasis on accuracy, clarity, conciseness, and avoidance of common errors in advanced technical writing, using critique, exercises, and examples. 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.

EPIDEMIOLOGY

School of Public Health

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Ralph R. Frerichs, D.V.M., Dr.P.H., *Chair*

Professors

Susan D. Cochran, Ph.D., M.S.
Roger Detels, M.D., M.S.
Ralph R. Frerichs, D.V.M., Dr.P.H.
Sander Greenland, Dr.P.H.
Jess F. Kraus, Ph.D.
Hal Morgenstern, Ph.D.
Teresa E. Seeman, Ph.D., *in Residence*

Professors Emeriti

Lawrence R. Ash, Ph.D.
John F. Schacher, Ph.D.
Barbara R. Visscher, M.D., Dr.P.H.

Associate Professors

Scott P. Layne, M.D.
Frank Sorvillo, Ph.D., *in Residence*
Zuo-Feng Zhang, M.D., Ph.D.

Assistant Professor

Beate R. Ritz, M.D., Ph.D.

Lecturer

Anne H. Coulson, *Senior Lecturer Emerita, Research Epidemiologist*

Adjunct Professor

John M. Peters, M.D., M.P.H., Sc.D.

Adjunct Associate Professors

Deborah L. Ackerman, Ph.D.
George W. Berlin, Ph.D.
James R. Greenwood, Ph.D., M.P.H.
Sydney Maureen Harvey, Ph.D.
Corinne Peek-Asa, Ph.D.
Susan M. Preston-Martin, Ph.D., M.P.H.
Marc A. Strassburg, Dr.P.H.
Nathan Wong, Ph.D.

Adjunct Assistant Professors

Eric Hurwitz, D.C., Ph.D.
Robert M. Malmgren, Ph.D.
David McArthur, Ph.D.
Paul Simon, M.D., M.P.H.

Scope and Objectives

Epidemiology has been defined as the study of the distribution and determinants of disease and injury in human populations. Epidemiologists study variations of disease in relation to such factors as age, sex, race, occupational and social characteristics, place of residence, susceptibility, exposure to specific agents, or other pertinent characteristics. Also of concern are the temporal distribution of disease, examination of trends, cyclical patterns, and intervals between exposure to causative factors and onset of disease. The scope of the field extends from study of the patterns of disease to the causes of disease and to the control or prevention of disease. What distinguishes epidemiology from other clinical sciences is the focus on health problems in population groups rather than in individuals.

Epidemiology is a young field with constantly expanding boundaries. The range of activities that may be at least partly epidemiologic includes determination of the health needs of populations, investigation and control of disease outbreaks, study of environmental and industrial hazards, evaluation of preventive or curative programs or treatments, and evaluation of the effectiveness and efficiency of intervention or control strategies. Many tools of epidemiology are borrowed from other fields such as microbiology, immunology, medicine, statistics, demography, and medical geography.

There is a growing core of purely epidemiologic methodology which includes not only statistical methodology and principles of study design, but a unique way of thinking that is beyond the rote memorization of rules. The contribution of epidemiology to any study involving groups of people is being increasingly recognized and demanded.

Epidemiologists may work in many settings, including international health agencies, state and local health departments, federal government agencies and health programs, health maintenance organizations, colleges and universities, and numerous research projects privately and publicly sponsored.

The objectives of the Department of Epidemiology fall into three broad categories — research, teaching, and community service. Degrees offered include the M.S. and Ph.D. in Epidemiology and, through the School of Public Health, the M.P.H. and Dr.P.H. with a specialization in epidemiology (see Public Health Schoolwide Programs).

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Epidemiology offers the Master of Science (M.S.) degree in Epidemiology. For information on the Master of Public Health (M.P.H.) degree, see Public Health Schoolwide Programs.

Admission

Admission requirements for the M.S. in Epidemiology are the same as for the M.P.H. See the M.P.H. admission section under Public Health Schoolwide Programs.

Areas of Study

Consult the graduate adviser.

Course Requirements

Students must complete at least one year of graduate residence at the University of California and a minimum of 56 units: 38 units of core courses and 18 units of elective courses. At least 20 units must be in the 200 or 500 series. A maximum of one seminar from Epidemiology 290 (two units) or 291 (two units), and one 596 course (four units) may be applied toward the total course requirements. If students intend to write a thesis, four units of Epidemiology 598 (thesis research) may also be applied toward the 18-unit elective requirement.

Mandatory core courses are Epidemiology 200, 201A-201B, 220, 290 or 291, Biostatistics 100A or 110A, 100B or 110B; one additional statistics course (four units) in regression or multivariate methods that is approved by the Department of Epidemiology; and Biostatistics 403A or Epidemiology 410A and 410B or equivalent. Equivalent courses must be approved by the department. Each core course may be waived if a similar course has been taken elsewhere and students pass the waiver examination. A waiver course does not reduce the unit requirements. Elective courses include all those offered by the department with the exception of those stated above.

All courses included for advancement to candidacy, except Epidemiology 290 or 291, must be taken for a letter grade (not S/U). Students must maintain an average of no less than 3.0 (B) in all courses required or elected during graduate residence at the University of California. In addition, students must maintain an average of no less than 3.0 (B) in Epidemiology 200, 201A, 201B, and 220.

Comprehensive Examination Plan

If the comprehensive examination option is approved, a guidance committee of three Department of Epidemiology faculty is appointed. A comprehensive examination on the major area of study must be passed. If failed, the examination may be repeated once.

Thesis Plan

If the thesis option is approved, a thesis committee of three faculty is appointed by the dean of the Graduate Division on recommendation of the department. The chair of the committee and at least one other member must hold academic appointments in the Department of Epidemiology. The committee approves the thesis prospectus before students file for advancement to candidacy. The thesis must be acceptable to the thesis committee.

Doctoral Degree

Admission

In addition to the University minimum requirements, the department requires for the Ph.D. degree in Epidemiology (1) satisfactory performance on the Graduate Record Examination (GRE); (2) at least a 3.0 junior/senior grade-point average and at least a 3.5 grade-point average in graduate studies; and (3) approval

by the department admissions committee, an academic adviser, and the department chair.

Major Fields or Subdisciplines

Consult the graduate adviser.

Course Requirements

Students must fulfill the course requirements for the M.S. degree in Epidemiology with an average of no less than 3.3 (B+) in Epidemiology 200, 201A-201B, and 220. Equivalent courses taken at other institutions may be used to fulfill these requirements subject to approval by the department. Continuation in the doctoral program is contingent on satisfying the 3.3 (B+) average grade-point requirement in the four core courses or their equivalent. Students must also take Epidemiology 202A, M212 or one additional statistics course beyond the M.S. requirements (four units), one course on pathobiology (four units), and at least three quarters of Epidemiology 292. The statistics and pathobiology courses must be approved by the department. In addition, students must take at least 12 units of graduate-level courses (excluding 500-level courses) outside the department, which must be selected with the approval of the academic adviser. Students with prior postbaccalaureate coursework may petition for substitution of part or all of the 12-unit requirement. Recommendation for the degree is based on the attainments of the candidate rather than on the completion of specific courses.

Written and Oral Qualifying Examinations

Before advancement to candidacy, students must pass the written doctoral examination of the Department of Epidemiology and the University Oral Qualifying Examination. Normally for the written doctoral examination no more than one reexamination is allowed. A doctoral committee, consisting of at least four faculty members who hold professorial appointments at UCLA, is nominated to the dean of the Graduate Division and, if approved, administers the oral qualifying examination after successful completion of the written examination. Two of the faculty must be tenured. Three of the four must hold appointments in the Department of Epidemiology; at least one must hold an appointment in another department at UCLA.

After completing the course requirements and passing both the written doctoral examination and the oral qualifying examination, students may be advanced to candidacy and complete work on a dissertation in the principal field of study.

Epidemiology

Lower Division Course

88. Lower Division Seminar: Special Topics in Epidemiology. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in epidemiology approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member. Letter grading.

Upper Division Courses

100. Principles of Epidemiology. (4) Lecture, two hours; discussion, four hours. Preparation: one full biological sciences course. Not open for credit to students with credit for course 200. Introduction to epidemiology, including factors governing health and disease in populations. P/NP or letter grading.

199. Special Studies. (2 to 4) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only four units may be taken each term. P/NP or letter grading.

Graduate Courses

200. Epidemiology I. (4) Lecture, two hours; laboratory, four hours. Preparation: one full biological sciences course. Requisite: Biostatistics 100A (may be taken concurrently). Not open for credit to students with credit for course 100. Introduction to epidemiology, including factors governing health and disease in populations. Letter grading.

201A-201B. Epidemiologic Methods I, II. (6-6) Lecture, four hours; discussion, two hours; outside study, 12 hours. Preparation: at least two upper division biology or social sciences courses. Recommended preparation: course 100 or 200. Requisites: Biostatistics 100A, 100B. Comprehensive coverage of concepts, principles, and methods in epidemiology, with emphasis on study design, statistical analysis, and causal inference. Theoretical and quantitative emphasis, focusing on investigation of disease etiology and other causal relationships in public health. Letter grading.

202A. Epidemiology: Theory and Methodology. (4) Lecture, four hours. Requisite: course 201B. Advanced principles and methods of epidemiologic analysis. Topics include relating prevalence and incidence, analysis of clustering and seasonality; measures of effect, sources of bias, regression to the mean, estimation and hypothesis testing in epidemiology; models for risk and rates; cohort analysis. S/U or letter grading.

203. Topics in Theoretical Epidemiology. (2) Lecture, two hours. Selected topics from current research areas in epidemiologic theory and quantitative methods. Topics selected from biologic models, epidemiologic models, problems in inference, model specification problems, design issues, analysis issues, and confounding. May be repeated for credit with consent of instructor. S/U grading.

204. Logic, Causation, and Probability. (4) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: course 201B. 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.

210. Public Health Research Using Available Data. (2) Lecture, one hour; discussion, one hour. Requisites: courses 100, 410A or Biostatistics 403, Biostatistics 100A. Presentations and discussions of availability, concepts, content, and usefulness of already collected data in public health research. Major emphasis on public data such as National Center for Health Statistics surveys, vital statistics, census, etc. S/U or letter grading.

M211. Statistics for Epidemiology. (4) (Same as Biostatistics M211.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Requisites: courses 201A-201B. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in courses 201A-201B and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

M212. Statistical Modeling in Epidemiology. (4) (Formerly numbered 202B.) (Same as Biostatistics M209.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: course 204 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.

220. Principles of Infectious Disease Epidemiology. (4) Lecture, three hours. Requisite: course 100 or 200. 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. Prevalent and Emerging Infectious Diseases in the World. (4) Lecture, four hours. Requisites: course 100 or 200, Biostatistics 100A, 100B. Designed for graduate students and medical doctors seeking broad knowledge and detail on prevalent and emerging infectious diseases, including influenza/acute respiratory infections, cholera/diarrheal disease, tuberculosis, hepatitis B, malaria, measles, neonatal tetanus, HIV/AIDS, pertussis (whooping cough). S/U or letter grading.

222. Arthropods as Vectors of Human Diseases. (4) Lecture, four hours. Requisites: courses 100 or 200, 220. Comprehensive overview of morphology, systematics, natural history, host/vector/pathogen relationships, and spectrum of diseases carried by arthropods for graduate students, public health professionals, and medical doctors seeking information on global prevalence of arthropod-borne diseases. Letter grading.

223A. Protozoal Diseases of Man. (4) Lecture, four hours. May be taken concurrently with course 223B. Comprehensive overview of systematics, morphology, biology, host/parasite relationships, public health problems, and control of protozoa parasitic in man and animals. S/U or letter grading.

223B. Protozoal Diseases of Man. (2) Laboratory, four hours. Requisite or corequisite: course 223A. Laboratory methods of diagnosis and microscopic recognition of protozoa parasitic in man and animals. Intestinal protozoa and organisms occurring in blood and tissues of their hosts and pathology associated with these infections. S/U or letter grading.

224A. Helminthic Diseases of Man. (4) Lecture, four hours. May be taken concurrently with course 224B. Comprehensive overview of systematics, morphology, biology, host/parasite relationships, public health problems, and control of nematodes, trematodes, and cestodes parasitic in man and animals. S/U or letter grading.

224B. Helminthic Diseases of Man. (2) Laboratory, four hours. Diagnosis and practical microscopic recognition of nematodes, trematodes, and cestodes parasitic in man and animals. Pathology produced by these infections. S/U or letter grading.

227. AIDS: A Major Public Health Challenge. (4) Lecture, four hours. Requisites: course 100 or 200, Biostatistics 100A or 110A. 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.

M228. Biology of HIV. (4) (Same as Microbiology and Immunology M275.) Lecture, three hours. Preparation: two biology courses. Requisites: course 100, Biostatistics 100A. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in the laboratory. Letter grading.

230. Epidemiology of Sexually Transmitted Diseases. (4) Lecture, four hours. Requisite: course 100 or 200. Sexually transmitted diseases; medical/biological aspects, epidemiology and control in developed and developing countries. S/U or 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 Neurologic Disease. (2) Lecture, two hours. Requisite: course 100 or 200. Epidemiologic characteristics of selected chronic neurologic diseases, with particular emphasis on etiology and possible control. S/U or letter grading.

242. Cancer Epidemiology. (4) Lecture, four hours. Requisite: course 100 or 200. 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 a cancer-related topic required. S/U or letter grading.

246. Epidemiology of Aging. (2) Lecture, two hours. Requisite: course 100 or 200. Epidemiologic methods of estimating present and future burdens of aging: morbidity, disability, and dependency. Epidemiology of major disabling conditions affecting the elderly. Evaluation of possible intervention strategies. Methodologic issues in geriatric epidemiology. S/U or letter grading.

247. Epidemiology of Injuries in the Elderly. (2) Lecture, two hours. Requisite: course 100. Description of frequency of, risk factors for, and possibilities of preventing injuries in the elderly populations. Comparison of injury outcomes (morbidity and mortality) in younger vs. older populations. Emphasis on methodologic issues of studying elderly people. S/U or letter grading.

248. Psychiatric Epidemiology. (4) Lecture, four hours. Requisite: course 100 or 200. Introduction to basic concepts and research methods in psychiatric epidemiology. Topics include case definition, study design, instrumentation, and epidemiology of selected psychiatric disorders. Letter grading.

251. Epidemiology of Nonintentional Injuries. (4) Lecture, three hours; discussion, two hours. Requisites: course 100 or 200, Biostatistics 100A. Pertinent epidemiologic methods for study of nonintentional trauma, including that from motor vehicle crashes, occupational exposures, falls, and other major external causes, which focus on research approaches, data sources, analytical techniques. Substantive findings on related subproblem areas presented for critical review. Letter grading.

252. Epidemiology of Assault, Homicide, and Suicide. (2) Lecture, two hours; discussion, one hour. Requisite: course 100 or 200. Presentation and evaluation of epidemiologic research approaches to study of violent injury, including description of incidence, study design, risk factor analysis, and control evaluation. S/U or letter grading.

253. Acute Traumatic and Chronic Repetitive Injuries from Work-Related Exposures. (2) Lecture, two hours; discussion, one hour. Requisites: course 100, Biostatistics 100A. Lectures and discussions on magnitude, scope, research approaches, and intervention strategies for work-related acute traumatic and chronic repetitive (musculoskeletal) injuries. Emphasis on injury research methods for all external causes of injury, utilizing epidemiology for high-risk group and risk-factor identification and injury prevention. S/U or letter grading.

M255. Keeping Children Safe: Causes and Prevention of Pediatric Injuries. (2) (Same as Community Health Sciences M255.) Lecture, two hours. Injuries have been leading killer of children in the U.S. for decades. Children have specific risk factors for injuries, many of which are preventable. Presentation of approaches to research and prevention of pediatric injuries. Letter grading.

259. Disaster Epidemiology. (2) Lecture, two hours. Requisites: course 100 or 200, Community Health Sciences 295. Introduction to epidemiologic methodology to study disasters and their health outcomes, including surveillance, loss estimation, risk factor assessment, intervention, and evaluation. Letter grading.

260. Environmental Epidemiology. (2) Lecture, one hour; discussion, one hour. Requisite: course 100 or 200. Methodological problems and approaches of epidemiology for assessing health impact of major types of environmental exposure. Letter grading.

261. Occupational Epidemiology. (4) Lecture, two hours; discussion, two hours. Requisite: course 100 or 200. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading.

262. Seminar: Environmental and Occupational Cancer Epidemiology. (2) Seminar, two hours. Requisite: course 100 or 200. Discussion of examples of recent epidemiologic studies, with focus on environmental and occupational exposures, especially in areas where controversies have arisen such as for electromagnetic fields and childhood leukemia, and bladder cancer and trihalomethanes levels of drinking water. S/U or letter grading.

268. Introduction to Pharmacoepidemiology. (2) Lecture, two hours. Requisite: course 200. 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.

270. Epidemiology and Health Policy. (2) Lecture, two hours. Requisites: courses 100 or 201A-201B, Biostatistics 100B or 110B, Health Services 100. Application of epidemiologic methods and findings in health services research, population health planning, and health policy to provide framework for integrating causal inference with decision making. Emphasis on conceptual and methodologic issues confronting researchers, clinicians, planners, administrators, and legislators. S/U or letter grading.

280. Parasitic Diseases and Global Health. (4) Lecture, four hours. Overview of major human parasitic diseases in terms of their biology, occurrence, distribution, and transmission in nature; diseases they cause and impact they have on health of populations; interaction with other disease states; and intervention strategies for their control. S/U or letter grading.

290. Seminar: Epidemiology — Infectious and Tropical Disease. (2) Seminar, two hours. Review of research on specific diseases of public health importance. May be repeated for credit. S/U or letter grading.

291. Seminar: Epidemiology — Methodology. (2) Seminar, two hours. Requisite: course 100 or 200. 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. Requisite: course 201B. 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.

294. Epidemiology and Policy of Occupational and Environmental Health Issues. (2) Seminar, two hours. Requisite: course 100 or any other epidemiology course. Introduction to demands that go beyond "pure science," with focus on issues such as risk communication, potential influence (and ethics) of oversight panels and external review groups on presenting results and conclusions, and interest of government agencies. S/U grading.

295. Seminar: Epidemiology — Cancer. (2) Seminar, two hours. Requisite: course 100 or 200. 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. (2 or 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 M.S. minimum course requirement; four units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

401. Database Theory and Practical Applications in Injury Epidemiology. (2) Lecture, two hours. Requisite: course 201A. Exploration of theory and practical strategies for database construction and manipulation, selection, and use of desktop-computing database applications using a variety of examples from epidemiological research. Letter grading.

402. Advanced Data Analysis in Occupational and Environmental Epidemiology. (4) Lecture, two hours; laboratory, two hours. Preparation: one data management course. Requisites: courses 201A-201B, or 201A and 261. Development of strategies for analyzing data in occupational and environmental settings. Use of multivariate data analysis techniques typically used in occupational cohort studies, nested case-control studies, and ecologic studies in environmental epidemiology. S/U or letter grading.

410A. Management of Epidemiologic Data. (2) Lecture, two hours. Requisites: course 100, Biostatistics 100A (one course may be taken concurrently with consent of instructor). Concepts, collection, and management of data, with particular emphasis on databases in chronic infectious diseases. Introduction to personal computers and appropriate software for epidemiologic studies. S/U or letter grading.

410B. Management of Epidemiologic Data. (2) Lecture, two hours. Requisite: course 410A. Data management for various epidemiologic study designs, confidentiality concerns; data management systems; introduction to mainframe computer. S/U or letter grading.

411. Research Resources in Epidemiology. (2) Lecture, one hour; discussion, one hour. Requisites: course 100 or 200, Biostatistics 100A. Instruction and practical experience in use of varied bibliographic aids and sources of information, building of reference files, and presentation of research findings for publication. S/U or letter grading.

412. Public Health Surveillance. (2) Lecture, two hours. Requisites: course 100 or 200, Biostatistics 100A. 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. Letter grading.

414. Practical Epidemiologic Investigations. (2 to 4) Lecture, one to two hours; laboratory, one to two hours. Requisite: course 100 or 200. Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Data collection, analysis, and written presentation of findings. S/U or letter grading.

415. Epidemiology for Developing Countries. (4) Lecture, four hours. Requisites: courses 100 and/or 200, Biostatistics 100A. Practical use of epidemiology, microcomputers, and spreadsheet models for estimating morbidity and mortality, developing intervention or prevention strategies, and setting program priorities in Third World settings. Letter grading.

417. Injury Prevention Strategies and Countermeasures. (2) (Formerly numbered M417.) Lecture, two hours. Requisite: course 100. Lectures with discussion on injury prevention strategies and countermeasures, including critical review of effectiveness in the public health context. Emphasis on major public health injury problems from assaultive, self-inflicted, or unintentional causes. S/U or letter grading.

418. Rapid Epidemiologic Surveys in Developing Countries. (4) Lecture, four hours. Requisites: courses 100 and/or 200, Biostatistics 100A. Presentation of how to do health surveys in Third World countries. Practical assistance for planning and organizing surveys, including use of microcomputers to develop and test the questionnaire, select the sample, process and analyze data, and prepare final report. Letter grading.

419. Applications in Musculoskeletal Epidemiology. (4) Lecture, two hours; laboratory, two hours. Requisites: course 100 or 200 (may be taken concurrently), Biostatistics 100A. Introduction to principles and practical issues of epidemiologic data analysis for addressing musculoskeletal-related hypotheses. Use of data sets from relevant components of National Health Interview Survey and from musculoskeletal-related epidemiologic studies. Use of SAS programming language, with applications in both UNIX and Windows. 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 eight 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 four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. Only four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

ETHNOMUSICOLOGY

School of the Arts and Architecture

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Professors Emeriti

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Charlotte A. Heth, Ph.D.
Mantle L. Hood, Ph.D.
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Associate Professors

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Steven J. Loza, Ph.D.

Assistant Professors

Tara Browner, Ph.D.
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Helen Rees, Ph.D.
Roger Savage, Ph.D.

Lecturers

Francisco Aguabella
Billy Childs, B.M.
Abhiman Kaushal
Harold Land
Tsun Y. Lui, *Emeritus*
Ruth Price
Suenobu Togi, *Senior Emeritus*
Michele Weir
I. Nyoman Wenten, Ph.D.
Anthony Wilson
Gerald Wilson
Ikuko Yuge, B.A.

Adjunct Professor

Benjamin Suchoff, Ed.D.

Visiting Associate Professors

Amy Catlin, Ph.D.
Paul Chihara, D.M.A.

Visiting Assistant Professors

Nati Cano
Kobla Ladzekpo, M.A.
Chi Li, B.A.
Donald Kim, B.A.
James Robertson, M.B.A.

Scope and Objectives

Ethnomusicology is a research field that combines the various techniques of musical analysis with the methods of the social sciences and humanities (i.e., the study of cultural systems including music). Although originally focused on folk, tribal, and Asian classical music traditions, ethnomusicology at UCLA includes the study of all styles of music in the world, including popular music, jazz, and even Western classical music when approached from a cultural analysis perspective. The undergraduate

and graduate programs in ethnomusicology provide students with broad knowledge of world musics and methods currently used in their study.

The object of systematic musicology, a multi-disciplinary field, is to answer fundamental questions on the nature and properties of music, not only as art but as empirical phenomena. At UCLA, this research orientation integrates the perspectives of aesthetics and philosophy, music theory, acoustics, sociology, psychology, organology, and semiotics, any of which can be cross-cultural, focusing on the systems or models discernible through these disciplines.

Undergraduate Study

Ethnomusicology B.A.

Admission

Applicants are reviewed individually, based on a questionnaire, grade-point average, two letters of recommendation, test scores, a personal statement of purpose, and an interview/audition. Applicants who are unable to travel to UCLA have the option of submitting a videotape of musical performance, following departmental guidelines.

Preparation for the Major

Required: Ethnomusicology 10A-10B-10C, 20A-20B-20C, and 12 units of performance organizations or private instruction in music (courses 91A-91Z or 92).

The Major

Ethnomusicology

Required: (1) Group A — Ethnomusicology 175 or 181, M180, 190; (2) group B — seven courses selected from 106A through M126, 128, 130 through 147, C156A through 170, 172A, 172B, 173, 174, C179, 199E, 199S; (3) group C — 12 units from courses 191A-191Z or 192.

Jazz Studies Concentration

Required: Ethnomusicology M110A, M111, 120A or 120B, M127, M129A-M129B-M129C, M180 or 181, M186, 12 units of course 171, 12 units of course M177, Music History 150, and three elective courses from Ethnomusicology 106A, 106B, M108A, 108B, M110B, 113 through M126, 128, 130 through 170, 172A through 175, C179, M180, 181, 190, 199E, 199S.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Ethnomusicology offers the Master of Arts (M.A.) degree in Ethnomusicology.

Admission

Applicants to the M.A. program must have completed a bachelor's degree in music or a field related to ethnomusicology. Applicants whose degree is not in music are required to provide evidence of their musical aptitude and ability.

Applicants are required to submit, in addition to the regular Graduate Division requirements, (1) a statement of purpose, (2) three letters of recommendation, (3) a research or term paper, and (4) proof of musical background or performance ability (a degree in music, official transcripts showing at least two years of music coursework, including music history and theory, or an in-person audition or monitored recording in any musical tradition). No application can be considered until all of the above materials have been received.

Dossiers are reviewed by the faculty to assess each applicant's potential as a graduate student in this field at UCLA.

Admission Timetable

Note: Applicants for fellowships must adhere to the earlier deadlines; all monies are awarded by March 15.

December 30 — Application for admission/fellowship is due.

January 15 — Supplementary application materials are due.

February 28 — Late applications received by February 28 are reviewed only if there is space available in the program.

By March 15 — Notice of acceptance or denial is sent.

Applicants on a waiting list for admission are notified as soon as a decision can be reached. Failure to meet any deadline may result in a delay in action or no action on an application for admission, as well as that for a fellowship or assistantship.

Areas of Study

The Department of Ethnomusicology offers the M.A. degree in the field of ethnomusicology, with an optional specialization in systematic musicology. Degrees in composition, performance, and historical musicology are offered through other departments.

Course Requirements

Students are required to complete a minimum of nine courses, five of which must be at the graduate level. Only four units of Ethnomusicology 596, and four units of 597 or 598 may be applied toward the total course requirement. No more than four units of all types of 500-series courses may be applied toward the minimum graduate course requirement. Upper division courses that may be applied toward the minimum of nine courses include Music

106B, 109A, 109B, 109C, 112A, 112B, 116, 117, 118A, 118B, 123A, 123B, 123C, 151A, 151B, 156, C175 (four units only), and Ethnomusicology 106A, 106B, 106C, 113, M126, 128, 130, 136A, 136B, 146, 147, C156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 173, M180, 181. Ethnomusicology 598 serves to guide the preparation of the thesis and should normally be taken during the last quarters of residence.

Ethnomusicology. In addition to a five-course core (Ethnomusicology 200, 201A-201B, 281A, and 282), students must take two courses in one or more music culture areas (i.e., music of Japan, China), one course from the Department of Anthropology, and one elective from the department's graduate or upper division offerings, selected courses in Western music, a related discipline, or particular area outside the department approved by the student's mentor. Students who have not taken Ethnomusicology 20A-20B-20C or the equivalent before entering are required to audit these courses. Course 290 may be taken but cannot count toward M.A. course requirements. One quarter of Ethnomusicology 292F may be counted to satisfy one of the electives. Students must enroll in a minimum of two quarters of ethnomusicology performance organizations (Ethnomusicology 91A-91Z), which are not applied to their degree.

Specialization in Systematic Musicology. In addition to a six-course core (Ethnomusicology 200, C203, one course from 271, 273, 275, 283, or Musicology 269, and two terms of Ethnomusicology 279), students must take one course in a music culture area, two electives from the department's graduate or upper division offerings, and selected courses in Western music, a related discipline, or particular area outside the department approved by their mentors.

Comprehensive Examination Plan

To choose the comprehensive examination plan option, students must first submit a research paper written during their master's studies as evidence of their writing and scholarly abilities. For ethnomusicology, competence in the field is then tested with two written examinations: (1) theory and method in ethnomusicology and (2) a world music culture area or approved topic reflecting the course of study. For systematic musicology, competence is tested with a take-home examination on a topic to be determined by the student's major adviser. A discussion of the general field of systematic musicology is included in the final oral examination. The examinations are administered by a three-member committee, no more than one of whom shall be outside the department. The comprehensive examination is normally completed within three years of beginning M.A. coursework. Any failed examinations may be retaken only once, during the next two quarters. The department requires a final oral examination under both the comprehensive and thesis plans.

Thesis Plan

For students who choose this plan, the thesis is an extended essay or other equivalent presentation involving the original investigation of a problem or subject of limited scope, approved by the program committee in the student's area. The presentation must demonstrate significant style, organization, creativity, and depth of understanding of the subject.

A three-year limit from the beginning of the M.A. coursework is normally imposed for the completion of the thesis. Students who do not meet this deadline are required to take the comprehensive examination at the end of their third year in order to be considered for advancement to the Ph.D. program.

The thesis topic and the composition of the master's committee are approved by the program committee in the student's area before nomination to the Graduate Division. The department requires a final oral examination under both thesis and comprehensive examination plans.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Ethnomusicology must normally have completed an M.A. or equivalent degree in one of the following: ethnomusicology, systematic musicology, Western music, a non-Western music tradition, a related discipline, or area studies with a music specialization. Applicants who are accepted but whose qualifications do not meet the requirements for the department's M.A. degree are required to complete remedial coursework as recommended by the program committee before proceeding with doctoral work.

Applicants are required to submit, in addition to the regular Graduate Division requirements, (1) a statement of purpose, (2) three letters of recommendation, (3) a research or term paper (the M.A. thesis, if it is available), and (4) proof of musical background or performance ability (a degree in music, official transcripts showing at least two years of music coursework, including music history and theory, or an in-person audition or monitored recording in any musical tradition). No application can be considered until all of the above materials have been received.

Dossiers are reviewed by the faculty to assess each applicant's potential as a graduate student in that field at UCLA.

Admission Timetable

Note: Applicants for fellowships must adhere to the earlier deadlines; all monies are awarded by March 15.

December 30 — Application for admission/fellowship is due.

January 15 — Supplementary application materials are due.

February 28 — Late applications received by February 28 are reviewed only if there is space available in the program.

By March 15 — Notice of acceptance or denial is sent.

Applicants on a waiting list for admission are notified as soon as a decision can be reached. Failure to meet any deadline may result in a delay in action or no action on an application for admission, as well as that for a fellowship or assistantship.

Major Fields or Subdisciplines

The Department of Ethnomusicology offers the Ph.D. degree in the field of ethnomusicology, with an optional specialization in systematic musicology. Degrees in composition, performance, and historical musicology are offered through other departments.

Course Requirements

Students may petition to their area on the advice of their graduate adviser for exemption from specific requirements on the basis of equivalent work done at the M.A. level.

Students may complete the residence requirement by electing courses recommended by their mentor from the 200- or 100-level courses listed under the course requirements for the M.A. degree.

Ethnomusicology. In addition to a five-course core (Ethnomusicology 200, 201A-201B, 281A, and 282), 10 additional courses are required, including one music culture seminar, at least six of which must be at the 200 level or higher and must include three quarters of Ethnomusicology 290, and one course from 271, 273, 275, or 283. Students may count one quarter of Ethnomusicology 292F to satisfy one of their electives. The remainder may be selected from the graduate offerings in the department or selected courses in Western music, a related discipline, or particular area outside the department as guided by students' mentors. No more than two 500-series courses and two courses outside the department may be counted toward the degree. Students must enroll in a minimum of three quarters of ethnomusicology performance organizations (Ethnomusicology 91A-91Z), which may not be applied to their degree. Students are normally expected to conduct field research for one year.

Specialization in Systematic Musicology. In addition to a six-course core (Ethnomusicology 200, 201A, C203, two courses of 279, and one from Ethnomusicology 271, 273, 275, 283, or Musicology 269), nine other courses are required, including one music culture seminar, at least six of which must be at the 200 level or higher and must include three additional quarters of Ethnomusicology 279. The remainder may be selected from the graduate offerings in the department or selected courses in Western music, a related discipline, or particular area outside the department as guided by students' mentors. No more than two 500-series courses

and two courses outside the program may be counted toward the degree.

Students who do not have an M.A. in Ethnomusicology from UCLA may be required, in consultation with their mentor, to take other relevant and necessary courses beyond the 10 specified.

Written and Oral Qualifying Examinations

When the student and the committee feel the student is ready to take the qualifying examinations, the student should submit a schedule to the Student Services Office and the committee members listing the order in which the examinations are to be taken. Staff from the Student Services Office acts as proctor for the tests. Normally, the five written examinations are spread over a two-week period but should be completed within three weeks. Examinations not passed may be repeated once in consultation with the guidance committee and after a stipulated period of time. An oral examination may be scheduled at the discretion of the departmental guidance committee.

Ethnomusicology. The written examinations for ethnomusicology students without a specialization consist of the following:

- (1) General ethnomusicology, history, theory, and method. (Students who took the comprehensive examination option for the M.A. have already done this.)
- (2) Concepts and terminologies in world music.
- (3) Student's principal musical area.
- (4) One from organology, aesthetics of music, psychology of music, sociology of music, acoustics, or comparative music theory.
- (5) A second musical area or related discipline (e.g., anthropology).

Specialization in Systematic Musicology. The written examinations for students with a specialization in systematic musicology consist of the following:

- (1) General systematic musicology, history, theory, and method.
- (2) Concepts and terminologies in world music.
- (3) History and analysis of Western music.
- (4-5) Two areas to be selected from the following: organology, aesthetics of music, psychology of music, sociology of music, acoustics, or comparative music theory.

After completion of the written and oral qualifying examinations, students may submit the dissertation topic and request for a doctoral committee for approval. The dissertation topic and the composition of the doctoral committee are approved by the program committee in the student's area before nomination to the Graduate Division. Following appointment of the doctoral committee, students take the University Oral Qualifying Examination.

Ethnomusicology

Lower Division Courses

1A-1B. Fundamentals of Sound and Music of the World. (2-4) Lecture, two hours; laboratory, one hour. Acoustical makeup of sound (pitch, tone quality); tuning systems; modes and scales; harmony and polyphony; rhythm and meter; notational systems; relationships of music to culture. Laboratory includes ear training and instrumental techniques.

10A-10B-10C. World Music Theory and Musicianship. (4-4-4) Lecture, two hours; discussion, four hours; laboratory, two hours. Limited to Ethnomusicology and World Arts and Cultures majors. Course 10A is requisite to 10B, which is requisite to 10C. Introduction to and participation in musical systems of selected world cultures through aural and written notations, vocal and instrumental skills, melodic and rhythmic dictation, improvisation, and composition.

15. American Life in Music. (4) Lecture, three hours. Impact of ethnicity, race, gender, and other social processes on American music in the late 20th century; use of and creativity in music to respond to and shape contemporary social processes. P/NP or letter grading.

20A-20B-20C. Musical Cultures of the World. (4-4-4) Lecture, four hours; discussion, one hour. Survey of musical cultures of the world (excluding Western art music), role of music in society and its relationship to other arts; consideration also to scale structure, instruments, musical forms, and performance standards. **20A.** Europe and the Americas; **20B.** Near East and Africa; **20C.** South Asia, Southeast Asia, and the Far East.

91A-91Z. World Music Performance Organizations. (2 each) 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. **91A.** Music and Dance of the American Indians; **91B.** Music of Bali; **91C.** Music and Dance of the Balkans; **91D.** Music of China; **91E.** Music and Dance of Ghana; **91F.** Music of India; **91G.** Music of Japan; **91H.** Music of Java; **91I.** Music of Korea; **91K.** Music of Mexico; **91L.** Music of Persia; **91M.** Music of Thailand; **91N.** Music of the Near East; **91P.** Music of African Americans; **91Z.** Open Ensemble.

92. Private Instruction in Music. (2) Studio, one hour. Limited to Ethnomusicology majors. Private or semiprivate music instruction with a distinguished community-based musician, which must be arranged by students and approved by course instructor. May be repeated for credit without limitation.

Upper Division Courses

106A-106B-106C. Music of the American Indians. (4-4-4) American Indian music studied within broader context of styles, cultural values, and sources, including films, recordings, lectures, and limited group singing and dancing. **106A.** Eastern California-Yuman, Great Basin, and Northwest Coast Areas; **106B.** Athabaskan, Pueblo, Plains, and Modern Pan-Indian Trends. Lecture, three hours; discussion, one hour; **106C.** Sociology of American Indian Music.

M108A-108B. Music of Latin America. (4-4) Course M108A is not requisite to 108B. Survey of traditional and contemporary musical culture. **M108A.** Mexico, Central America, and the Caribbean Isles. (Formerly numbered 108A.) (Same as Chicana and Chicano Studies M108A.) Lecture, four hours; discussion, one hour; **108B.** Latin South America. Lecture, three hours.

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

M110A-M110B. African American Musical Heritage. (4-4) (Same as Afro-American Studies M110A-M110B and Folklore M154A-M154B.) Lecture, four hours; discussion, one hour. Study of African music and its impact on the Americas; survey of development of various African American musical genres from slave era to the present, including traditions in the West Indies and Central and South America.

M111. Ellingtonia. (4) (Same as Afro-American Studies M145.) Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as "Ellingtonia," is one of the largest and perhaps most important bodies of music ever produced in the U.S. Covers the many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington.

113. Music of Brazil. (4) Lecture, three hours. History of ethnic and art music in Brazil, with some reference to Portuguese antecedents.

M115. Musical Aesthetics in Los Angeles. (4) (Same as Chicana and Chicano Studies M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on a cross-cultural basis of diverse musical contexts within the vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of the Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and the commercial music industry.

M116. Chicano/Latino Music in the U.S. (4) (Same as Chicana and Chicano 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 the U.S.

117. American Popular Music. (4) 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.

118. Development of Rock. (4) History of rock from the 1950s to the 1970s. In-depth survey of stylistic trends illustrated by pertinent examples and accompanied by extensive musical analysis.

M119. Cultural History of Rap. (4) (Same as Afro-American Studies M107 and Folklore M110.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and allied forms, 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.

120A-120B. Development of Jazz. (4-4) Lecture, four hours; discussion, one hour. Introduction to jazz; its historical background and its development in the U.S.

121. Cross-Cultural Perspectives in Jazz. (4) Exploration of assimilation and retention of jazz from the U.S. in various countries, with particular emphasis on cultural and social features which form the basis for new jazz-ethnic music blends.

123. Music of Bebop. (4) Lecture, three hours. Study of jazz bebop tradition, including analysis of compositions and song forms, styles of improvisation, and developments from 1940 to the present.

M124. Anglo-American Folk Song. (4) (Same as English M111B and Folklore CM106.) Survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values.

M126. Folk Music of Western Europe. (4) (Same as Folklore M181.) Introduction to forms and styles of traditional music in Western Europe. Historical and ethnological perspectives on this music combined with numerous recorded examples from major cultural subdivisions of the region.

M127. Jazz Keyboard Harmony. (1) (Same as Music M127.) Laboratory, two hours. Study of jazz harmony through use of piano keyboard. Development of basic keyboard skills in order to manipulate essential chord voicings and harmonic passages in jazz music. Instruction in basic jazz theory.

128. Folk Music of Eastern Europe. (4) Introduction to forms and styles of traditional music in Eastern Europe (including the Balkans). Historical and ethnological aspects of the music illustrated by numerous recorded examples from major cultural subdivisions of the area.

M129A-M129B-M129C. Jazz Theory and Improvisation (2-2-2) (Same as Music M129A-M129B-M129C.) Lecture, four hours. Elements of jazz theory and improvisation. **M129A.** Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisations. **M129B.** Requisite: course M129A with a grade of C or better. Medium-level jazz harmonic constructions. **M129C.** Requisite: course M129B with a grade of C or better. Advanced-level jazz harmonic constructions.

130. Folk Music of the Mediterranean. (4) Lecture, three hours. Introduction to forms and styles of traditional music in the Mediterranean basin, particularly features of contrast, similarity, and cross-cultural interaction. Historical and ethnological aspects of the music illustrated by numerous recorded examples from major cultural subdivisions of the area.

M131. Development of Latin Jazz. (4) (Same as 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.

CM132. Celtic Folk Music. (4) (Same as Folklore CM132.) Survey and analysis of indigenous traditional music in lands where a Celtic language is or was spoken into modern times. Instrumental and vocal genres, context and performance, social value and ideology. Concurrently scheduled with course CM232. P/NP or letter grading.

136A-136B. Music of Africa. (4) Lecture, four hours; discussion, one hour. Investigation of historical aspects, social functions, musical instruments, and relationships of music to other art forms in selected areas of Africa.

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.

147. Survey of Classical Music in India. (4) Examination of melodic, metric, and formal structures of Indian classical music in context of religious, sociocultural, and historical background of the country.

C150. Music and Politics in East Asia. (4) Requisite: course 20C. Limited to ethnomusicology majors. Political imperatives have long had a 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.

C156A-156B. Music in China. (4-4) Letter grading. **C156A.** (Formerly numbered 156A.) 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. **156B.** Lecture, three hours; laboratory, two hours. Requisite: course C156A. Introduction to various notational systems. Analysis of representative styles.

157. History of Chinese Opera. (4) 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.

158A-158B-158C. Studies in Chinese Instrumental Music. (4) Lecture, three hours; laboratory, one hour. **158A.** Study of literature, major sources, paleography, theory, and philosophy of the Ch'in, including transcription and analysis. **158B.** Study of literature, major sources, paleography, theory, and philosophy of the P'i P'a, including transcription and analysis. **158C.** Comprehensive study of Chinese musical instruments, classification system, specific musical notation, and use in context of Chinese society.

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.

160A. 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.

160B. Studies in Japanese Court Music. (4) Lecture, two hours; laboratory, one hour. Preparation: minimal musical ability. In-depth study of Japanese court music, including historical background, with emphasis on understanding the instrumental techniques and notation of various instruments of the court orchestra.

170. Acoustics. (4) Lecture, four hours; discussion, one hour. Interrelationship of acoustical and musical phenomena. Tuning systems, consonance and dissonance, tone quality. Lecture, demonstration, and discussion; tours of instrumental collections and acoustical research facilities.

171. Instruction in Advanced Jazz Performance. (2) Laboratory, one hour. Preparation: advanced performance ability as demonstrated by audition. Study of jazz repertoire and techniques for specific instruments and voice. May be repeated for a maximum of 12 units.

172A-172B. Cognitive Psychology of Music. (4-4) **172A.** Lecture, four hours; discussion, one hour. Designed for nonmajors. Introduction to psychology of music; historical background and the broad field of study, including use of music as a stimulus, tests and measurements, and related modes of musical behavior. **172B.** Requisite: course 172A. Study of psychological factors and problems in music from points of view of listener, performer, and composer.

173. Experimental Research in Music. (4) Recommended for Music majors in all specializations. Theories and processes in various modes of musical experimentation: physical, perceptual, psychological, pedagogical, quantificational, statistical procedures.

174. Aesthetics of Music. (4) Lecture, four hours; discussion, one hour. Designed for nonmajors. Historical survey of musical aesthetic thought and practice. Selected readings and musical examples.

175. Sociology of Music. (4) 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.

M177. Jazz Combo. (2) (Same as Music M177.) Small group performance of various styles in ensembles of three to 10 musicians. May be repeated for a maximum of 12 units.

C179. Proseminar: Systematic Musicology. (4) Seminar, three hours. Introduction to systematic musicology, including basic readings in aesthetics/philosophy; anthropology, sociology, and ethnomusicology; psychology and acoustics. May be concurrently scheduled with course C203.

M180. Analysis of Traditional Music. (4) (Same as Folklore M180.) Designed for Ethnomusicology, Music History, and Folklore majors. Intensive study of methods and techniques necessary to understand traditional music.

181. Anthropology of Music. (4) 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.

M186. Senior Recital or Research Paper. (No credit) (Same as Music M186.) Preparation and performance of one-hour senior recital of jazz repertoire or preparation of a senior paper (topic and length to be approved by assigned adviser). P/NP grading.

190. Study of Ethnomusicology. (4) (Formerly numbered C190A.) Lecture, three hours. Requisites: courses 10A-10B-10C, 20A-20B-20C. Designed for Ethnomusicology majors. Introduction to history of the field, basic fieldwork and analysis methods, and current issues in research.

191A-191Z. Advanced World Music Performance Organizations (2 each) Activity, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. **191A.** Music and Dance of the American Indians; **191B.** Music of Bali; **191C.** Music and Dance of the Balkans; **191D.** Music of China; **191E.** Music and Dance of Ghana; **191F.** Music of India; **191G.** Music of Japan; **191H.** Music of Java; **191J.** Music of Korea; **191K.** Music of Mexico; **191L.** Music of Persia; **191M.** Music of Thailand; **191N.** Music of the Near East; **191P.** Music of African Americans; **191Z.** Open Ensemble.

192. Advanced Private Instruction in Music. (2) Studio, one hour. Preparation: two years of courses 91A through 91Z or 92. Limited to Ethnomusicology majors. Advanced private or semiprivate music instruction with a distinguished community-based musician, which must be arranged by students and approved by course instructor. May be repeated for credit without limitation.

197. Special Topics in Ethnomusicology. (4) Lecture/seminar, three hours. Selected topics in ethnomusicology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

199E. Special Studies in Ethnomusicology. (2 to 4) Hours to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in ethnomusicology resulting in research project. May be repeated for a maximum of eight units.

199S. Special Studies in Systematic Musicology. (2 to 4) Hours to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in systematic musicology resulting in research project. May be repeated for a maximum of eight units.

Graduate Courses

200. Research Methods and Bibliography. (6) Lecture, three hours. Designed for graduate students. Guided writing, utilizing specific bibliography, in ethnomusicology and systematic musicology.

201A-201B. Proseminars: Ethnomusicology. (4-4) (Formerly numbered C201A-C201B.) Lecture, three hours. Designed for graduate students. Basic literature and schools of thought in the field of ethnomusicology from the late 19th century to the present.

C203. Proseminar: Systematic Musicology. (4) Seminar, three hours. Introduction to systematic musicology, including basic readings in aesthetics/philosophy; anthropology, sociology, and ethnomusicology; psychology and acoustics. May be concurrently scheduled with course C179.

207. Seminar: North American Indian Music. (4) Seminar, three hours. Requisite: course 106A or 106B or 106C. 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.

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.

M211. Seminar: African American Music. (4) (Same as Afro-American Studies M211.) Seminar, three hours. Requisites: courses M110A-M110B. Designed for graduate students. Intensive investigation of problems, theories, and methods of research related to study of African American music. Emphasis on relationship of problems to representative styles of African American music.

228. Seminar: Balkan Music. (4) Seminar, three hours. Requisite: course 128. Major issues in study of Balkan music, including song text analysis, music instruments, dance music, rituals and customs, minorities, and ideology.

CM232. Celtic Folk Music. (4) (Same as Folklore CM232.) Survey and analysis of indigenous traditional music in lands where a Celtic language is or was spoken into modern times. Instrumental and vocal genres, context and performance, social value and ideology. Concurrently scheduled with course CM132. S/U or letter grading.

237. Seminar: African Music. (4) Seminar, three hours. Requisite: course 136A or 136B. Intensive investigation of musical style; historical, social, and cultural aspects of indigenous musical traditions and related art forms.

240. Music of Arabic-Speaking Near East. (4) Lecture, three hours. Requisite: course 282 or course in ear training, analysis, and theory. Investigation of historical and cultural backgrounds, main musical styles, relationship between theory and practice and emphasis on mode and improvisation, and 20th-century trends. Concurrent participation in Near East performance ensemble (course 91N) required.

241. Music of Iran and Other Non-Arabic-Speaking Communities. (4) Lecture, three hours. Requisite: course 282 or course in ear training, analysis, and theory. 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) required.

248A-248B. Classical Music of India. (4) Lecture, three hours. Requisite: course 146 or 147. Study of history, theory, and practice of north and south Indian classical music. During first term, emphasis on music history and traditional theory; second term, analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in Indian performance group (course 91F) required.

C250. Music and Politics in East Asia. (4) Requisite: course 20C. Limited to ethnomusicology majors. Political imperatives have long had a 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.

250A-250B. Music of Indonesia. (4-4) Lecture, three hours. Requisite: course 20C. During first term, emphasis on music and related performing arts of Java. Focus on music and performing arts of Bali and other Indonesian islands during second term. Concurrent participation in one Indonesian performance group (course 91B or 91H) required.

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 the American context, with perspectives from archaeology, history, performance theory, applied anthropology, and ethnomusicology.

C256A. Music in China. (4) 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.

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.

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.

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.

273. Seminar: Psychology of Music. (6) Seminar, three hours. Requisite: course 173. 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.

275. Seminar: Aesthetics of Music. (6) Seminar, three hours. Requisite: course 176. 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.

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.

281A-281B. Seminars: Field and Laboratory Methods in Ethnomusicology. (6-6) Seminar, three hours; laboratory, two hours. Requisites: courses 201A-201B. Fieldwork concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects.

282. Seminar: Analysis. (6) Seminar, three hours. Requisite: course M180 or graduate ethnomusicology student. Intensive discussion of techniques used in ethnomusicological analysis, including transcription and notation, with emphasis on analysis of musical performance and music events.

283. Seminar: Study of Musical Instruments (Organology). (6) Seminar, three hours. Requisites: courses 201A-201B. Musical instruments studied in terms of their structures, performance contexts, cultural significance, and patterns of change.

284. Seminar: Anthropology of Music. (4) Requisites: courses 201A-201B. Analysis of current anthropological paradigms and issues that have major impact on ethnomusicology.

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 a science of music; its place between cultural values and artistic practice in different civilizations.

M287. Seminar: Folk Music. (4) (Same as Folklore M258.) Seminar, three hours.

290. Seminar: Ethnomusicology. (6) Seminar, three hours. Requisites: courses 20A-20B-20C, 200, 201A-201B. May be repeated for credit.

292A-292Z. Seminars: Special Topics in Ethnomusicology. (4) Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495A. Teaching Apprentice Practicum. (2) (Formerly numbered 495.) Eight weekly two-hour discussion 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 an electronic teaching portfolio. S/U grading.

596. Directed Individual Studies. (2, 4, or 6) Only four units may be applied toward M.A. minimum course requirements.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4) May be repeated for credit. S/U grading.

598. Guidance of M.A. Thesis. (4, 8, or 12) May be repeated for credit. S/U grading.

599. Guidance of Ph.D. Dissertation. (4, 8, or 12) May be repeated for credit. S/U grading.

EUROPEAN STUDIES

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David M. Kunzle, Ph.D. (*Art History*)
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Professor Emeritus

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Robert M. Maniquis, Ph.D. (*English*)
Malina Stefanovska, Ph.D. (*French*)

Assistant Professor

Roman Koropeckyj, Ph.D. (*Slavic Languages and Literatures*)

Scope and Objectives

The European Studies Program provides undergraduates with an opportunity to study Europe from the vantage points of several disciplines in the humanities and social sciences. Its primary goals are twofold: to enable students to cross the existing boundaries between and within the humanities and social sciences and to develop approaches to European society and culture consonant with the dramatic changes taking place in that region. Not only has the Cold War model of distinct eastern and western blocs lost the bulk of its explanatory power, but European culture, economy, and social structure have been transformed by immigration, unification, Americanization, and new developments in the intellectual and political realms.

The events of recent years make it clear that the University and its students require new academic approaches to the region. The demise of the Soviet Bloc, the increased ethnic conflict throughout the region, the migration of peoples within Europe and from other parts of the world, the challenges of a rapidly evolving global economic system, and the uncertainties inherent in the process of unification — all these developments call into question the intellectual configurations that have long dominated our

thinking. Today the regions of Europe provide a laboratory for examining — and finding solutions for — everything from efforts to integrate people of color to changes in the family and the status of women. They challenge us to consider new philosophical, artistic, and literary approaches and require us to come to grips with the collapse of socialist command economies in the East and the exhaustion of once-successful welfare states in the West.

To enable students to consider these questions, the European Studies major offers an interdisciplinary program leading to the Bachelor of Arts degree. Students are required to (1) study a European language other than English, (2) develop a historical perspective on European issues, (3) examine European culture, society, politics, and economy, and (4) acquire basic analytical and theoretical skills. Central to this effort are a series of core seminars and a senior essay to encourage majors to delve into a research topic of their choice.

Undergraduate Study

European Studies B.A.

The curriculum is designed to serve the needs of students who wish to (1) approach the study of Europe from a structured, interdisciplinary perspective, (2) pursue graduate work in disciplines permitting the study of Europe, (3) orient their professional life toward European affairs in fields such as law, business, diplomacy, journalism, and human services, and (4) acquire valuable skills in foreign languages and writing that will assist them in their careers.

Admission

Interested students should meet with the program chair no later than the beginning of the sophomore year to discuss requirements and formulate their course of study. Students are expected to declare the major at the end of their sophomore year, following normal UCLA procedures, and must have a minimum grade-point average of 2.5 in all preparation courses. Transcripts and course plans demonstrating that they will have completed all lower division requirements by the end of their junior year must be presented.

Foreign Language Requirement

Students must prepare for the major by studying a European language other than English. This language — the declared foreign language — helps to focus the major and determine options for the period of study abroad. Students are expected to fulfill the specific requisites of their selected language department (French, Germanic Languages, Italian, Slavic Languages and Literatures, Spanish and Portuguese) for entrance into upper division courses. Students who wish to study Latin or Greek are also required to demonstrate proficiency in a modern language. In most cases, courses 1, 2, 3, 4, 5, 6, or the equivalent fulfill the requirement (Italian and Spanish have slightly different course numbers and require-

ments). Students must complete the lower division foreign language requirement by the end of the sophomore year.

Preparation for the Major

Required: (1) *Geography* — demonstrated competency in geography by passing an examination given annually by the program; (2) *humanities and the arts* — one course from Philosophy 1, 2, 4, 5A, 6, 7, 8, 21, or 22; one lower division introductory language department course in literature or civilization that focuses on the declared foreign language; one course from Art History 54, 57, Music History 2B, or 13; (3) *social sciences* — Economics 1 or 5; two courses from History 1A, 1B, 1C; two courses from Geography 3, 5, Political Science 10, 20, 30, 50, Sociology 1, 2, M18, Women's Studies 10.

By carefully selecting courses for the Preparation for the Major, students can fulfill their general education requirements in the social sciences, foreign language, quantitative reasoning, and humanities.

The Major

Required: (1) At least one upper division course in the literature of the declared foreign language, with instruction and reading assignments in that language (see the list of approved courses below); (2) one course from History 124A, 124B, 125A through 125F, 126A through 126F, 127A, 127B, 128A, 128B, 128C, 129A, 129B, 129C, 131A through 131D, 132A, 132B, 133A, 133B, 134A, 134B, 141A, 141B, or 141C; (3) European Studies 101 and 199; (4) at least eight electives selected from the list of approved courses, with a minimum of three courses from humanities and three from social sciences. Electives must either continue the regional focus, introduce a theoretical and methodological perspective, or introduce a rationally conceived comparative point of view (sample programs are on file in the program office).

During their senior year students must write an extended paper offering original research on a topic of interest to them. Topics must be approved by a faculty adviser selected by the student and endorsed by the program's executive committee.

Students must consult with the program chair to design their upper division coursework.

Study in Europe

The program expects students to spend at least one term — and preferably a full academic year — studying in the European country most relevant to their work. This is normally done under the auspices of the University of California Education Abroad Program; however, alternative arrangements can be made at UCLA if students have financial or personal considerations that may prevent them from going overseas. To obtain UCLA credit after returning to campus, students must have their foreign transcripts evaluated by the program faculty and staff.

European Studies

Upper Division Courses

101. Introduction to European Studies. (4) (Formerly numbered M101.) Discussion, three hours; outside study, nine hours. Limited to and required of European Studies majors. Interdisciplinary seminar that introduces students to central topics, themes, and concepts of European studies, including the individual and the state, cultural life, economic relations, nationalism, and international relations.

102. Special Topics in European Studies. (4) Discussion, three hours; outside study, nine hours. Variable topics. May be repeated for credit.

199. Independent Study for Thesis Writers. (4) Limited to and required of senior European Studies majors. Independent study under supervision of sponsoring professor.

Course List

All courses are not offered every academic year. Students should contact the individual departments or the European Studies staff for information about the availability of specific courses.

Anthropology

- 130. Study of Culture
- 132. Technology and Environment
- 133Q. Symbolic Systems
- 133R. Aesthetic Systems
- M140. Language in Culture
- 150. Study of Social Systems
- M154Q. Gender Systems: Global
- 156. Comparative Religion
- 159. Warfare and Conflict
- 182. History of Anthropology
- 183. History of Archaeology

Art History

- M102A. Minoan Art and Archaeology
- M102B. Mycenaean Art and Architecture
- M102C. Archaic Greek Art and Archaeology
- M102D. Classical Greek Art and Archaeology
- M102E. Hellenistic Greek Art and Archaeology
- M102F. Etruscan Art
- M102G. Roman Art
- M102H. Late Roman Art
- M102I-M102J-M102K. Classical Archaeology
- 105A. Early Christian Art
- 105B. Early Medieval Art
- 105C. Romanesque Art
- 105D. Gothic Art
- 105E. Byzantine Art
- 105F. Late Gothic Art and Architecture
- 106A. Italian Art of the *Trecento*
- 106B. Italian Art of the *Quattrocento*
- 106C. Italian Art of the *Cinquecento*
- 106D. Late Renaissance Art: Counter-Reformation
- 108A-108B. Northern Renaissance Art
- 109A, 109B. Baroque Art
- 109C. European Art of the 18th Century
- 109D. Art and Architecture of Georgian England
- 110A. European Art of the 19th Century
- 110B. European Art of the 19th Century: Realism and Impressionism
- 110C. European Art of the 19th and 20th Centuries: Postimpressionism to Surrealism
- 150D. Selected Topics in Contemporary Art

Bulgarian (Slavic Languages)

- 154. Survey of Bulgarian Literature

Classics

140. Topics in History of Greek Literature
 141. Topics in History of Latin Literature
 142. Ancient Epic
 144. Topical Studies in Ancient Culture
 M145A. Ancient Greek and Roman Philosophy
 M145B. Later Ancient Greek Philosophy
 150A. Origins of the Western View of Women: The Female in Greek Thought
 150B. Origins of the Western View of Women: The Female in Roman and Early Christian Thought
 C151E. Archaeological Field Techniques
 152. The Ancient City
 M153A. Minoan Art and Archaeology
 M153B. Mycenaean Art and Architecture
 M153C. Archaic Greek Art and Archaeology
 M153D. Classical Greek Art and Archaeology
 M153E. Hellenistic Greek Art and Archaeology
 M153F. Etruscan Art
 M153G. Roman Art
 M153H. Late Roman Art
 M153I-M153J-M153K. Classical Archaeology
 162. Classical Myth in Literature
 165. Ancient Athletics
 166A. Greek Religion
 166B. Roman Religion
 167. Greek and Roman Magic
 168. Comparative Mythology
 180. Introduction to Classical Linguistics
 190. The Medieval Book

Comparative Literature

102. Classical Tradition: Epic
 103. Classical Tradition: Tragedy
 C104. Satire
 C105. Comic Vision
 106. Archetypal Heroes in Literature
 120. The Individual and Society in the Renaissance
 C122. Renaissance Drama
 C140. Dramatic Theory and Criticism in German and English Romanticism
 C151. Crisis of Authority
 C152. Symbolist Tradition in Poetry
 158. Colonial Encounters
 159. Four Modern Dramatists
 C160. Topics in Literature and Visual Arts
 C161. Fiction and History
 C163. Crisis of Consciousness in Modern Literature
 C164. The Modern Continental Novel
 M165. The Holocaust in Literature
 C167. Theory and Texts of the Fantastic
 C170. Alternate Traditions: In Search of Female Voices in Contemporary Literature
 C172. The Postmodern Novel
 M174. Film and Literature of the Spanish-Speaking World
 190. Semiotics of Story and Film
 192. Walter Benjamin's Literary Criticism
 C195A. Heidegger, Language, and Literature
 C195B. Derrida as a Reader of Heidegger

Czech (Slavic Languages)

155. Survey of Czech Literature from Middle Ages to the Present

Dutch (Germanic Languages)

100. Modern Dutch Culture and Society
 113. Modern Dutch and Flemish Literature in Translation
 120. Introduction to Dutch Studies
 131. Introduction to Modern Dutch Literature

Economics

107. History of Economic Theory

110. Economic Problems of Underdeveloped Countries
 181A, 181B. Development of Economic Institutions in Western Europe
 190. International Economics

English

- M107B. British Women Writers
 M107C. Special Topics in Women and Literature
 108A-108B. The English Bible as Literature
 109. Interdisciplinary Approaches to Literature
 M111A. Literature of Myth and Oral Tradition
 M111B. Anglo-American Folk Song
 M111C. British Folklore and Mythology
 M111D. Celtic Mythology
 M111E. Survey of Medieval Celtic Literature
 M111F. Celtic Folklore
 115B. British Popular Literature
 140A. Criticism: History and Theory
 140B. Criticism: Special Topics
 141A. Chaucer: *The Canterbury Tales*
 141B. Chaucer: *Troilus and Criseyde* and Selected Minor Works
 142A. Shakespeare: Poems and Early Plays
 142B. Shakespeare: Later Plays
 143. Milton
 151. Elizabethan Literature
 152A. Drama from the Beginning to 1576
 152B. Drama, 1576 to 1642
 153. Literature of the Early 17th Century, 1600 to 1660
 154. Literature of the Restoration and Earlier 18th Century, 1660 to 1730
 155. Literature of the Later 18th Century, 1730 to 1798
 156. Drama, 1660 to 1842
 157. The Novel to 1832
 160. Earlier Romantic Literature
 161. Later Romantic Literature
 162. Earlier Victorian Poetry and Prose
 163. Later Victorian Poetry and Prose
 164. The Novel, 1832 to 1900
 165. 20th-Century British Poetry
 166. 20th-Century British Fiction
 167. Drama, 1842 to 1945
 168. Drama, 1945 to the Present

Folklore and Mythology

101. Introduction to Folklore
 M111. Literature of Myth and Oral Tradition
 M112. Survey of Medieval Celtic Literature
 113. The Arthurian Tradition
 M121. British Folklore and Mythology
 M122. Celtic Mythology
 124. Finnish Folk Art and Technology
 M126. Baltic and Slavic Folklore and Mythology
 CM132. Celtic Folk Music
 M140. Italian Novella from Boccaccio to Basile
 M142. Introduction to Jewish Folklore
 C145. Applied Folkloristics
 163. Folklore and Oral History
 C165. Film and Folklore
 M170. Russian Folklore
 172. Folklore in Ethnic Context
 M181. Folk Music of Western Europe
 CM184. Dance and Folklore

French

- 114A-114B-114C. Survey of French Literature
 115A-115B-115C. Medieval French Literature
 116A-116B-116C. Renaissance
 117A-117B-117C. 17th Century
 118A-118B-118C. 18th Century

- 119A-119D. 19th Century
 120A-120B-120C. 20th Century
 130A-130B-130C. History of French Civilization and Institutions
 132. Contemporary France
 M140. Women's Studies in French Literature
 141. Cinema and Literature in France
 142. Poetry and Music
 M143. Rhetoric of Rule
 150. Studies in Medieval Literature
 151. Studies in 16th-Century Literature
 152. Studies in 17th-Century Literature
 153. Studies in 18th-Century Literature
 154. Studies in 19th-Century Literature
 155. Studies in 20th-Century Literature
 156. Studies in Contemporary Literature of French Expression
 157. Studies in French Critical Theory and Philosophy
 158. Studies in History of Ideas
 162. Modern French Thought in Translation
 164A-164B-164C. The French Novel in Translation
 165. Topics in French Literature in Translation

Geography

133. Cultural Geography of the Modern World
 134. Space, Place, and Nature in Western Thought
 140. Political Geography
 142. Population Geography
 183. Europe
 184. Russia

German (Germanic Languages)

- 100A. German Civilization and Culture before 1700
 100B. Modern German Civilization and Culture from 1700 to 1919
 100C. German Civilization and Culture in the 20th Century
 102A. German Film in Cultural Context: Early German Film
 102B. German Film in Cultural Context: New German Film
 106. The Faust Tradition from the Renaissance to the Modern Age
 108. Love and Sex in German Literary Tradition
 112. Jewish Writing and Thought in German Culture from 1755 to the Present
 116. Special Topics in Modern Literature and Culture
 118. Feminist Issues in German Literature and Culture
 120. German Folklore
 140A. Introduction to German Poetry
 140B. Introduction to German Drama
 140C. Introduction to German Narrative Prose
 142. Introduction to 18th-Century Studies
 144. Introduction to 19th-Century Studies
 146. Introduction to Modern Literature
 148. Introduction to Contemporary Literature
 152. Studies in German Literature before 1750
 154. Goethe
 156. Goethe's *Faust*
 158. Romanticism

Greek (Classics)

100. Readings in Greek Prose
 101A. Homer: *Odyssey*
 101B. Homer: *Iliad*
 102. Lyric Poets
 103. Aeschylus
 104. Sophocles
 105. Euripides
 106. Aristophanes
 107. Hesiod
 110. Study of Greek Prose

- 111. Herodotus
- 112. Thucydides
- 113. Attic Orators
- 115. Xenophon
- 121. Plato
- 122. Plato: *Republic*
- 123. Aristotle: *Poetics and Rhetoric*
- 124. Aristotle: *Ethics*
- 130. Readings in the New Testament
- 131. Readings in Later Greek

History

- 100. History and Historians
- 102. Explorations in Psychoanalysis and History
- 118. Topics in Ancient History
- 119M. The Christian Church, 100 to 1517
- 120M. The Christian Religion, 100 to 1350
- 121A-121B. Medieval Europe
- 121C. Medieval Civilization: Mediterranean Heartlands
- 121D. Medieval People: The 13th Century
- M122. Power and Imagination in Byzantium
- 126A-126F. Cultural and Intellectual History of Modern Europe
- 127A-127B-127C. War and Diplomacy in Europe
- 130. Europe in the Age of Revolution
- 135A-135B. Marxist Theory and History
- 136. Topics in European History
- 137A-137B. History of Women in Europe
- M191A-M191B. Survey of Jewish History
- 191E-191F. The Third Reich and the Jews
- 191G. European Jewry from 1881 to the Present
- M192A-M192B. Jewish Intellectual History
- 193A. History of Religions: Myth
- 194B. Religious Environment of Early Christians
- 195A. History of Technology
- 195B. History of Medicine
- 195C. Historical Perspectives on Gender and Science
- 195D. Science and Technology in the 20th Century
- 195E. Topics in History of Science
- M195F-M195G. History of Biological Sciences

Italian

- 102A-102B-102C. Italian Cultural Experience, in English
- 103A-103B-103C. Introduction to Italian Literature and Literary Analysis
- 110. Dante, in English
- 113. Dante's *La Divina Commedia*
- 114A-114B. Middle Ages
- 116A-116B. Italian Renaissance
- 118. Age of Enlightenment
- 119. Italian *Ottocento*
- 120. Literature in the 20th Century
- 121. Literature and Film
- 122. Italian Theater
- M140. Italian Novella from Boccaccio to Basile
- 150. Modern Fiction in Translation
- M158. Women in Italian Culture
- 190. History of the Italian Language

Jewish Studies (Near Eastern Languages)

- 130. Modern Jewish Religious Movements and Their Ideologies
- 141. Modern Anti-Semitism
- M143. Introduction to Jewish Folklore
- 150B. Hebrew Literature in English: Rabbinic Judaism
- 151A. Modern Jewish Literature in English: Diaspora Literature
- 155. Literature of the Cabala
- M187. The Holocaust in Literature

Latin (Classics)

- 100. Readings in Latin Prose and Poetry
- 101. Plautus
- 102. Terence
- 103. Lucretius
- 104. Ovid
- 105A. Beginning Vergil: Selections from *Aeneid* I-VI
- 105B. Advanced Vergil
- 106. Catullus
- 107. Horace
- 108. Roman Elegy
- 109. Roman Satire
- 110. Study of Latin Prose
- 111. Livy
- 112. Tacitus
- 113. Cicero: *The Orations*
- 114. Roman Epistolography: Cicero and Pliny
- 115. Caesar
- 116. Roman Novel
- 117. Sallust
- 118. Seneca
- 120. The Vulgate
- 121. Patristic Texts
- 131. Medieval Latin Prose
- 133. Medieval Latin Poetry

Music History

- 133. Bach
- 134. Beethoven
- 135A-135B-135C. History of Opera
- 139. History and Literature of Church Music
- 156. Studies in Musical Genres
- 188. Topics in Music History
- 189A-189B. The Symphony

Old Norse Studies (Germanic Languages)

- C139. The Saga
- C140. Viking Civilization and Literature
- C145. Old Norse Literature and Society

Philosophy

- 100A. History of Greek Philosophy
- 100B. Medieval and Early Modern Philosophy
- 100C. History of Modern Philosophy, 1650 to 1800
- M101A. Plato — Earlier Dialogues
- M101B. Plato — Later Dialogues
- M102. Aristotle
- 105. Medieval Philosophy from Augustine to Maimonides
- 106. Later Medieval Philosophy
- C108. Hobbes
- C109. Descartes
- C110. Spinoza
- C111. Leibniz
- C112. Locke and Berkeley
- C114. Hume
- 115. Kant
- 116. 19th-Century Philosophy
- 117. Late 19th- and Early 20th-Century Philosophy
- 118. Kierkegaard
- 124. Philosophy of Science: Historical
- 125. Philosophy of Science: Contemporary
- 126. Philosophy of Science: Social Sciences
- 127A, 127B. Philosophy of Language
- 128A, 128B. Philosophy of Mathematics
- 129. Philosophy of Psychology
- 130. Philosophy of Space and Time
- 131. Science and Metaphysics
- 132. Philosophy of Biology
- 150. Society and Morals
- 151A-151B-151C. History of Ethics
- 153A. Topics in Ethical Theory: Normative Ethics

- 153B. Topics in Ethical Theory: Metaethics
- 156. Topics in Political Philosophy
- 157A-157B. History of Political Philosophy
- 161. Topics in Aesthetic Theory
- 166. Philosophy of Law
- 170. Philosophy of Mind
- 172. Philosophy of Language and Communication
- 175. Topics in Philosophy of Religion
- 177A. Existentialism
- 177B. Historical Studies in Existentialism
- 178. Phenomenology
- 182. Elements of Metaphysics
- 183. Theory of Knowledge
- 187. Philosophy of Action
- 188. Philosophy of Perception
- 189. Major Philosophers of the 20th Century
- M192. Philosophical Analysis of Issues in Feminist Theory
- 193. Christian Ethical Thought
- 195. 19th- and 20th-Century Religious Thought

Polish (Slavic Languages)

- 152A-152B-152C. Survey of Polish Literature

Political Science

- M105. Economic Models of Public Choice
- M106. Economic Models of Political Conflict and Conflict Resolution
- 111A-111B-111C. History of Political Thought
- 113. Problems in 20th-Century Political Theory
- 116. Marxism
- 117. Jurisprudence
- 118. Political Violence
- 122. World Order
- 123A-123B. International Law
- 124. International Political Economy
- 125. Arms Control and International Security
- 126. Peace and War
- 127A-127B. Atlantic Area in World Politics
- 128A. U.S./Soviet Relations
- 128B. International Relations of Post-Communist Russia
- 129. Comparative Foreign Economic Policy
- 137A-137B. International Relations Theory
- 152A-152B-152C. Government and Politics of West European Countries
- 153A-153B. Comparative Government and Politics of Western Europe
- 155. Advanced Pluralist Democracies
- 156A-156D. Government and Politics of Post-Communist States
- 167A. Ideology and Development in World Politics
- 167B. Comparative Development and Administration
- 168. Comparative Political Analysis

Portuguese (Spanish and Portuguese)

- 120A-120B. Introduction to Portuguese Literature
- C124. Early Portuguese Literature
- C126. Baroque and Neoclassical Portuguese Literature
- C127. 19th-Century Portuguese Literature
- C128. Post-Romanticism and Naturalism in Portuguese Literature
- C129. 20th-Century Portuguese Literature

Romanian (Slavic Languages)

- 152. Survey of Romanian Literature

Russian (Slavic Languages)

- 118. Russian Literature to Middle Ages and Enlightenment
- 119. Golden Age and the Great Realists
- 120. Literature and Revolution
- 124C-124T. Studies in Russian Literature
- 125. The Russian Novel in Its European Setting

127. Women in Russian Literature
 128. Russian Science Fiction
 130A-130B-130C. Russian Poetry
 140A-140D. Russian Prose Fiction
 M150. Russian Folk Literature
 M170. Russian Folklore

Scandinavian

141. Backgrounds of Scandinavian Literature
 142. Scandinavian Literature of the 19th Century
 143. Scandinavian Literature of the 20th Century
 C144. Henrik Ibsen on the World Stage
 C145. Getting Married: Strindberg and Battle of the Sexes
 C146. Kierkegaard and Foundations of Existentialism
 C147. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll
 C180. Literature and Scandinavian Society
 C182. Theory of the Scandinavian Novel
 184. Hans Christian Andersen
 CM186. Voices of Women in Scandinavian Literature
 187. Scandinavian Film: Bergman and Others

Serbian/Croatian (Slavic Languages)

154. South Slavic Literature

Slavic (Slavic Languages)

126. Postwar Central European Prose
 M179. Baltic and Slavic Folklore and Mythology

Sociology

101. Development of Sociological Theory
 102. Contemporary Sociological Theory
 103. Marxist Sociology
 116. Social Demography
 117. Sociology of Family Demographic and Economic Behavior
 127. Mind and Society
 129. Sociology of Time
 132. Social Psychology: Sociological Approaches
 133. Collective Behavior
 134. Culture and Personality
 135. Group Processes
 136. Process and Socialization in the Family
 156. Ethnic and Status Groups
 158. Urban Sociology
 160. Intergroup Conflict and Prejudice
 182. Political Sociology
 183. Comparative and Historical Sociology
 184. Social Change
 190. Capitalism, Socialism, and Alternative Social Systems

Spanish (Spanish and Portuguese)

- 119A. Introduction to Study of Literature: Prose
 119B. Introduction to Study of Literature: Poetry and Drama
 120A-120D. Literature in the Hispanic World
 122. Medieval Literature: El Camino de Santiago
 123. Medieval Literature: Poetry
 124. Golden Age: Poetry and Drama
 125. Golden Age: Prose
 127. Golden Age: *Don Quijote*
 128. The Enlightenment and Romanticism in Spain
 130. Post-Romanticism, Realism, and Naturalism in Spain
 132. 20th-Century Spanish Prose
 133. 20th-Century Spanish Poetry and Drama

Ukrainian (Slavic Languages)

152. Ukrainian Literature

Women's Studies

- M106. Imaginary Women
 M107B. British Women Writers
 110A. Feminist Theories in Social Sciences

- 110B. Feminist Theories in the Humanities
 134. Gender, Science, and Theory
 M154Q. Gender Systems: Global
 M158. Women in Italian Culture
 M162. Sociology of Gender
 M165. Psychology of Gender
 M192. Philosophical Analysis of Issues in Feminist Theory

Yiddish (English)

- 121A. 20th-Century Yiddish Poetry in English Translation
 121B. 20th-Century Yiddish Prose and Drama in English Translation
 121C. Special Topics in Yiddish Literature in English Translation
 131A. Modern Yiddish Poetry
 131B. Modern Yiddish Prose and Drama

FAMILY MEDICINE

School of Medicine

UCLA
 50-071 Center for the Health Sciences
 Box 951683
 Los Angeles, CA 90095-1683

(310) 825-5532
<http://www.medsch.ucla.edu/som/fammed/>

Chairs

Patrick T. Dowling, M.D., M.P.H., *Chair*
 Charles E. Lewis, M.D., D.Sc., *Vice Chair, Academic Affairs*

Directors

Daniel Castro, M.D., *Harbor-UCLA*
 Jaime Cruz, M.D., *Pomona Valley*
 Lanyard K. Dial, M.D., *Ventura County*
 Myron C. Greengold, M.D., *Northridge Hospital*
 James H. Hara, M.D., *Kaiser-Sunset*
 Denise K.C. Sur, M.D., *Santa Monica-UCLA*
 Richard P. Usatine, M.D., *Predoctoral Program*

Scope and Objectives

The Department of Family Medicine seeks to provide all students with a basic introduction to family-centered care in both the inpatient and ambulatory settings. During the basic clerkship, students develop (1) an appreciation of the breadth and scope of family medicine, (2) a basic knowledge in the broad content areas of family medicine, and (3) fundamental clinical skills appropriate to family medicine. The overall goal is to provide students with the opportunity to gain an understanding and appreciation of the central role of the primary care physician in the health care system, and to offer advanced clinical training for those students interested in pursuing careers in family medicine. Further, the basic curriculum includes an overview of health care issues facing underserved and immigrant populations in urban America, as well as an introduction to health services research in family medicine.

Family medicine faculty members are active both in leadership roles in the doctoring curriculum and in teaching in the preclinical years for all students. All first-year students are as-

signed to work with a family medicine preceptor once a month on a longitudinal basis for the entire year as part of the doctoring program. In the third and fourth (clinical) years, required and elective opportunities exist. All students take a required four-week clerkship in the third year, which is offered at over 10 teaching sites.

For further details on the Department of Family Medicine and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

FILM AND TELEVISION

School of Theater, Film, and Television

UCLA
 103 East Melnitz Building
 Box 951622
 Los Angeles, CA 90095-1622
 (310) 825-5761
<http://www.filmmtv.ucla.edu/>

Peter Wollen, M.A., *Chair*

Professors

Jerzy Antczak, M.A.
 Nicholas K. Browne, Ed.D.
 Gilbert Cates, M.A.
 Teshome H. Gabriel, Ph.D.
 Gyula Gazdag, M.F.A.
 Marina Goldovskaya, Ph.D.
 Lewis R. Hunter, M.A.
 Stephen D. Mamber, Ph.D.
 Dan F. McLaughlin, B.A.
 Robert A. Nakamura, M.F.A.
 Robert Rosen, M.A., *Dean*
 Delia N. Salvi, Ph.D.
 Vivian Sobchack, Ph.D., *Associate Dean*
 Richard Walter, M.A.
 Peter Wollen, B.A.

Professors Emeriti

William B. Adams, M.A.
 John D. Boehm, M.A.
 Edgar L. Brokaw, B.A.
 Arthur B. Friedman, Ph.D.
 William Froug, B.J.
 Hugh M. Grauel, M.A.
 Richard C. Hawkins, M.A.
 Walter K. Kingson, Ed.D.
 Mark McCarty, M.A.
 William H. Menger, M.A.
 Jorge R. Preloran, B.A.
 Darrell E. Ross, M.F.A.
 Ruth E. Schwartz, Ph.D.
 Howard Suber, Ph.D.
 John W. Young, M.A.

Associate Professors

Janet Bergstrom, Ph.D.
 John Caldwell
 A.P. Gonzales
 Chon A. Noriega, Ph.D.

Assistant Professors

Celia Mercer, M.F.A.
 C. Fabian Wagmister, M.F.A.

Lecturers

Richard Leacock
 Chris Ravetto
 Barbara Trent

Adjunct Professors

Barbara Marks
 Robert Trachinger

Adjunct Assistant Professors

Harold Ackerman, M.A.
Dee Caruso, M.A.
Denise Mann, M.F.A.
Myrl Schreiber, M.F.A.

Visiting Professors

Peter Guber, LL.M., *Visiting Studio Professor*
Richard Marks, B.A.
Sanford Berman
Cecilia Hall
Chris Horack
Norman Klein

Visiting Associate Professors

Scott Brownlee
Jonathan Kuntz, Ph.D.

Visiting Assistant Professors

Debbie Amelon
Bill Barminski
Neema Barnette
Peter Bart
Eric Baum
Peter Baum
Daniel Bernardi
Brian Boyl
Vicki Callahan
Alex Cox
Thomas F. DeNove
Richard Edwards
Steve Fayne
Alan Friel
Tom Garvin
George Gary
Geoffrey Gilmore
Karen Hermeilin
David Hoberman
Velina Houston, Ph.D.
H. Wesley Kenney, B.A.
Meg LeFauve
Valerie Lettera, M.F.A.
William McDonald, M.F.A.
Ann Marcus
Eric Marin
Chris Pula
Greg Poirier
Daniel Pyne, M.F.A.
Nancy Richardson
Arnold Rifkin
Kevin Scharff
Chuck Sheetz
Tom Sherak
John Simmons, M.F.A.
Becky Smith, M.A.
Emil Sofier
Matt Spaloss
Belinda Starkie, M.F.A.
Herb Stein, B.A.
Ken Suddleson
Scott Svatos
Gary Tieche
Thelma Vickroy
Glenn Vilpoo
Linda Voorhees
Dug Ward
Audrey Wells
Bruce Yonemoto

Scope and Objectives

The purpose of the Film and Television Department is to develop in its students a scholarly, creative, and professional approach to the film and television arts. The aim of the department is to train graduates who will eventually make original contributions in their chosen field.

The department offers graduate programs leading to the Master of Arts, Master of Fine Arts, and Ph.D. degrees in Film and Television.

Undergraduate Study

Film and Television B.A.

The undergraduate Film and Television major encourages development of a personal vision which incorporates creative, practical, intellectual, and aesthetic values. Within the context of a liberal arts education, the program provides a broad background in the field and in the diversity of film and television practice, including courses in history and theory, critical thinking, animation, screenwriting, and the fundamentals of film, video, and television production.

Students are admitted for Fall Quarter only. Admission is highly competitive, and only a limited number of students can be accepted each year. Prior to entry, students are expected to complete at least 90 quarter units (60 semester units) with a 3.0 grade-point average or better and the general education requirements of the School of Theater, Film, and Television. Applicants are also required to submit two letters of recommendation and a portfolio of original written work consisting of (1) a personal essay, (2) a critical essay on a film or major television program, and (3) a creative writing sample. For further information on admission requirements, contact the Student Services Office, School of Theater, Film, and Television, UCLA, 103 East Melnitz Building, Box 951622, Los Angeles, CA 90095-1622.

Preparation for the Major

Required: Film and Television 106A, 106B or 106C, 110A, and one theater course (history, literature, or production).

The Major

Required: Film and Television 115, 130A, 130B, 150, 154, 163, 185, 192; one critical studies elective (not previously taken as preparation for the major) from 106B, 106C, 107, 108, 112, 113, 114; and a senior concentration (at least 20 units) from one of the following areas: (1) *film production* — courses 175A, 175B, 178, (2) *television and video production* — courses 165, 176A, 176B, 186 or 187B, 199, (3) *screenwriting* — courses 130C, 135, 199, (4) *animation* — courses 181A, 181B, 181C, (5) *critical studies* — courses 106A, 106B, 106C, 107, 108, 110C, 112, 113, 114, 116, 127, 199.

Students should be mindful of the exigencies inherent in filmmaking and be prepared to meet the additional demands of time and costs.

Students are required to perform assignments on each other's projects. In addition, the department reserves the right to hold for its own purposes examples of any work done in classes and to retain for distribution such examples as may be selected.

Consult the *Schedule of Classes* for courses limited to majors only.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Film and Television Department offers the Master of Arts (M.A.) degree in Film and Television and the Master of Fine Arts (M.F.A.) degree and participates in an articulated degree program with African Area Studies.

Master of Arts

Admission

Students are admitted to the M.A. program in Film and Television in the Fall Quarter only. Admission is competitive, and only a limited number of students are accepted each year. The department does not have an application in addition to the one used by Graduate Admissions, and no screening examination prior to admission is required.

Additional admission requirements are noted under each specific degree program description.

Applicants must submit a sample of scholarly or critical writing, a statement of purpose, three letters of recommendation, and other information such as a résumé, Graduate Record Examination (GRE) scores, and proof of competence in English for international students whose native tongue is not English (such as TOEFL scores) that may be required to establish the quality of their work in the specialization.

Areas of Study

The program requires that students be conversant in both film and television, as they are tested on each in the comprehensive examination.

Course Requirements

A minimum of nine courses is required, five of which must be 200-level courses in film and/or television history, theory, and criticism. Of the five courses, Film and Television 206C, 208B, and 217 are required core courses. In addition, Film and Television 200 is required of all students. All five of the graduate-level courses must be completed with grades of B or better.

Only eight units of Film and Television 596A, 596B, 596C, and 598 may be applied toward the total course requirement for the degree, and none of these courses may be applied toward the minimum graduate course requirement.

Students who wish to write a thesis-length paper may petition the critical studies committee to do so; if approved, this would be done through a two-quarter thesis course.

Comprehensive Examination Plan

The written examination is taken at home over two full consecutive days and examines a broad range of knowledge in film and television. After completion, the committee grades students either pass or fail. Students may be reexamined on any failed portions of the examination when it is next regularly scheduled, or within the year following the term in which it was first taken. The examination is required of all M.A. students applying to the Ph.D. program.

Thesis Plan

None.

Master of Fine Arts

Admission

Students are admitted to the M.F.A. program in Film and Television in the Fall Quarter only. Admission is competitive, and only a limited number of students are accepted each year. The department does not have an application in addition to the one used by Graduate Admissions, and no screening examination prior to admission is required. Applicants with diverse backgrounds and undergraduate majors in areas other than film and television are encouraged. Applicants must state clearly the degree objective (M.F.A.) and the area of specialization desired within the program: animation, film/television production, screenwriting, or producer's program. All areas of specialization require three letters of recommendation.

Applicants intending to concentrate in film/television production must submit a description of a film or television project that may possibly be undertaken in graduate study. The description should be in proposal or treatment form, two to three pages in length. This material is nonreturnable.

Applicants intending to concentrate in writing must submit samples of creative writing such as screenplays, short stories, plays, or poems.

Applicants intending to concentrate in animation must submit a description of an animation project that may possibly be undertaken in graduate study, preferably in storyboard form. Other creative work may be submitted.

Applicants intending to concentrate in the producer's program may submit a portfolio of supporting material which shows evidence of creative background, or a substantial statement of purpose and resume.

M.A. African Area Studies/M.F.A. Film and Television

The African Area Studies Program and the Department of Film and Television have an articulated degree program that allows students to combine study for the M.A. in African Area Studies with the M.F.A. in Film and Television,

with a specialization in motion picture/television. Students must be accepted by both the Film and Television Department and the Program in African Area Studies before admission is offered.

Areas of Study

Consult the department.

Course Requirements

A total of 18 courses is required for the degree, five of which must be at the graduate level. At least three departmental courses must be taken outside each student's specific program: two of these must be approved critical studies seminars and the third must be from one of the other M.F.A. areas. Course requirements for each specialization are available in the Student Services Office, Department of Film and Television.

Only 16 units of Film and Television 596 may be applied toward the total course requirement, and only eight of these units may be applied toward the minimum graduate course requirement. Only four units of Film and Television 596A and four units of 596B may be taken prior to advancement to candidacy. Film and Television 596C through 596F may be taken only after advancement to candidacy.

Fieldwork and internships are not required but may be taken as courses which may be applied toward the degree.

Comprehensive Examination Plan

The comprehensive plan is satisfied by fulfilling projects appropriate to the specializations. No later than the beginning of the final quarter of residence, students must file the appropriate documents for advancement to candidacy and receive approval for the advancement from the M.F.A. advisory committee.

Thesis Plan

None.

Doctoral Degree

Admission

Students are admitted to the program leading to the Ph.D. degree in Film and Television in the Fall Quarter only. Admission is competitive, and only a limited number of students are accepted each year. The department does not have an application in addition to the one used by Graduate Admissions, and no screening examination prior to admission is required.

Completion of an M.A. or M.F.A. degree equivalent to that offered by the UCLA Department of Film and Television is required. In exceptional cases, students with an M.A. outside the field are considered for direct admission to the program. The dossier submitted for admission must contain a letter describing reasons for wishing to earn the Ph.D., the master's thesis or writing samples that demonstrate a high level of ability to write criticism or historical narrative, three letters of recommendation, Graduate Record Examination (GRE) scores, and proof of competence in English for interna-

tional students whose native language is not English (such as Test of English as a Foreign Language scores).

Major Fields or Subdisciplines

Students are expected to understand film and television within their social contexts as significant forms of art and communication, and to achieve by disciplined study a mastery of their history, theory, and criticism.

Course Requirements

Each student must take a minimum of 13.5 courses during the first six quarters of residence. Three required Ph.D. core courses must be completed during the first year of residence: Film and Television 211B, 215, and 273. In their second year, students must take Film and Television 274 which is required in both the fourth and sixth quarters, and an independent study in the area of their dissertation in the fifth quarter. In addition to this core sequence, Film and Television 496 which counts as the .5 course, is required (normally in the first quarter of residence). Students also select seven additional graduate seminars, at least five of which must be approved critical studies seminars.

Students must create three areas of concentration. One is in the specific field of their dissertation, including Film and Television 271 and the dissertation-related independent study; students may include a fourth course in this concentration which is a critical studies seminar related to their dissertation. The other two areas are to be composed of three seminars each chosen to indicate focused competence in two areas of expertise. A suggested list of concentrations is as follows: film theory, criticism, narrative studies, film history, American film, European film, non-Western film/television, television studies, media and society, authors, genres, film and the other arts, film and television as a business enterprise, film/television production, and new media.

Written and Oral Qualifying Examinations

After completion of all language and course requirements, students are eligible to take and required to pass the Ph.D. written qualifying examination. This examination, which is given in the Spring Quarter only, is taken at home over four full consecutive days. After students pass the written examination, a doctoral committee is formed to administer the University Oral Qualifying Examination. Students are advanced to candidacy only on successful completion of this examination.

Film and Television

Upper Division Courses

106A. History of the American Motion Picture. (6) Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of the American motion picture both as a developing art form and as a medium of mass communication. May be repeated once for credit with consent of department and topic change.

106B. History of the European Motion Picture. (6) Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of the European motion picture both as a developing art form and as a medium of mass communication. May be repeated once for credit with consent of department and topic change.

106C. History of African, Asian, and Latin American Film. (6) Lecture/screenings, eight hours; discussion, one hour. Critical, historical, aesthetic, and social study — together with exploration of the ethnic significance — of Asian, African, Latin American, and Mexican films.

107. Experimental Film. (6) Lecture/screenings, eight hours; discussion, one hour. Study and analysis of unconventional developments in the motion picture.

108. History of Documentary Film. (6) Lecture/screenings, eight hours; discussion, one hour. Philosophy of documentary approach in the motion picture. Development of critical standards and examination of techniques of teaching and persuasion used in selected documentary, educational, and propaganda films.

110A. History of Broadcasting. (4) Lecture/viewing, six hours; discussion, one hour. Critical survey of broadcasting here and abroad. Consideration of social responsibilities and educational implications of broadcasting.

110C. World Media Systems. (4) Lecture/viewing, four hours; discussion, one hour. Requisite: course 110A. Designed for juniors/seniors. Global analysis of internal and external broadcasting services, with emphasis on their motives, origins, technologies, and programming. Special attention to political, economic, and regulatory constraints and common world media issues.

112. Film and Social Change. (6) Lecture/screenings, eight hours; discussion, one hour. Development of documentary and dramatic films in relation to and as a force in social development.

113. Film Authors. (6) Lecture/screenings, eight hours; discussion, one hour. In-depth study of a specific film author (director or writer). May be repeated once for credit with consent of department and topic change.

114. Film Genres. (6) Lecture/screenings, eight hours; discussion, one hour. Study of a specific film genre (e.g., Western, gangster cycle, musical, silent epic, comedy, social drama). May be repeated once for credit with consent of department and topic change.

115. Stylistic Studies for the Moving Image: Theory and Practice. (4) Lecture, four hours; screenings, four to eight hours. Drawing heavily on a wide array of historical examples and using laser disc technologies, examination of many expressive strategies potentially usable in creation of moving image art forms: iconography, editing, composition, kinesthetics, sound, narrative, discourse, and performance.

116. Film Criticism. (4) Lecture, four hours; laboratory, to be arranged. Study of and practice in film criticism.

M117. Chicanos in Film/Video. (6) (Same as Chicana and Chicano Studies M114.) Lecture/screenings, eight hours; discussion, one hour. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres — silent “greaser” films, social problem films, the Western, and the gang film — which 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*, *The Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques the Hollywood image of Chicanos.

126. Acting for Film and Television. (4) Laboratory, six hours. Projects in acting for television, video, and film. May be repeated twice for credit.

127. Problems and Ethical Issues in Film and Telecasting. (4) (Formerly numbered 110B.) Lecture, three hours; laboratory, eight to 10 hours. Relevant and highly interactive lecture/discussion/workshop. Student production teams create multimedia presentations designed to provide meaningful information, raise consciousness, stimulate discussion, and provoke debate about today's powerful media messages (i.e., news, advertising, violence, sex, minority representation).

128. Media and Ethnicity. (4) Utilizing the 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.

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 the 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 for a maximum of six units. Concurrently scheduled with course CM229.

130A. Screenwriting Fundamentals. (2) Lecture, one hour. Corequisite for graduate students enrolled in course 431. Examination of screenwriting fundamentals: structure, character and scene development, conflict, locale, theme, history of drama. Review of authors such as Aristotle, Egri.

130B. Screenwriting Fundamentals Workshop. (4) Discussion, three hours. Problems in film and television writing.

130C. Advanced Scene Writing Workshop. (4) Discussion, three hours. Requisites: courses 130A, 130B. Limited to Film and Television majors. Conception and writing of story, script outline, and first act for feature-length screenplay.

131. Nontheatrical Screenwriting for Film and Television. (4 or 8) Discussion, three hours. Research and writing of documentary, technical, educational, industrial, and propaganda scripts. May be repeated for a maximum of 12 units.

135. Advanced Screenwriting Workshop. (8) Workshop, three hours. Requisite: course 130B. Course in film and television writing. Original screenplays to be developed. May be repeated twice for credit.

150. Cinematography. (4) Lecture, three hours; laboratory, three hours. Limited to Film and Television majors. Introduction to image control in motion picture photography through exposure, lighting, and selection of film, camera, and lens. Supervised projects in photography to complement material covered in lecture.

151. Film and Television Image Laboratory. (4) Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Techniques of image manipulation, design, and art direction. May be repeated twice for credit (if repeated, students required to design and complete a short film).

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.

153. Motion Picture Lighting. (4) Lecture, three hours; laboratory, three hours. Requisite: course 150. 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.

154. Film Editing. (4) Lecture, three hours; laboratory, to be arranged. 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.

163. Directing the Camera. (4) Workshop, eight hours. Limited to Film and Television majors. Investigation of expressive potential of the image within and beyond the narrative from a directorial perspective. Experiments with working methodologies which stimulate visual creativity and positioning the image as the fundamental element of cinematic expression.

164. Directing the Actor. (4) Exercises in analysis of script and character for purpose of directing actors. Emphasis on eliciting best possible performance from the actor. May be repeated twice for credit.

165. Advanced Narrative Television Directing. (4) Laboratory, six hours. Requisites: courses 130B, 185. Limited to Film and Television majors. Supervised exercises in television multicamera direction, with emphasis on creative use of cameras, sound, composition, and communication with those in front of and behind the camera. May be repeated twice for credit.

175A-175B. Undergraduate Film Production. (8-4 to 8) Limited to Film and Television majors. **175A.** Lecture, four hours; laboratory, eight hours. Writing, preproduction, and production for a short 16mm non-synch film. **175B.** Lecture, three hours; laboratory, eight hours. Completion of postproduction (editing, creation of nonsync sound tracks) for short film begun in course 175A.

176A-176B. Advanced Undergraduate Video Production (8-4 to 8). Discussion, three hours; laboratory, to be arranged. Requisite: course 185. Limited to Film and Television majors. Completion of a video production (no more than 20 minutes), including its writing, production, and editing.

177. Film and Television Acting Workshop. (2) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate their scenes under supervision and criticism of instructor. 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 (to accommodate performer's circumstance).

178. Film and Television Production Laboratory. (2 or 4) Laboratory, to be arranged. Supervised laboratory experience in various aspects of film and television production. May be repeated for a maximum of 12 units, but only eight units may be applied toward Film and Television major.

181A. Animation Design in Film and Television. (4) Lecture, three hours; laboratory, three hours. History and use of creative arts used in animation to form effective communication on film.

181B. Writing for Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisite: course 181A. Research and practice in creative writing and planning for animated film. May be repeated for a maximum of 16 units.

181C. Animation Workshop. (4 or 8) Lecture, six hours; laboratory, to be arranged. Preparation: storyboard at first class meeting. Requisite: course 181A. Organization and integration of various creative arts used in animation to form a complete study of a selected topic. May be repeated for a maximum of 16 units.

185. Undergraduate Television and Video Production. (8) Laboratory, six hours (additional hours to be arranged). Limited to Film and Television majors. Instruction and exercises in basic techniques of television and video production.

186. Introduction to Documentary Video Production. (4) Lecture, three hours; laboratory, three hours; fieldwork, 12 hours. Limited to Film and Television majors. Viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of a series of exercises from conceptualization through postproduction, culminating in production of short documentary.

187A-187B-187C. Producing and Directing Remote Multicamera Production. (4-6-6) Lecture/laboratory, three hours (additional hours to be arranged).

187A. Professionally oriented lecture/laboratory/field workshop course designed to provide disciplined planning, responsible leadership, and organizational and problem-solving skills required in deadline remote production. Emphasis on clarity of vision, storytelling, effective execution of pitch, preproduction, shoot, and editorial. **187B-187C.** Instruction and supervised productions of the remote experience, with focus on development and execution of concept. Experience closely patterned after professional experiences in working with talent, production venues, and production logistics of remote on-location video programs.

192. Film and Television Internship. (4 to 8) Field experience, to be arranged. Limited to senior Film and Television majors. Internship at film and television industry organizations. May be taken for a maximum of eight units.

193A. Film Curatorship. (4) Lecture, two hours; discussion, two hours; laboratory, four hours. Study of principles and techniques of film curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to application of new technology, equipment, and program materials to film archival-library design for research and teaching.

193B. Television Curatorship. (4) Lecture, two hours; discussion, two hours; laboratory, four hours. Study of principles and techniques of television curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to application of new technology, equipment, and program materials to television archival-library design for research and teaching.

199. Special Studies in Film and Television. (2 to 8) Preparation: 3.0 grade-point average in major. Limited to seniors. May be taken for a maximum of eight units.

Graduate Courses

200. Bibliography and Methods of Research in Film and Television. (6) Discussion, 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, on-line database searching and retrieval and, when appropriate, use of computer/videodisc technology for research.

203. Seminar: Film and Other Arts. (6) Discussion, 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.

206A. Seminar: European Film History. (6) Discussion, three hours; film screenings, four to six hours. Requisite: course 106B. Designed for graduate students. Studies in selected historical movements such as expressionism, socialist realism, surrealism, neo-realism, New Wave, etc. May be repeated twice for credit.

206C. Seminar: American Film History. (6) Discussion, three hours; film screenings, four to six hours. Requisite: course 106A. Designed for graduate students. Study of central topics in American film history. May be repeated twice for credit.

207. Seminar: Experimental Film. (6) Discussion, 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.

208A. Seminar: Film Structure. (6) Discussion, 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.

208B. Seminar: Classical Film Theory. (6) Discussion, three hours; film screenings, four to six hours. Designed for graduate students. Study of principal topics and lines of inquiry that characterize theoretical writings of Arnheim, Eisenstein, Bazin, Mitry, etc.

208C. Seminar: Contemporary Film Theory. (6) Discussion, 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.

209A. Seminar: Documentary Film. (6) Discussion, three hours; film screenings, four to six hours. Designed for graduate students. Nonfictional film and its relation to contemporary culture.

209B. Seminar: Fictional Film. (6) Discussion, three hours; film screenings, four to six hours. Designed for graduate students. Film as fiction and its relation to contemporary culture. May be repeated once for credit.

209D. Seminar: Animated Film. (4) Discussion, three hours; laboratory, three hours. Designed for graduate students. Critical study of animated film: its historical development, structure, style, use, and relation to contemporary culture.

210. Seminar: Contemporary Broadcast Media. (4) Discussion, three hours (additional hours as required). Designed for graduate students. Consideration of issues raised by recent developments in television and radio, commercial and public, associated with innovations in satellite, cable, and cartridge systems.

211A. Seminar: Historiography. (4) Discussion, three hours. Limited to Film and Television M.A. candidates. Beginning examination of function and methods of writing film and television history as seen in works of key historians in the U.S. and Europe.

211B. Seminar: Historiography. (4) Discussion, three hours. Limited to Film and Television Ph.D. candidates. Examination of function and methods of writing film and television history as exemplified by key works in this tradition, with attention to central issues of historical thought on the media.

215. Seminar: Theory and Method. (4) Discussion, three hours. Limited to Film and Television Ph.D. candidates. Examination of major modes of theoretical reflection that bear on film and television through study of central texts of such traditions as phenomenology, auteurism, semiology, psychoanalysis, sociology, etc.

217. Seminar: Television History. (4) Discussion, four hours; viewing, to be arranged. Requisite: course 110A. Examination of origins and development of American television. Topics include industry structure, economics, policy and regulation, and programming.

218. Culture, Media, and Society. (4) Lecture, four hours; screenings, to be arranged. Emphasis on "discourse of the other(s)." Thematization of the 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 the cinematic apparatus in this process and how academization of others is positioned vis-à-vis mainstream critical discourse.

219. Seminar: Film and Society. (6) Discussion, 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.

220. Seminar: Television and Society. (4) Discussion, three hours (additional hours as required). 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 the medium. May be repeated once for credit.

221. Seminar: Film Authors. (6) Discussion, 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.

222. Seminar: Film Genres. (6) Discussion, three hours; film screenings, four to six hours. Designed for graduate students. Studies of patterns, styles, and themes of such genres as the Western, gangster, war, science fiction, comedy, etc. May be repeated twice for credit.

223. Seminar: Visual Perception. (4) Discussion, three hours (additional hours as required). Designed for graduate students. Aesthetic, psychological, and physiological principles of vision as they relate to ways in which man "sees" film and television, with emphasis on ways in which these are different from other visual experiences.

224. Computer Applications for Film Study. (4) Survey of computer applications relevant to film study, principally computer-videodisc systems and image capture technology.

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 creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in the 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 for a maximum of six units. Concurrently scheduled with course CM129.

242. 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.

243. 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 a number of short projects.

244. 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.

245. Creative Authoring for World Wide Web. (4) Lecture, three hours; laboratory, three hours. Exploration of creative aspects of the World Wide Web as medium for personal/collective expression. Students produce Web works and serve them on line. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences.

246. Issues in Electronic Culture. (6) Discussion, 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.

247. Production Planning in Film and Television. (4) Discussion, three hours. Analysis of procedures and problems in preparing a script for film or television production, with emphasis on role of production manager in breaking down scripts, setting up shooting schedule, planning postproduction, and preparing budgets.

248. Advanced Digital Media Workgroup. (4) Discussion, four hours; laboratory, two hours. Designed for students with previous laboratory course experience, course provides opportunity to create large-scale digital media works with advanced software tools and techniques in a small process-oriented, creative workshop environment.

249. Digital Revolution. (4) Lecture, four hours; discussion, one hour; laboratory, one hour. Comprehensive survey to introduce students to emerging digital technologies, resulting new media, and their artistic, economic, and social implications. Topics include digital editing, digital previsualization, multimedia, World Wide Web, interactive television, and virtual reality.

268. Seminar: Short Film. (4) Seminar, two hours; discussion, two hours. Designed for graduate students. Study of problems presented by conceptualization of form and structure of the short film, with classical and student examples.

270. Seminar: Film Criticism. (6) Discussion, 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.

271. Seminar: Television Criticism. (4) Discussion, three hours (additional hours as required). Designed for graduate students. Analysis of major forms of television production and criticism it has elicited. May be repeated once for credit.

273. Seminar: Contemporary Film and Television Criticism. (6) Discussion, three hours; film and television screenings, four to six hours. Limited to Film and Television Ph.D. candidates. Study and practice of analytic and critical response, with emphasis on contemporary film and television.

274. Seminar: Research Design. (4) Discussion, three hours. Designed for second-year Film and Television Ph.D. students. Examination of general principles that govern formulation of major research projects and preparation of a prospectus for Ph.D. dissertation.

276. Seminar: Non-Western Films. (4) Discussion, three hours (additional hours as required). Designed for graduate students. Study of aesthetic and ideological impulses of selected films from Asia, Africa, and Latin America.

277. Seminar: Narrative Studies. (4) Discussion, three hours (additional hours as required). Designed for graduate students. Study of writings on theory of narrative structure and their significance for analysis of film forms.

289A-289B-289C. Current Business Practices in Film and Television. (4-4-4) Requisite: course 247. Designed for graduate students. Examination of current status of financing/production/distribution agreements, union agreements, music, copyright, etc., necessary to understand the film and television industry. May be taken in any sequence.

291A-291B-291C. Role of Management in Entertainment Industry. (4-4-4) Requisite: course 247. Designed for graduate students. Study of artistic, social, and economic criteria for decision making in production and distribution of motion pictures and entertainment programs. May be taken in any sequence.

292A-292B-292C. Network Television Management and Decision Making. (4-4-4) Lecture, two hours; discussion, two hours. Requisite: course 247. Designed for graduate students. Study of business structure and economic, social, and artistic criteria currently utilized by network television management. Only eight units may be taken for credit.

293. Seminar: Film and Television Curatorship. (4) Discussion, three hours (additional hours as required). Designed for graduate students. Study and practice of issues in archival research and administration.

298A-298B. Special Studies in Film and Television (2 to 4 each) Lecture/discussion. Designed for graduate students. Seminar study of problems in film and television, organized on topic basis. May be repeated once for credit.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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 the 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.

402A-402B. Advanced Fiction Workshops. (8-8) Laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A-410B-410C, 433. Limited to 10 graduate film and television students per section. Production of a 10-minute fictional film or video project. Students budget, preplan, and complete photography on location and/or in studio by end of first term. In second term students must complete postproduction of their projects.

403A-403B-403C. Advanced Documentary Workshops. (4 to 8 each) Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Requisites: courses 405, 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.

404A-404B. Advanced Abstract/Experimental Media Workshops. (8-8) 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 a 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. In second term students must complete postproduction of their projects.

405. Television Production Workshop. (8) Laboratory, eight hours; other, to be arranged. Limited to graduate film and television students. Basics of television production and direction, focusing on studio multiple camera with minimal use of remote camera. Use of various formats of video production, including scripted and nonscripted projects, culminating in a narrative three-camera project.

406. Experimental Video Workshop. (4) Laboratory, six hours; other, to be arranged. Limited to graduate film and television students. Introduction to independent and experimental video with examination of impact of new video technologies in television, covering concepts of video art, new television, digital video, high-definition TV, and film and tape postproduction.

407. Video Documentary Workshop. (8) Laboratory, 12 hours. Limited to graduate film and television students. Exploration of documentary video, including screening a variety of international works and producing a short documentary project using single-camera field production techniques.

408A-408B. Video Editing. (4-4) Discussion, four hours; laboratory, to be arranged. Limited to graduate film and television students. Individual instruction in electronic editing. **408A.** On-Line Editing; **408B.** Off-Line Editing.

409. Directing the Actor for the Camera Workshop. (4) Workshop, six hours; laboratory, to be arranged; laboratory preparation, two to four hours. Limited to M.F.A. production program students. Team-taught with five weeks designed to give the 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.

410A-410B-410C. Film Production Workshops (8-12-8) Lecture/discussion/laboratory, 24 hours; fieldwork, to be arranged. Requisites: courses 405, 409. Limited to graduate film and television students. Production workshop spanning three terms, designed to give hands-on experience in all aspects of film production (the tools and a practicum of the medium) as each student writes/directs/edits a 10-minute film.

417. Lighting for Film and Television. (6) Lecture, three hours; discussion, one hour; laboratory, six hours. Limited to graduate film and television students. Lectures, supervised exercises on a stage or in an exterior, screenings of scenes, and discussions aimed at learning to master the lighting to create an appropriate mood or atmosphere of a premeditated scene recorded on a film or through an electronic system. May be repeated twice for credit.

418. Cinematography and Directing. (12) Lecture, six hours; discussion, two hours; laboratory, 16 hours. Requisite: course 417. Limited to graduate film and television students. Supervised filming of short dramatic projects on the sound stage and at exterior locations that explore the complexity of the process, emphasizing balance and collaboration essential to both directing and photography in its varied technical, production, and creative aspects.

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.

423A. Direction of Actors for Film and Television. (4) Lecture, four hours; workshop. Preparation: first film project. Limited to graduate film and television students. Required of all production majors shooting a 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 the actor. May be repeated twice for credit.

423B. Advanced Direction of Actors for Film and Television. (4) Studio workshop, six hours. Requisite: course 423A. Limited to graduate film and television students. Advanced study and practice of directing actors before a camera. Emphasis on developing techniques to immediately enhance communication between director and actor on the set in order to maintain continuity from shot to shot.

431. Introduction to Film and Television Screenwriting. (4) Lecture, three hours. Limited to graduate film and television students. Introductory course in problems of film and television screenwriting.

433. Writing the Short Screenplay. (4) Lecture, three hours. Limited to graduate film and television students. Conception, development, and writing of a 20-minute film or video script in either fiction, documentary, or experimental medium, to be produced in one of the advanced workshops.

434. Advanced Screenwriting. (8) Discussion, three hours. Requisite: course 135. Advanced problems in writing of original film and television screenplays. May be repeated twice for credit.

435. Advanced Writing for Short Film and Television Screenplays. (4) Discussion, three hours. Requisites: courses 402A-402B or 403A-403B or 404A-404B. Limited to graduate film and television students. Required of students planning fiction projects. Final screenwriting course in which students write their thesis project (no longer than 30 minutes in length).

437. Nontheatrical Writing for Film and Television. (4) Discussion, three hours. Limited to graduate film and television students. Advanced problems in the field of documentary and special feature programs, with emphasis on research and preproduction. May be repeated for a maximum of 16 units.

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 a maximum of 12 units.

452A. Film and Television Sound Recording. (4) Lecture, three hours; laboratory, four hours. Limited to graduate film and television students. Principles and practices of film and television sound recording, including supervised exercises.

452B. Music Recording Workshop. (4) Lecture, four hours; laboratory, eight hours. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television.

452C. Film and Television Sound Rerecording. (4) Lecture, three hours; laboratory, three hours. Limited to graduate film and television students. Recording of sprocketed media: basics of mixing 16mm and 35mm film soundtracks to single stripe or three stripe magnetic film. Overview of prepping tracks for final mix. Fundamentals of Automatic Dialogue Replacement and Foley. Rerecording and video/audio postproduction of unsprocketed media: emphasis on multitrack tape and nonlinear disk-based recording and editing systems. Includes all track building approaches, from production sound electronic editing, Automatic Dialogue Replacement, Foley, backgrounds, hard FX and MX through final mix. Techniques of combining sprocketed and unsprocketed media in postproduction.

454A-454B. Advanced Film Editing. (4-4) Lecture, three hours; laboratory, to be arranged. Preparation: submission of a rough cut and/or copy of screenplay. Limited to film and television thesis and advanced project students in postproduction phase of thesis or advanced project. Organization and operation of postproduction process.

459A-459B. Directing for Film and Television. (4-4) 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.

464A-464B. Advanced Film Directing. (8-8) Hours to be arranged. Limited to graduate film and television students. Special problems in direction of fictional and documentary films.

466A-466B. Advanced Professional Video Workshops. (8-8) Lecture, three hours; laboratory, to be arranged. Requisites: courses 405, 410A-410B-410C, 423A. Limited to graduate film and television students. Hands-on problems in working with various interrelated disciplines in a professional production experience, including interaction with students of design and acting from Department of Theater.

468. Creative Location Film Production. (8) Lecture, four hours; discussion, four hours; laboratory, to be arranged. Requisites: courses 247, 405, 410A-410B-410C, 423A, 433. Limited to graduate 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.

475. Film I. (8) Discussion, three hours; laboratory, to be arranged. Designed for graduate students. Study of basic techniques of film production, including preproduction planning and production of a group short film.

476. Video I. (8) Discussion, three hours; laboratory, to be arranged. Designed for graduate students. Study of basic techniques of television and video production, including completion of one or more projects.

478. Video II. (8) Discussion, three hours; laboratory, to be arranged. Requisites: courses 185, and 405 or 476. Designed for graduate students. Group experience in video production with each member rotating on crew work in production of individual or collective projects.

482A-482B. Advanced Animation Workshops. (4 or 8 each) Lecture, three hours; laboratory, to be arranged. Requisites: courses 181A, 181B, 181C. Advanced organization and integration of various creative arts used in animation, resulting in production of a complete animated film. May be repeated for a maximum of 16 units.

486. Directed Individual Study: Preparation to Advance to Candidacy for M.F.A. in Production. (2 to 4) Preparation for thesis production, four to eight hours. Limited to M.F.A. 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.

487. Directed Individual Study: Postproduction Laboratory. (4) Laboratory, eight hours. Limited to M.F.A. production program students. Completion of projects in final stages of postproduction. May not be repeated.

488A. Interactive Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisites: courses 181A, 181C, 489A. Organization and integration of various creative arts used in animation and interactive media to form complete study of a selective interactive animation project. May be repeated for a maximum of 16 units.

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 a selected interactive topic. May be repeated for a maximum of 16 units.

489A. Computer Animation in Film and Video. (4 to 8) Lecture, six hours; laboratory, four to eight hours; other, to be arranged. Preparation: a completed animated film. Requisites: courses 181A, 181C. Instruction in and supervised production of computer animation. May be repeated for a maximum of 16 units.

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 a complete and original computer animation film or tape. May be repeated for a maximum of 16 units.

496. Practice of Teaching Film and Television. (2) Discussion. Required once of all teaching assistants or 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 the teaching experience. May not be applied toward M.A., M.F.A., or Ph.D. May be repeated. S/U grading.

498. Professional Internship in Film and Television. (4, 8, or 12) Full- or part-time at a studio or on a professional project. Designed for M.F.A. 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.

501. Cooperative Program. (2 to 8) 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) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596B. Directed Individual Studies: Writing. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596C. Directed Individual Studies: Directing. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596D. Directed Individual Studies: Design. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596E. Directed Individual Studies: Acting. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596F. Directed Individual Studies: Production. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

597. Preparation for Ph.D. Qualifying Examinations in Film and Television. (2 to 12) Hours to be arranged. May be taken for a maximum of 12 units. S/U grading.

598. M.A. Thesis in Film and Television. (2 to 12) Hours to be arranged. Preparation: advancement to M.A. candidacy. Research and writing for M.A. thesis. May be taken for a maximum of 12 units. S/U grading.

599. Ph.D. Dissertation in Film and Television. (2 to 12) Hours to be arranged. Preparation: advancement to Ph.D. candidacy. Research and writing for Ph.D. dissertation. May be repeated. S/U grading.

Related Courses

Communication Studies

187. Ethical and Policy Issues in Institutions of Mass Communication

Design

153. Design for Video

English

118. Film and Literature

Italian

46. Italian Cinema and Culture

121. Literature and Film

FOLKLORE AND MYTHOLOGY

*Interdepartmental Program
College of Letters and Science*

UCLA

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(310) 825-3962

<http://www.humnet.ucla.edu/humnet/folklore/archives/>

Michael Owen Jones, Ph.D., *Chair*

Professors

Shirley L. Arora, Ph.D. (*Spanish and Portuguese*)

Jesse L. Byock, Ph.D. (*Germanic Languages*)

Donald J. Cosentino, Ph.D. (*English*)

Marga Cottino-Jones, Ph.D. (*Italian*)

Jacqueline C. DjeDje, Ph.D. (*Ethnomusicology*)

Michael Owen Jones, Ph.D. (*History*)

James R. Massengale, Ph.D. (*Scandinavian Languages*)

James W. Porter, M.A. (*Ethnomusicology*)

Professors Emeriti

Marianna D. Birnbaum, Ph.D. (*Germanic Languages*)

Kees W. Bolle, Ph.D. (*History*)

Elsie Dunin, M.A. (*World Arts and Cultures*)
 Patrick K. Ford, Ph.D. (*English*)
 Robert A. Georges, Ph.D. (*English*)
 Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology*)
 Vladimir Markov, Ph.D. (*Slavic Languages and Literatures*)

Philip L. Newman, Ph.D. (*Anthropology*)
 Douglass R. Price-Williams, Ph.D. (*Anthropology*)
 Jaan Puhvel, Ph.D. (*Classics*)
 Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)
 Donald J. Ward, Ph.D. (*Germanic Languages*)
 Johannes Wilbert, Ph.D. (*Anthropology*)

Associate Professors

Steven Lattimore, Ph.D. (*Classics*)
 Colin Quigley, Ph.D. (*World Arts and Cultures*)
 Beverly J. Robinson, Ph.D. (*Theater*)

Assistant Professors

Cheryl Keyes, Ph.D. (*Ethnomusicology*)
 Tim Tangherlini, Ph.D. (*Scandinavian*)

Visiting Assistant Professor

Peter Tokofsky, Ph.D., (*World Arts and Cultures*)

Scope and Objectives

The interdisciplinary Folklore and Mythology Program, which leads to the Master of Arts and Ph.D. degrees, provides coordinated study of the traditional lifestyles of specific societies and culture areas, on the one hand, and systematic training in the research methods and investigative techniques of cross-cultural study, on the other. Courses focus on the nature, history, and functions of such traditional forms as narrative, music, art, dance, religion, festival, and speech and consider the part they play in human development and cultural existence. The program examines the ways in which human traditions both reflect and contribute to continuity and consistency in thought and life.

Trained folklorists pursue careers in teaching, research, governmental agencies, museum work and administration, performing groups and arts management, social work, the medical and legal professions, and business. Their responsibilities include documenting cultural and ethnic traditions, introducing traditional artists and their works to interested audiences, describing transformations of traditional processes and forms, and preserving on tape and film the customs and mores of social groups and individuals.

A variety of undergraduate courses offered by departments or by faculty participating in the interdepartmental program is also available to all University students. Those with undergraduate preparation in folklore and mythology studies may continue their work on the graduate level. For planning coursework, students should consult departmental counselors and the chair of the committee which administers the interdepartmental program.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at

<http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Folklore and Mythology Program offers the Master of Arts (M.A.) degree in Folklore and Mythology.

Admission

Two letters of recommendation from former instructors or other comparable references are required for admission to the M.A. program, as well as a writing sample (such as published work, course paper, or report on research/observations). Information on the verbal Graduate Record Examination (GRE) is desirable.

Areas of Study

Consult the department.

Course Requirements

All degree candidates, whether electing the thesis or comprehensive examination plan, must complete the following courses: Folklore and Mythology 200A, 200B, and at least one course from each of the following groups:

Group 1: One course in folk song, folk music, or folk dance (e.g., Folklore and Mythology C206, M243B, M258, or CM284).

Group 2: One course in the folklore and mythology of a specific culture or culture area.

Group 3: One course in folktale, legend, or myth (e.g., Folklore and Mythology 215 or 216).

Group 4: One additional form/genre-based graduate course in folklore and mythology studies (e.g., Folklore and Mythology 213, 214, 217, 218, or C275).

Group 5: One graduate seminar in an area of folklore and mythology (e.g., Folklore and Mythology 228, M235, or 259).

Only eight units of course 596 may be applied toward the minimum course requirements.

Comprehensive Examination Plan

Students who plan to pursue a Ph.D. degree in Folklore and Mythology must elect this plan and complete a minimum of 10 courses (six in the 200 series; two 596 courses may be included). After completion of the coursework, students are expected to demonstrate competence in a written examination requiring a grasp of (1) theoretical bases, major documents, and research methods and techniques of folklore and mythology studies; (2) two forms of folklore and mythology; and (3) the folklore and mythology of a specific country, continent, or geographical area. If it is requested by the student or by the members of the M.A. committee, the student must also complete a final oral examination following the successful completion of the written comprehensive examination sequence.

Thesis Plan

If this plan is selected, students must complete a minimum of 10 courses (six in the 200 series; two 596 courses may be included) and submit an acceptable thesis, prepared under the direction of a member of the program faculty. Submission of the thesis is followed by an oral examination covering the fields of folklore and mythology studies.

The thesis committee, composed of three or more faculty members chosen with the approval of the chair of the interdepartmental committee, is appointed no later than the quarter before expected completion of the requirements. No outside members are required.

Doctoral Degree

Admission

Requirements for admission to the program leading to the Ph.D. degree in Folklore and Mythology include completing the requirements for the M.A. degree in Folklore and Mythology (or equivalent) and the written and oral comprehensive examinations. A writing sample (such as published work, course paper, or report on research/observations) is required of all applicants. Applicants are admitted to the doctoral program on the recommendation of the interdepartmental committee (provisional admission may be secured in order to complete the admission requirements).

Major Fields or Subdisciplines

Students must develop a competency in (1) a major field of folklore and mythology and (2) an area of concentration within a related discipline. These areas are selected with the approval of the guidance committee.

Course Requirements

Before attempting the qualifying examination, students must complete a minimum of nine courses or seminars in the 200 series (or substitutes recommended by the guidance committee) in a major field of folklore and mythology. At least five of the minimum number of nine courses required for the Ph.D. must be selected from courses carrying folklore prefixes. The number of graded Folklore and Mythology 596 courses that can be counted among the minimum of nine courses required for the Ph.D. is limited to two; of the minimum number of nine courses required for the Ph.D., at least two must be folklore seminars (e.g., Folklore and Mythology 228, M235, M258, 259, M270A, M270B).

Written and Oral Qualifying Examinations

After the required preparation, a written examination and the University Oral Qualifying Examination are completed covering (1) the student's specialization in folklore and mythology and (2) the related area of concentration. The examinations are administered by a committee appointed with the approval of the interdepartmental committee and include one or more members from the student's related discipline.

Folklore and Mythology

Lower Division Courses

15. Introduction to American Folklore Studies. (4) Lecture/discussion. Cultural/historical survey of role of folklore in development of American civilization and of influence of the American experience in shaping folklore in American society; attention also to representative areas of inquiry and analytical procedures.

88. Poetics of Myth. (4) Seminar, three hours; outside study, nine hours. Exploration of categories myth and mythology as they have been formulated, applied, and expanded in both Western and non-Western traditions from time of ancient Sumer to the present.

Upper Division Courses

101. Introduction to Folklore. (4) Survey of various forms of folklore and examination of their historical and social significance.

C105. Perspectives in American Folklore Research. (4) Lecture, three hours. Prerequisite: course 101. Examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on principal conceptual schemes and research orientations employed in study of folklore in American society. Concurrently scheduled with course CM205.

CM106. Anglo-American Folk Song. (4) (Same as English M111B and Ethnomusicology M124.) Survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. May be concurrently scheduled with course C206.

C107. Folklore in Urban Environments. (4) Lecture, three hours. Prerequisite: course 15 or 101. Exploration of expressive and symbolic dimensions of complex urban life, focusing on how immigrants, migrants, residents, and workers shape their experiences through dynamic interplay of community, ethnicity, culture, and religion. Concurrently scheduled with course C207.

108. Afro-American Folklore and Culture. (4) Prerequisite: course 101. Study of traditional genres or forms of Afro-American folklore and their cultural functions.

CM109. African Religion in the Diaspora. (4) (Same as World Arts and Cultures CM109.) Lecture, three hours. Designed for juniors/seniors and graduate students. Ethnography of diaspora African religions, including voodoo, Santeria, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course CM209.

M111. Literature of Myth and Oral Tradition. (4) (Same as English M111A.) Preparation: satisfaction of Subject A requirement. Study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples.

M112. Survey of Medieval Celtic Literature. (4) (Same as English M111E.) Preparation: satisfaction of Subject A requirement. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to the 14th century.

113. The Arthurian Tradition. (4) Survey of traditions related to British King Arthur from medieval times to the present day. Coverage includes both oral traditions and written texts; attention also to modern versions of Arthurian material in other mediums (e.g., opera, film).

118. Folk Art, Folklife, and Material Culture. (4) Designed for juniors/seniors. General course concerned with folk art, aesthetics, and material culture and with theoretical concepts and methodologies utilized in their analysis.

M119. Fairy Tales in Literature and Society. (5) (Same as German M122.) Lecture, four hours; outside study, 11 hours. 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. Letter grading.

M121. British Folklore and Mythology. (4) (Same as English M111C.) Preparation: satisfaction of Subject A requirement. Designed for juniors/seniors. Survey of folklore of the peoples of Britain, with attention to their history, function, and regional differences.

M122. Celtic Mythology. (4) (Same as English M111D.) Lecture, three hours; discussion, one hour. Survey of early materials, chiefly literary, for study of mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales.

124. Finnish Folk Art and Technology. (4) Material manifestations of Finnish folk culture: village layout and architecture, folk technology, arts and crafts, textiles, costumes, and design.

M126. Baltic and Slavic Folklore and Mythology. (4) (Same as Slavic M179.) Lecture, three hours. General course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities.

M127. Celtic Folklore. (4) (Same as English M111F.) Prerequisite: course 101. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research.

130. North American Indian Folklore and Mythology Studies. (4) Prerequisite: course 101. Examination of folkloristic and mythological data recorded from various North American Indian peoples within contexts of principal ideological frameworks which have been evolved historically for analysis of such data.

131. Folklore of India. (4) Prerequisite: course 101. Survey of folklore of India, with special reference to content and dissemination of oral epics, ballads, legends, and beliefs.

CM132. Celtic Folk Music. (4) (Same as Ethnomusicology CM132.) Survey and analysis of indigenous traditional music in lands where a Celtic language is or was spoken into modern times. Instrumental and vocal genres, context and performance, social value and ideology. Concurrently scheduled with course CM232. P/NP or letter grading.

C136. Festivals and Festive Events. (4) Lecture, three hours; fieldwork, one hour; outside study, eight hours. Study of traditional calendrical, religious, and local festivals and related events in their cultural and historical contexts, with emphasis on American festival occasions and their Old World antecedents. Topics include carnival and the carnivalesque and politics of celebration. Concurrently scheduled with course C236. P/NP or letter grading.

M140. Italian Novella from Boccaccio to Basile. (4) (Same as Italian M140.) Lecture, three hours; outside study, nine hours. Analysis of development of the Italian novella in its structure, historical context, and folk material. Special emphasis on how the Italian novella influenced other European literatures. P/NP or letter grading.

M142. Introduction to Jewish Folklore. (4) (Same as Jewish Studies M143.) Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis.

C145. Applied Folkloristics. (4) Designed for juniors/seniors. Introduction to methods and issues in application of folklore studies to such areas as education, health, museums, organization development, tourism, environmental planning, economic and community development, aging, art therapy, and public sector folklife. Concurrently scheduled with course C245.

M149. Folk Literature of the Hispanic World. (4) (Same as Spanish M149.) Lecture, three hours. Study of history and present dissemination of principal forms of folk literature throughout the Hispanic countries.

M150. Russian Folk Literature. (4) (Same as Russian M150.) Lecture, three hours. Lectures and readings in Russian.

M154A-M154B. African American Musical Heritage. (4-4) (Same as Afro-American Studies M110A-M110B and Ethnomusicology M110A-M110B.) Lecture, four hours; discussion, one hour. Study of African music and its impact on the Americas; survey of development of various African American musical genres from slave era to the present, including traditions in the West Indies and Central and South America.

M155. Oral Traditions in Africa. (4) (Same as English M111G.) Designed for juniors/seniors. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

161. Beliefs and Tales of the Supernatural. (4) Lecture, five hours. History of beliefs and legends reporting on encounters with creatures of the supernatural world, such as giants, dwarfs, ghosts, wild men, UFOs. Study of firsthand encounters with such beings and analysis of resulting narratives and contexts of their narration. Analysis of social, psychological, and physical states that contribute to such experiences. P/NP or letter grading.

163. Folklore and Oral History. (4) Designed for juniors/seniors. Examination of relationships between folk tradition and oral history; how history may be derived from tradition; how traditions are embedded in historical sources; how the folk traditionalize history to reflect their point of view.

C165. Film and Folklore. (4) Designed for juniors/seniors. Introduction to film criticism and folklore methodology. Topics include early examples of folklore on film, changing conceptions of folklore and uses of films about folklore, and examples of films by, with, and for folklorists. Concurrently scheduled with course C265.

M170. Russian Folklore. (4) (Same as Russian M170.) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena.

172. Folklore in Ethnic Context. (4) Prerequisite: course 15 or 101. Role of folklore in ethnic relations; processes by which ethnic folklore is generated, transmitted, and maintained by immigrant groups and subsequent generations.

C175. Food Customs and Symbolism. (4) 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 the American diet. Concurrently scheduled with course C275.

M180. Analysis of Traditional Music. (4) (Same as Ethnomusicology M180.) Designed for Ethnomusicology, Music History, and Folklore majors. Intensive study of methods and techniques necessary to understand traditional music.

M181. Folk Music of Western Europe. (4) (Same as Ethnomusicology M126.) Introduction to forms and styles of traditional music in Western Europe. Historical and ethnological perspectives on this music combined with numerous recorded examples from major cultural subdivisions of the region.

CM182. Japanese Folklore. (4) (Formerly numbered M182.) (Same as Japanese CM182.) Lecture, three hours; discussion, one hour; outside study, eight hours. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM282. Letter grading.

M183. Korean Folklore. (4) (Formerly numbered 183.) (Same as Korean M183.) Lecture, three hours. 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.

CM184. Dance and Folklore. (4) (Same as World Arts and Cultures CM184.) Consideration of vernacular tradition as a site for cultural configuration, social construction, representation, and display of national, ethnic, and other affinity identities. Emphasis on various European and European-American dance idioms. Concurrently scheduled with course CM284.

M185. The Hero in the Bible and the Ancient Near East. (4) (Same as Ancient Near East M194.) Lecture, three hours. Investigation of concepts of the hero/heroine in literatures of ancient Mesopotamia, Canaan, and Israel. Texts include epics of Gilgamesh and Aghat, Hebrew Bible, and New Testament. All texts read in translation.

190. Selected Topics in Folklore and Mythology Studies. (4) Requisite: course 15 or 101. Proseminar focusing on selected problems, data, or themes in folklore and mythology studies. May be repeated twice for credit.

199. Special Studies in Folklore. (2 to 4) Limited to seniors.

Graduate Courses

200A. Folklore Bibliography, Theory, and Research Methods. (4) Lecture, three hours; discussion, one hour. Designed for graduate folklore and mythology students. Basic course in theory, current trends, and bibliography for folklore graduate students, including research techniques in contemporary folkloristics.

200B. Fieldwork. (4) Lecture, three hours. Requisite: course 200A. Discussion/demonstration of theoretical concepts and practical techniques of data gathering and field research in folklore.

CM205. Perspectives in American Folklore Research. (4) (Same as English M205.) Lecture, three hours. Requisite: course 101. Examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on principal conceptual schemes and research orientations employed in study of folklore in American society. Concurrently scheduled with course C105.

C206. Anglo-American Folk Song. (4) Survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. May be concurrently scheduled with course CM106.

C207. Folklore in Urban Environments. (4) Lecture, three hours. Requisite: course 200A. Exploration of expressive and symbolic dimensions of complex urban life, focusing on how immigrants, migrants, residents, and workers shape their experiences through dynamic interplay of community, ethnicity, culture, and religion. Concurrently scheduled with course C107.

208. Afro-American Folklore and Culture. (4) Designed for graduate students. Theoretical and methodological constructs which have contributed to the body of black cultural expression in the U.S.

CM209. African Religion in the Diaspora. (4) (Same as World Arts and Cultures CM209.) Lecture, three hours. Designed for juniors/seniors and graduate students. Ethnography of diaspora African religions, including voodoo, Santeria, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course CM109.

213. Folk Belief and Custom. (4) Preparation: one course from 118, M121, M122, 124, M126, M128, M149, M150, Anthropology 156, German 120. Requisite: course 101. Study of beliefs and customs in the folk community: life cycle, calendrical and agricultural customs, and legal antiquities.

214. Ethnography of Humor. (4) (Formerly numbered M214.) Lecture, three hours. Designed for graduate folklore and mythology students. Examination and analysis of selected humorous expressions and events in cross-cultural perspective, with emphasis on major psychological and sociocultural approaches to their study and interpretation.

215. Popular Legend. (4) Requisite: course 200A. Study of categories of legendary and their relation to myth, custom, ritual, popular beliefs, and ballads.

216. Folktale. (4) Requisite: course 200A.

217. Folk Speech. (4) Lecture, three hours. Study of ethnography of communication and its relevance to study of social and regional dialects, proverbs, riddles, onomastics, folk poetry and verse, and traditional humor.

218. Folk Art, Craft, and Aesthetics. (4) Lecture, three hours. Requisite: course 200A. Examination of research orientations and findings in regard to what has been called folk art, craft, and aesthetics. Major perspectives and areas of inquiry from latter part of the 19th century to the present.

228. Seminar: Topics in Celtic Folklore and Mythology. (4) Seminar, three hours. Preparation: coursework in Celtic studies. Requisite: course 200A. Preparation for advanced study of and research in important areas of Irish oral tradition and folklore/mythology scholarship. Possible topics include pagan Celtic Britain/Ireland; comparative Celtic mythology; Celtic origin legends; literary and oral saints' legends; the Irish Fenian (Ossianic) tradition of ballads (*laoid-he/duain*) and prose tales; "fairy" beliefs; collecting and archiving methods of the Irish Folklore Commission; folklore studies and nationalism.

M230A-M230B. Folk Tradition in Italian Literature. (4-4) (Same as Italian M230A-M230B.) Lecture, two hours.

CM232. Celtic Folk Music. (4) (Same as Ethnomusicology CM232.) Survey and analysis of indigenous traditional music in lands where a Celtic language is or was spoken into modern times. Instrumental and vocal genres, context and performance, social value and ideology. Concurrently scheduled with course CM132. S/U or letter grading.

M235. African Myth and Ritual. (4) (Same as English M235.) Seminar on methods of analyzing African and African Diaspora myth and ritual.

C236. Festivals and Festive Events. (4) Lecture, three hours; fieldwork, one hour; outside study, eight hours. Study of traditional calendrical, religious, and local festivals and related events in their cultural and historical contexts, with emphasis on American festival occasions and their Old World antecedents. Topics include carnival and the carnivalesque and politics of celebration. Concurrently scheduled with course C136. S/U or letter grading.

240. Introduction to Jewish Folk Literature. (4) Designed for juniors/seniors and graduate students. Examination of both historic and generic methods used in study of Jewish folk literature.

M241. Folklore and Mythology of the Near East. (4) (Same as Near Eastern Languages M241.) Requisite: course 101.

M243A. The Ballad. (4) (Same as English M243A.) Study of English and Scottish popular ballads and their American derivatives, with some attention to European analogues. May be repeated for credit.

M243B. Problems in Ballad Scholarship. (4) (Same as English M243B.) Requisite: course M243A. Intensive investigation of a problem or problems in study of the popular ballad. May be repeated for credit.

C245. Applied Folkloristics. (4) Designed for graduate students. Introduction to methods and issues in application of folklore studies to such areas as education, health, museums, organization development, tourism, environmental planning, economic and community development, aging, art therapy, and public sector folklife. Concurrently scheduled with course C145.

248. Theory and Method in Latin American Folklore Studies. (4) Historical survey of folklore scholarship in Latin America, with emphasis on theoretical bases, methods, and techniques employed in study and analysis of traditional tales, songs, music, linguistic expression.

M249. Folk Literature of the Spanish and Portuguese Worlds. (4) (Same as Portuguese M249 and Spanish M249.) Lecture, three hours. Intensive study of folk literature of the Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

251. Seminar: Finno-Ugric Folklore and Mythology. (4) Advanced studies in folk traditions and mythologies of the Finno-Ugric speaking nations.

M258. Seminar: Folk Music. (4) (Same as Ethnomusicology M287.) Seminar, three hours.

259. Seminar: Folklore. (4) Requisite: course 200A. Seminar focusing on selected topics in folklore and mythology. May be repeated for credit.

260. Organizational Folklore, Culture, and Symbolism. (4) Designed for graduate students. Folklore in organizational settings (stories, rituals, rites, metaphors, etc.) and role of folklore in organization development as information source, diagnostic, and intervention to improve personnel practices, climate, and leadership.

M261. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (4) (Same as Italian M260A.) Lecture, three hours; outside study, 18 hours. Open to undergraduates with consent of instructor. The conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across a range of texts, some selected from the literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama).

C265. Film and Folklore. (4) Designed for graduate students. Introduction to film criticism and folklore methodology. Topics include early examples of folklore on film, changing conceptions of folklore and uses of films about folklore, and examples of films by, with, and for folklorists. Concurrently scheduled with course C165.

M270A-M270B. Seminars: Japanese Ritual Arts. (4-4) (Same as Japanese M270A-M270B.) 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.

C275. Food Customs and Symbolism. (4) 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 the American diet. Concurrently scheduled with course C175.

CM282. Japanese Folklore. (4) (Same as Japanese CM282.) Lecture, three hours; discussion, one hour; outside study, eight hours. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of the Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course CM182. Letter grading.

CM284. Dance and Folklore. (4) (Same as World Arts and Cultures CM284.) Consideration of vernacular tradition as a site for cultural configuration, social construction, representation, and display of national, ethnic, and other affinity identities. Emphasis on various European and European-American dance idioms. Concurrently scheduled with course CM184.

M286A-M286B. Studies in Hispanic Folk Literature. (4-4) (Same as Spanish M286A-M286B.) Lecture, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

375. Teaching Apprentice Practicum (1 to 4 units). (4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

400A-400B-400C. Directed Professional Activities. (4-4-4) Directed individual projects in professional editing, bibliography, discography, filmography, festival direction, and other professional activities. May not be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

495. Teaching Folklore and Mythology. (4) Seminar, three hours. Prerequisite: course 200A. Analysis and design of alternative organizational schemes, teaching aids and techniques, and evaluation methods for folklore and mythology courses at the college level, with opportunities for observation and apprentice teaching. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, program 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 in Folklore. (2 to 6) S/U or letter grading.

597A. Preparation for M.A. Comprehensive Examination. (2 to 4) Limited to graduate folklore and mythology students. S/U grading.

597B. Preparation for Ph.D. Qualifying Examinations. (4 to 8) Preparation: successful completion of M.A. comprehensive examination. S/U grading.

598. M.A. Thesis Preparation. (2 or 4) S/U grading.

599. Ph.D. Dissertation Research. (4 to 8) Preparation: advancement to Ph.D. candidacy. S/U grading.

Related Courses

Anthropology

118A, 118B. Museum Studies
133R. Aesthetic Systems
156. Comparative Religion
233Q. Aesthetic Anthropology
M272. Indians of South America
273. Cultures of the Middle East

Art History

M102A. Minoan Art and Archaeology
M102B. Mycenaean Art and Architecture
C117A. Pre-Columbian Art of Mexico
C117B. Pre-Columbian Art of the Maya
C117C. Pre-Columbian Art of the Andes
118A. Arts of Oceania
118C. Arts of Sub-Saharan Africa
118D. Arts of Native North America
C119A. Advanced Studies in African Art: Western Africa
C119B. Advanced Studies in African Art: Central Africa
C203A-C203B. Museum Studies
220. Oceanic, Pre-Columbian, African, and Native North American Art

Classics

162. Classical Myth in Literature
166A. Greek Religion
166B. Roman Religion
168. Comparative Mythology
268. Seminar: Comparative Mythology

English

112. Children's Literature

Ethnomusicology

20A-20B-20C. Musical Cultures of the World
106A-106B-106C. Music of the American Indians
120A-120B. Development of Jazz
128. Folk Music of Eastern Europe
130. Folk Music of the Mediterranean
136A-136B. Music of Africa
146. Folk Music of South Asia
147. Survey of Classical Music in India

C156A-156B. Music in China

160A. Survey of Music in Japan

181. Anthropology of Music

190. Study of Ethnomusicology

207. Seminar: North American Indian Music

237. Seminar: African Music

241. Music of Iran and Other Non-Arabic-Speaking Communities

250A-250B. Music of Indonesia

281A-281B. Seminars: Field and Laboratory Methods in Ethnomusicology

282. Seminar: Analysis

283. Seminar: Study of Musical Instruments (Organology)

290. Seminar: Ethnomusicology

French

115A-115B-115C. Medieval French Literature

215A-215B. Medieval Literature

German (Germanic Languages)

120. German Folklore

262. Seminar: Germanic Folklore

History

193A. History of Religions: Myth

Italian

214D. Studies in Medieval Literature: Boccaccio's *Decameron*

218C. Studies in 18th-Century Literature: Goldoni

Music

158. New Orleans Jazz

Old Norse Studies (Germanic Languages)

C139. The Saga

C140. Viking Civilization and Literature

151. Elementary Old Norse

152. Intermediate Old Norse

221. Advanced Old Norse Prose

222. Advanced Old Norse Poetry

Russian (Slavic Languages)

211A. Literature of Medieval Rus'

251. Topics in Literature of Medieval Rus'

291A. Seminar: Literature of Medieval Rus'

Sociology

156. Ethnic and Status Groups

186. Latin American Societies

187. Population and Society in the Middle East

Spanish (Spanish and Portuguese)

262B. Studies in Medieval Spanish Literature

World Arts and Cultures

C180A-C180B. Studies in Dance Ethnography

181A. Dance Cultures of Asia

181B. Dance in Southeast Asia

181C. Dance in East Asia

181D. Dance in South Asia

182. Dance in Africa and the African Diaspora

183. Dance in Latino American Cultures

C187. Dance in Native American Cultures

280A-280B. Advanced Studies in Dance Ethnology

FOREIGN LITERATURE IN TRANSLATION

Scope and Objectives

The following courses offered in the departments of language and literature do not require reading knowledge of any foreign language.

Foreign Literature in Translation

Course List

Afrikaans (Germanic Languages)

114. Afrikaans Literature in Translation

Ancient Near East (Near Eastern Languages)

150A. Survey of Ancient Near Eastern Literatures in English: Mesopotamia

150B. Survey of Ancient Near Eastern Literatures in English: Egypt

150C. Survey of Ancient Near Eastern Literatures in English: Syria and Palestine

Arabic (Near Eastern Languages)

150. Introduction to Arabic Literature and Culture

151. Survey of Modern Arabic Literature in English

Armenian (Near Eastern Languages)

150A-150B. Survey of Armenian Literature in English

152. Modern Armenian Drama as Vehicle for Social Critique

153. Art, Politics, and Nationalism in Modern Armenian Literature

Bulgarian (Slavic Languages)

154. Survey of Bulgarian Literature

Chinese (East Asian Languages)

150A. Lyrical Traditions

150B. Traditional Narrative and Drama

151. Chinese Literature in Translation: Modern Literature

152. Topics in Contemporary Chinese Literature and Culture

M153. Chinese Immigrant Literature and Film

Classics

40. Survey of Greek Literature in Translation

41. Survey of Latin Literature in Translation

140. Topics in History of Greek Literature

141. Topics in History of Latin Literature

142. Ancient Epic

143. Ancient Drama

144. Topical Studies in Ancient Culture

Comparative Literature

All undergraduate courses

Czech (Slavic Languages)

155. Czech Literature

Dutch (Germanic Languages)

113. Modern Dutch and Flemish Literature in Translation

East Asian Languages and Cultures

161. Buddhist Literature in Translation

English

108A-108B. The English Bible as Literature

108C. The English Bible as Literature: Special Topics

French

63. Contemporary French Theater

64A-64B-64C. The French Novel in Translation

162. Modern French Thought in Translation

164A-164B-164C. The French Novel in Translation

165. Topics in French Literature in Translation

German (Germanic Languages)

50A. Masterworks of German Literature in Translation: Medieval Period through Classicism

50B. Masterworks of German Literature in Translation: Romanticism to the Present

51. Masterworks of Germanic or East Central European Literatures in English Translation

106. The Faust Tradition from the Renaissance to the Modern Age

108. Love and Sex in German Literary Tradition

112. Jewish Writing and Thought in German Culture from 1755 to the Present

116. Special Topics in Modern Literature and Culture
Iranian (Near Eastern Languages)

150A-150B. Survey of Persian Literature in English

Italian

42A-42B. Italy through the Ages in English

46. Italian Cinema and Culture

50A-50B. Masterpieces of Italian Literature in English

102A-102B-102C. Italian Cultural Experience in English

110. Dante in English

121. Literature and Film

122. Italian Theater

M140. Italian Novella from Boccaccio to Basile

150. Modern Fiction in Translation

M158. Women in Italian Culture

M230A-M230B. Folk Tradition in Italian Literature

M260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature

Japanese (East Asian Languages)

150. Japanese Literature in Translation: Classical

151. Japanese Literature in Translation: Modern

154. Postwar Japanese Culture through Literature

Jewish Studies (Near Eastern Languages)

M150A-150B. Hebrew Literature in English

151A-151B. Modern Jewish Literature in English

Korean (East Asian Languages)

150. Korean Literature in Translation: Classical

151. Korean Literature in Translation: Modern

Old Norse Studies (Germanic Languages)

40. The Heroic Journey in Northern Myth, Legend, and Epic

C139. The Saga

C140. Viking Civilization and Literature

Polish (Slavic Languages)

152A-152B-152C. Survey of Polish Literature

Romanian (Slavic Languages)

152. Survey of Romanian Literature

Portuguese (Spanish and Portuguese)

40A-40B. Portuguese, Brazilian, and African Literature in Translation

46. Brazilian Culture and Civilization

Russian (Slavic Languages)

25. The Russian Novel in Translation

118. Russian Literature to Middle Ages and Enlightenment

119. Golden Age and the Great Realists

120. Literature and Revolution

124C-124T. Studies in Russian Literature

125. The Russian Novel in Its European Setting

Scandinavian

50. Introduction to Scandinavian Literature

141. Backgrounds of Scandinavian Literature

142. Scandinavian Literature of the 19th Century

143. Scandinavian Literature of the 20th Century

C144. Henrik Ibsen on the World Stage

C145. Getting Married: Strindberg and Battle of the Sexes

C146. Kierkegaard and Foundations of Existentialism

C147. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll

C180. Literature and Scandinavian Society

C182. Theory of the Scandinavian Novel

184. Hans Christian Andersen

CM186. Voices of Women in Scandinavian Literature

187. Scandinavian Film: Bergman and Others

Serbian/Croatian (Slavic Languages)

154. South Slavic Literature

Slavic (Slavic Languages)

126. Postwar Central European Prose

Spanish (Spanish and Portuguese)

60A-60B-60C. Hispanic Literatures in Translation

Ukrainian (Slavic Languages)

152. Ukrainian Literature

Yiddish (English)

121A. 20th-Century Yiddish Poetry in English Translation

121B. 20th-Century Yiddish Prose and Drama in English Translation

121C. Special Topics in Yiddish Literature in English Translation

FRENCH

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Professors

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Jean-Claude Carron, Docteur ès Lettres

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Eric Gans, Ph.D.

Peter Haidu, Ph.D.

Stephen D. Werner, Ph.D.

Professors Emeriti

Marc Bensimon, Ph.D.

Hassan el Nouty, Docteur ès Lettres

Milan S. La Du, Ph.D.

L. Gardner Miller, Docteur ès Lettres

Shuhsi Kao, Ph.D.

Associate Professors

Andrea Loselle, Ph.D.

Sara Melzer, Ph.D.

Malina Stefanovska, Ph.D.

Lecturers

Nicole Dufresne, Ph.D.

Kimberly Jansma, Ph.D.

Scope and Objectives

The UCLA French Department is a major West Coast center for the study of French. In recent decades French critical thought has maintained a dominant position in the Western world. The department seeks to give its students not only a background in the various fields of French studies, but also opportunity to relate literary, linguistic, and cultural study to examination of the critical intellectual questions of our time.

The lower division program is designed to provide practical competence in French after one year and thorough basic knowledge of the language after two years.

The upper division program is chiefly devoted to perfecting linguistic skills and to the study of

French culture and literature. Courses in linguistics and business French are also offered. Students graduating with a Bachelor of Arts in French should be fully fluent in French and possess a thorough background in French literature and culture. All three plans lead to the Bachelor of Arts degree and subsequently to graduate studies in French.

The graduate program comprises training in the various fields of French literature and thought, as well as in literary criticism, analysis, and theory. A number of courses in linguistics and stylistics are also offered. The department offers both the M.A. and Ph.D. degrees.

Undergraduate Study

Undergraduate Courses

If students have taken French elsewhere, they must take a placement test administered by the department. Depending on the results of the placement test or with recommendation of an instructor, they may be permitted to enroll in a course of study at a more advanced level.

Requisites to all upper division courses taken in partial fulfillment of the French major are French 6, 12, or equivalent. Courses 105 through 109 are not sequential and may be taken in any order, provided the requisites for each course are fulfilled.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in French grammar and/or composition.

French B.A./French and Linguistics B.A.

Preparation for the Majors

Required: French 1, 2, 3, 4, 5, 6, 12, or equivalent. Students normally take course 6 before undertaking course 12. Students who receive a grade of A in course 5 may enroll in course 12 concurrently with course 6, with consent of instructor. Students in Plan III must also take Linguistics 20.

The Majors

Three plans are offered by the department:

Plan I: French Studies in Literature and Culture

Plan I leads to the Bachelor of Arts in French. *Required:* Thirteen upper division courses, including French 100, 101, 102; two courses from 114A, 114B, 114C; at least six courses in French literature and/or culture selected from upper division offerings in the department in language, civilization, literature, or the arts. Two upper division elective courses from outside the department may be substituted in the major program with consent of the undergraduate adviser.

Candidates for an instructional credential must take 13 upper division French Department courses, including French 105, in order to qualify for a waiver for the single subject instructional credential in French.

Plan II: Interdisciplinary French Studies

Plan II, with emphasis on French culture, leads to the Bachelor of Arts in French and is a core program in French allowing for individual selection of relevant courses in related fields such as humanities, social sciences, women's studies, and linguistics. *Required:* Thirteen upper division courses, including French 100, 101, 102; two courses from 114A, 114B, 114C; at least two courses in French literature; one additional elective course normally selected from upper division offerings in the department in language, civilization, literature, or the arts; five upper division elective courses in fields relevant to French studies to be selected in or outside the department in consultation with the undergraduate adviser.

Plan III: French and Linguistics

Plan III leads to the Bachelor of Arts in French and Linguistics. In addition to the normal preparation for the major, students are required to complete the sixth term of work in one other foreign language or the third term in each of two other foreign languages. Linguistics 20 is required as preparation for the major. *Required:* Twelve upper division courses, including French 100, 101, 102; two courses from 105, 107, 108A, 108B, 109; two courses from 114A, 114B, 114C; Linguistics 103, 110, 120A, 120B, and 165A or 165B.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level.

If students' knowledge of French exceeds the preparation usually received in courses preparing for the major and if they demonstrate the requisite attainment in French 100, 101, or 102, they may substitute for those courses in grammar and composition an equivalent number of upper division courses in the French Department in consultation with an adviser. All prospective French majors who are native or quasi-native speakers of French must see the undergraduate adviser before beginning upper division work in the major.

All majors must complete a minimum of nine courses of appropriate upper division work in the UCLA French Department. Freshmen and sophomores may take up to two courses taught in English, selected from French 162 through 165, in fulfillment of major requirements (if taken in the junior or senior year, these courses count as electives). A maximum of eight units of course 199 may be applied toward the elective requirements for the major if approved in advance by the undergraduate adviser. Students must maintain a C average in upper division major courses in order to remain in any of the French majors.

Coursework taken on a Passed/Not Passed basis is not acceptable in any area of the major program.

It is recommended that students intending to major in French consult the undergraduate adviser before enrolling in upper division courses.

Honors Program

The department encourages those students in the French majors with initiative and independence of mind who desire an enriched individualized course of study to apply for the honors program.

The honors program is designed for French majors who have fulfilled their lower division requirements and have a 3.5 departmental grade-point average. Students whose GPA falls between 3.3 and 3.5 should submit a composition from an advanced language or literature course to the honors committee. If the work submitted meets with approval, students are admitted to the program.

To graduate with departmental honors, students must complete a minimum of two honors projects in the context of nonhonors upper division courses (French 115A and above) taken for honors credit. They must do an honors project (a research paper of 12 to 15 pages) in addition to the regular course requirements. An honors contract must be signed before the end of the third week of the term. After completing the project, students fill out a completion form.

On the basis of their coursework and field of interest, students are expected to formulate a research topic they wish to pursue in greater depth. They take course 170 where they receive regular personal supervision from a faculty member in the research, methodology, and writing of their approximately 20- to 25-page honors thesis (honors projects and the honors thesis are not to be confused). Course 170 counts toward the requirements for the French majors as outlined above.

Students may begin the honors program toward the end of their junior year or during their senior year. The honors projects and course 170 may be taken over two terms minimum. Students are allowed to enroll in graduate courses with the consent of the instructor but cannot use those courses to replace an honors project. Departmental honors are recorded on the final transcript if students fulfill all requirements for the program. They may submit their final honors thesis for the departmental prize.

Instructional Credential in French

Students interested in obtaining a single subject instructional credential in French should consult a departmental counselor regarding requirements for a waiver from the French subject matter examination required by the California Commission on Teacher Credentialing. For additional information on courses leading to the credential, consult the Department of Education, 1009 Moore Hall, (310) 828-8328.

French Minor

To enter the French minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (eight units): French 6 or equivalent and one course from 12, 14, or 15.

Required Upper Division Courses (20 units): French 100 or 101, and four additional departmental courses in language, culture, or literature to be selected in consultation with an undergraduate counselor.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of French offers the Master of Arts (M.A.) degree in French.

Admission

Applicants to the M.A. program must hold a B.A. in French or the equivalent. The Graduate Record Examination (GRE) General Test, a sample of written work in French, and three letters of recommendation are also required and should be sent to the department.

Areas of Study

The corpus of French literature is divided into three chronological periods, each including two centuries: (1) medieval and Renaissance, (2) classical (17th and 18th centuries), and (3) modern (19th and 20th centuries, with franco-phone literature as an option).

Course Requirements

A total of 11 courses in French is required, including French 201 and 203 (which should be taken as early as possible), at least two courses in each of the three periods, and one additional course in the period not covered on the M.A. examination. For Plan I (thesis) candidates, this is the period of specialization which is not covered on the oral qualifying examination. At least eight of these courses must be at the graduate level. Four units of course 596 (or 598 for students in Plan I) may be substituted for one required century course on approval of the graduate adviser or thesis director.

Students are required to consult with the graduate adviser to ensure full historical coverage of French literature.

Comprehensive Examination Plan

Students must pass written examinations, four hours in length, in each of the two periods prepared and an oral examination in French, normally 30 minutes, covering the two periods of the written examination. The examinations are given in the Fall and Spring Quarters.

Each period examination contains at least one question requiring textual analysis.

Three results are possible: fail, pass without admission to the doctoral program (terminal M.A.), or pass with admission to the doctoral program. The decision concerning admission to the doctoral program is made by the M.A. examination committee (Plan II) on the basis of an overall appraisal of the student's record as well as of the results of the M.A. examination.

Students who either fail or pass without admission to the doctoral program are permitted to retake the examination once, at a date no more than a year after the first attempt.

Thesis Plan

Students may apply to the chair of the department for admission into Plan I (thesis plan) after completing at least six graduate-level courses (200 series), four of which must be literature courses in the French Department.

The minimum admission requirements are a 3.5 graduate GPA in French and letters from two graduate professors in the department specifically recommending admission into this plan. A brief statement of the proposed thesis topic is also required.

Final admission into Plan I (i.e., permission to write the thesis) is contingent on passing a one-hour oral examination, administered by the departmental masters' committee, on the two periods other than the proposed period of specialization (in which the thesis is written). The examination is normally taken during the fourth quarter (but no later than the sixth quarter) after admission. The thesis committee (normally consisting of three departmental faculty members) is appointed only after students have passed the examination. If students fail the examination, the examining committee determines whether they may be permitted another attempt or be advised to take the comprehensive examination (Plan II).

For the purpose of course requirements, the period of specialization for the thesis is considered the period not covered on the M.A. examination; course 598 may be counted as one of the four courses required in this period.

The thesis should demonstrate proficiency in the methods and concepts of literary research; a suitable length is normally about 75 pages. A tentative outline of the proposed thesis must be approved in writing by the thesis committee before work on the thesis is begun. Final approval of the thesis by the committee is also required.

Three results are possible: fail, pass without admission to the doctoral program (terminal M.A.), or pass with admission to the doctoral program. The decision concerning admission to the doctoral program is made by the M.A. thesis committee on the basis of an overall appraisal of the student's record as well as of the results of the M.A. thesis.

Students who either fail or pass without admission to the doctoral program are permitted to

resubmit the thesis once, at a date no more than a year after the first attempt.

Doctoral Degree

Admission

For UCLA students applying to the program leading to the Ph.D. degree in French, completion of the M.A. degree in French with recommendation for admission to the doctoral program is required. Outside applicants must hold the M.A. degree in French or equivalent, submit three letters of recommendation and a sample of written work in French, and take the Graduate Record Examination (GRE) General Test.

Major Fields or Subdisciplines

The corpus of French literature is divided into three chronological periods, each including two centuries: (1) medieval and Renaissance, (2) classical (17th and 18th centuries), and (3) modern (19th and 20th centuries, with franco-phone literature as an option).

Course Requirements

The following courses are required: (1) French 201 and 203, if not already covered at the M.A. level; (2) at least five seminars, including at least three taken after obtaining the M.A. (a balance should be sought between theoretical and literary-historical relevance to the proposed period of specialization); (3) at least two graduate courses in other departments related to the area of specialization. Admitted students holding the M.A. or an equivalent degree from another institution must consult the graduate adviser for possible additional course requirements. In addition, students are expected to follow the guidance committee's suggestions in taking courses in preparation for the doctoral qualifying examination. Guidance committees are particularly careful to ensure that students admitted with an M.A. from other institutions cover thoroughly in coursework the period not examined in the *examen de passage*.

Written and Oral Qualifying Examinations

Two written examinations of three hours each, based on individual reading lists of approximately 15 works each, established by the examiner in consultation with the candidate are required: (1) on the historical area related to the proposed dissertation topic and (2) in areas of critical theory relevant to the proposed dissertation topic. These examinations must be taken within a period of one week. At the discretion of the guidance committee, students may be permitted to retake a failed written examination once.

After passing the written examinations, students are admitted to the University Oral Qualifying Examination, which should be taken during the same quarter as the written qualifying examinations. Students must provide the examiners with a 20- to 30-page prospectus of the proposed dissertation, including an outline and a bibliography. The examination, normally of two hours

duration, bears on the written examinations and on the proposed dissertation subject.

French

Lower Division Courses

- 1. Elementary French. (4)** Lecture, five hours.
- 1G. Elementary French for Graduate Students. (3)** Preparation for GSFLT or other language examinations. A passing grade does not imply satisfaction of language requirements. S/U grading.
- 2. Elementary French. (4)** Lecture, five hours. Enforced requisite: course 1 (C– or better).
- 2G. Elementary French for Graduate Students. (3)** Enforced requisite: course 1G. Preparation for GSFLT or other language examinations. A passing grade does not imply satisfaction of language requirements. May be repeated. S/U grading.
- 3. Elementary French. (4)** Lecture, five hours. Enforced requisite: course 2 (C– or better).
- 4. Intermediate French. (4)** Lecture, five hours. Enforced requisite: course 3 (C– or better).
- 5. Intermediate French. (4)** Lecture, five hours. Enforced requisite: course 4 (C– or better).
- 6. Intermediate French. (4)** Enforced requisite: course 5 (C– or better).
- 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.
- 10A-10D. French Conversation (2 each)** Discussion, three hours. Enforced requisite: course 3 (B or better).
- 12. Introduction to Study of French Literature. (4)** Lecture, two hours; discussion, one hour. Enforced requisite: course 6. Principles of literary analysis as applied to selected texts in poetry, theater, and prose.
- 14. Introduction to French Civilization, in English. (4)** Lecture, two hours; discussion, one hour; outside study, nine hours. Study of contemporary French institutions and issues in political, cultural, and socio-economic realms. Structure of French society and recent developments. P/NP or letter grading.
- 15. Theory and Correction of Diction. (4)** Enforced requisite: course 6. French pronunciation, diction, intonation in theory and practice; phonetic transcription, phonetic evolution of the modern language; remedial exercises; recordings.
- 41. French Cinema and Culture. (4)** Lecture, three hours; film screenings, three hours. Introduction to French culture and literature through study of major films of cultural and literary significance. P/NP or letter grading.
- 63. Contemporary French Theater. (4)** Lecture, three hours. Introduction to contemporary French drama in translation. Topics to be announced each term. P/NP or letter grading.
- 64A-64B-64C. The French Novel in Translation. (4-4-4)** Lecture, three hours. Introduction to French novel masterpieces from variety of perspectives, including literary history, themes, and relations with other arts (film and music). Topics and titles to be announced each term. P/NP or letter grading.

Upper Division Courses

- 100. Written Expression: Techniques of Description. (4)** Lecture, three hours. Requisite: course 6. Writing assignments follow close analysis of relevant texts and study of related grammatical structures. P/NP or letter grading.

101. Written Expression: Techniques of Narration. (4) Lecture, three hours. Requisite: course 6. Writing assignments follow close analysis of relevant texts and study of related grammatical structures. P/NP or letter grading.

102. Advanced Expository Writing: Techniques of Argumentation. (4) Lecture, three hours. Requisites: courses 100, 101. Study of rhetorical devices and revision of related grammatical structures. Writing assignments follow analysis of relevant texts. P/NP or letter grading.

105. Structure of French. (4) Lecture, three hours. Requisite: course 15. Prior background in linguistics not required. Introduction to linguistic analysis of French in areas of phonology, morphology, syntax, and language variation.

107. Advanced Oral Expression. (4) Lecture, three hours. Requisite: course 100. Communicative and rhetorical strategies; techniques of oral exposition, argumentation, and analysis.

108A-108B. Advanced Practical Translation (4-4) (Formerly numbered 108A-108B-108C.) Lecture, three hours. P/NP or letter grading:

108A. Lecture, three hours. Requisite: course 101. Translation of journalistic texts, including biography and interview, formal and informal reporting, advertising and idiomatic language. Work in techniques of translation. P/NP or letter grading.

108B. Lecture, three hours. Requisite: course 102 or 108A. Translation of literary and sociocultural texts, including editorials, polemical issues, film subtitles. Comparative stylistics of translation. P/NP or letter grading.

109. French Business: Its Language and Culture. (4) Lecture, three hours. Requisite: course 6. Study of language of economics and business in France as well as its specific practices and customs.

114A-114B-114C. Survey of French Literature. (4-4-4) Lecture, three hours. Requisite: course 12. Survey of French literature from the medieval period through the 20th century:

114A. Medieval and Renaissance Literature. 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).

114B. 17th and 18th Centuries. Study of selections from major works of classicism and the Enlightenment, including those by Racine, Pascal, La Fayette, La Fontaine, Laclot, Diderot, Voltaire, and Rousseau.

114C. 19th and 20th Centuries. Study of major literary movements and writers of the period, including works by Hugo, Baudelaire, Balzac, Stendhal, Flaubert, Zola, Gide, Proust, Sartre, Robbe-Grillet, and Duras.

115A-115B-115C. Medieval French Literature. (4-4-4) Lecture, three hours:

115A. Invention of Love in the 12th Century. Selections from the broad range of lyric poetry and narrative romance in which is first elaborated "romantic" (sometimes called "courtly") love. Readings include works of the troubadours and *trouvères*, different versions of the Tristan-myth, a romance of Chrétien de Troyes, and first part of *Romance of the Rose*.

115B. Medieval Knight: Heroism and Its Social Problems. Readings in literature and history of medieval warfare and its ideals in relation to social structure of the time. Texts include *La Chanson de Roland*, *Raoul de Cambrai*, *La Mort le roi Artu*, crusade history, and Georges Duby's *Guerriers et paysans*.

115C. Comic Structure and Social Class. Medieval comedy, to be studied in relation to class structures and their evolution in the Middle Ages, takes a number of forms. Often obscene in the *fabliaux*, it can turn parodic in the *Roman de Renart*, simultaneously satirical, fantastic, and religious in the bourgeois drama of Arras, and utterly charming in the unclassifiable *Aucassin et Nicolette*.

116A-116B-116C. Renaissance. (4-4-4) Lecture, three hours:

116A. La Pléiade and 16th-Century Poetry. Study of the linguistic and poetic "revolution" brought about by *Deffence et Illustration* (1549), including texts by Marot, Scève, Labé, Du Bellay, and Ronsard.

116B. The Novel and Other Early 16th-Century Prose. Emphasis on Rabelais, with other texts by Marguerite de Navarre and Jean Calvin.

116C. Late French Humanism. Emphasis on Montaigne's *Essais*, with other texts from the Religious Wars period.

117A-117B-117C. 17th Century. (4-4-4) Lecture, three hours:

117A. Theater. Study of French comedy and/or tragedy through representative works, including those by Corneille, Molière, and Racine.

117B. Prose. Study of 17th-century philosophers, moralists, and/or novelists such as Pascal, La Rochefoucault, La Bruyère, La Fayette, and La Fontaine.

117C. Culture and Society. Study of 17th-century political, social, religious, and courtly aspects, including libertine and *salons milieux*, la Fronde, and Versailles.

118A-118B-118C. 18th Century. (4-4-4) Lecture, three hours:

118A. Satire. Readings include Montesquieu's *Lettres persannes*, Diderot's *Neveu de Mameau* and *Rêve de d'Alembert*, and Voltaire's *Contes*.

118B. The Novel. Readings include Prévost's *Manon Lescaut*, Diderot's *La Religieuse* and *Jacques le fataliste*, excerpts from Rousseau's *Julie*, and Laclos' *Les Liaisons dangereuses*.

118C. Theater. Readings include selected plays of Marivaux and Beaumarchais, as well as selections from theoretical writings of Diderot and Rousseau.

119A-119D. 19th Century. (4-4-4) Lecture, three hours:

119A. Romanticism. Readings of representative poets, novelists, and playwrights of the Romantic era such as Chateaubriand, Lamartine, Hugo, Vigny, Balzac, and Stendhal.

119B. Generation of 1848. Readings of representative writers of the 1840s and the Second Empire such as Baudelaire, Nerval, Balzac, Flaubert, and Mérimée. May also include the *théâtre à thèse* and Parnassian poetry.

119C. Naturalism and Symbolism. Study of naturalism in the novel and drama as represented by Zola, Maupassant, and Becque, and of symbolism in the poetry of Baudelaire, Verlaine, Rimbaud, and Mallarmé.

119D. Turn of the Century. Study of genres and trends from 1885 through World War I, with emphasis on prose writers such as Huysmans, Laforgue, Barrès, Alain-Fournier, Jarry, Roussel, France, and Romain-Roland.

120A-120B-120C. 20th Century. (4-4-4) (Formerly numbered 120A-120D.) Lecture, three hours. P/NP or letter grading:

120A. Early 20th-Century Writers. Lecture, three hours. Readings of works by Claudel, Apollinaire, Valéry, Gide, and Proust. P/NP or letter grading.

120B. Literature from 1918 to 1945. Lecture, three hours. Study of works by surrealists and other major writers such as Céline, Malraux, Giraudoux, and Anouilh. P/NP or letter grading.

120C. Post-World War II Literature. Lecture, three hours. Study of works by existentialists and other major writers such as Robbe-Grillet, Beckett, Genet, Ponge, and Duras. P/NP or letter grading.

121A-C121B. Contemporary Francophone Literature. (4-4-4) Lecture, three hours:

121A. French-African Literature. Survey of literary works of French expression north and south of the Sahara from World War II to the present.

C121B. Quebec Literature. (Formerly numbered 121B.) Survey of modern *Québécois* literary works. Concurrently scheduled with course C222. P/NP or letter grading.

124. The Short Story. (4) Lecture, three hours. Survey of short fiction forms in France and the French-speaking world.

125. Evolution of French Comedy. (4) Lecture, three hours. Study of history and evolution of comedy from the Middle Ages to the theater of the absurd.

130A-130B-130C. History of French Civilization and Institutions. (4-4-4) Requisites: courses 6, 12:

130A. France from Prehistoric Times to the End of the Middle Ages. Lecture, three hours. Fourth hour may be required for viewing films and other laboratory activities.

130B. From the Renaissance to the End of the "Ancien Régime." Lecture, three hours. Fourth hour may be required for viewing films and other laboratory activities.

130C. From the End of the "Ancien Régime" to 1918. Lecture, three hours. Fourth hour may be required for viewing films and other laboratory activities.

132. Contemporary France. (4) Lecture, three hours. Social, cultural, and political institutions and/or movements in 20th-century France.

M140. Women's Studies in French Literature. (4) (Formerly numbered 140.) (Same as Women's Studies M140.) Lecture, three hours. Exploration of a selected aspect of the situation of women in French literature as author, character, symbol, etc. P/NP or letter grading.

141. Cinema and Literature in France. (4) Lecture, three hours (additional hours may be required for viewing films and other laboratory activities). Study of interaction between cinema and literature in its generic, thematic, and sociocultural aspects.

142. Poetry and Music. (4) Lecture, three hours. Interdisciplinary study of relation between music and literature, with emphasis on the setting of poetical texts to music, from the troubadours to modern times.

M143. Rhetoric of Rule. (4) (Same as Communication Studies M117.) Lecture, three hours. Exploration of how and why power is symbolically constructed by comparing Louis XIV's and President Clinton's attempts to manipulate their image in the "media" of their respective cultures.

150. Studies in Medieval Literature. (4) May be repeated once for credit with consent of major adviser.

151. Studies in 16th-Century Literature. (4) May be repeated once for credit with consent of major adviser.

152. Studies in 17th-Century Literature. (4) May be repeated once for credit with consent of major adviser.

153. Studies in 18th-Century Literature. (4) May be repeated once for credit with consent of major adviser.

154. Studies in 19th-Century Literature. (4) May be repeated once for credit with consent of major adviser.

155. Studies in 20th-Century Literature. (4) May be repeated once for credit with consent of major adviser.

156. Studies in Contemporary Literature of French Expression. (4) May be repeated once for credit with consent of major adviser.

157. Studies in French Critical Theory and Philosophy. (4) Lecture, three hours. Advanced study of major concepts in contemporary French thought, with attention to its influence on French literature and culture, and its application to literary and nonliterary texts.

158. Studies in History of Ideas. (4) Lecture, three hours. Specific themes which address a particular problem of French literature, civilization, or ideas. May be repeated for credit with consent of major adviser.

162. Modern French Thought in Translation. (4) Lecture, three hours. Reading and discussion of contemporary works in translation.

164A-164B-164C. The French Novel in Translation. (4) Lecture, three hours. Texts and authors to be studied announced in advance for each offering.

165. Topics in French Literature in Translation. (4) Lecture, three hours. To be announced each term. May not be taken for major or graduate credit but may be considered as an out-of-department elective for purpose of satisfying major requirements.

170. Honors Program in French. (4) Preparation: completion of two honors projects. Limited to junior/senior French majors with 3.5 grade-point average in major. Individual study on a topic leading to an honors thesis of approximately 20 to 25 pages to be written under guidance of a faculty member.

199. Special Studies in French. (2 to 8) Preparation: consultation with undergraduate adviser. Limited to juniors/seniors. May be repeated once.

Graduate Courses

201. Literary Research and Composition. (4) Lecture, three hours. Introduction to graduate-level literary research, including writing scholarly papers, compilation and presentation of bibliography, and practical work in computer use of data bank.

202. Historical and Philosophical Background to French Literary Criticism. (4) Lecture, three hours.

203. Contemporary Theories. (4) Lecture, three hours. Introductory study of representative texts from the works of major modern theoreticians, which may include works by Althusser, Barthes, Derrida, Foucault, Genette, Greimas, Kristeva, and Lacan.

205. Techniques of Literary Analysis. (4) Lecture, three hours. Practice in close analysis of literary texts, including *explication de texte*.

214. Problematics of Medieval Language and Literature. (4) Lecture, three hours. Requisite to courses 215A, 215B, and 250A through 250C. Introduction to Old French and the problematics of medieval literature.

215A-215B. Medieval Literature (4-4) (Formerly numbered 215A-215D.) Lecture, three hours. Requisite: course 214. Development of a vernacular culture in the Middle Ages. Exploration of social functions of texts designated as "literary" by modernity as part of social, economic, and political evolutions in which those texts played key roles. Letter grading. **215A.** Medieval Subject; **215B.** Narrative Types.

216. Renaissance. (4) (Formerly numbered 216A-216B-216C.) Lecture, three hours. French literature of the 16th century studied within historical, intellectual, and cultural contexts. Letter grading.

217. 17th Century. (4) (Formerly numbered 217A-217D.) Lecture, three hours. Readings in 17th-century literature studied within historical, cultural, and literary contexts. Letter grading.

218. Enlightenment. (4) (Formerly numbered 218A-218B-218C.) 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) (Formerly numbered 219A-219D.) Lecture, three hours. Readings in 19th-century literature, covering development of the novel, lyric poetry, and theater from Romantic period to *fin-de-siècle*. Letter grading.

220. 20th Century. (4) (Formerly numbered 220A-220D.) 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.

221A-221B-221C. French-African Literature. (4-4-4) Lecture, three hours:

221A. Introduction to Study of French-African Literatures. In-depth survey of French-African literatures prior to independence.

221B. French-African Literature of Madagascar and Bantu Africa. Readings and analysis of major works since independence.

221C. French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa. Readings and analysis of major works since independence.

C222. Contemporary Francophone Literature: Quebec Literature. (Formerly numbered 222.) Lecture, three hours. Survey of modern *Québécois* literary works. Concurrently scheduled with course C121B.

241. Introduction to Generative Anthropology. (4) Lecture, three hours. Discussion of principles of generative anthropology and their application to study of literary texts and related cultural phenomena.

242. Introduction to Study of Narrative. (4) Lecture, three hours. First survey of modern French methodology for critical analysis and interpretation of narrative, with examples from all periods of French literature.

250A. Major Medieval Texts. (4) Seminar, three hours. Requisite: course 214. Intensive study of individual texts from multiple perspectives, such as *La Chanson de Roland*, a romance of Chrétien de Troyes, *Le Roman de la rose*, or François Villon's *Grand Testament*. May be repeated for credit.

250B. Structures of Medieval Literature. (4) Seminar, three hours. Requisite: course 214. Advanced study of a variety of texts in terms of textual and historical structures. May be repeated for credit.

250C. Problems in Medieval Literature. (4) Seminar, three hours. Requisite: course 214. Exploratory study of a theoretical problem, such as subjectivity and representation in medieval literature, minor or nonclassified texts, individuality and convention, or opposition of religion and secularism. May be repeated for credit.

251A-251B. Studies in the Renaissance. (4-4) May be repeated for credit.

253A-253B. Studies in the 17th Century. (4-4) May be repeated for credit.

254A-254B. Studies in the 18th Century. (4-4) May be repeated for credit.

255A-255B. Studies in the 19th Century. (4-4) May be repeated for credit.

256A-256B. Studies in Contemporary Literature. (4-4) May be repeated for credit.

257A-257B. Studies in French-African Literature. (4-4) May be repeated for credit.

258A-258B. Studies in Literary Criticism. (4-4) May be repeated for credit.

259A-259B. Studies in Philosophy and Literature. (4-4) May be repeated for credit.

260A-260B. Studies in History of Ideas. (4-4) Particular problems in French literature and ideas. May be repeated for credit.

370. Teaching French in Secondary School. (4) Lecture, three hours; discussion, one hour. Required of all candidates for general secondary instructional credential in French.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching French at College Level. (4) Seminar, three hours; discussion, one hour. Designed for graduate students. Theory and practice of language teaching. S/U grading.

596. Directed Individual Studies or Research. (2 to 4) Tutorial, to be arranged.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) May be repeated for a maximum of 16 units. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 4) Maximum of four units may be applied toward M.A. degree requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 8) S/U grading

GENERAL EDUCATION CLUSTERS

College of Letters and Science

UCLA
A265 Murphy Hall
Box 951571
Los Angeles, CA 90095-1571

(310) 206-1225
<http://www.college.ucla.edu/ge/clusters.htm>

Scope and Objectives

General education clusters, available to entering freshmen only, are an option for satisfying general education requirements. The clusters span three quarters and are interdisciplinary team-taught courses designed to introduce students to multiple areas of knowledge. They focus on a common topic and are organized in such a way that students can explore how different disciplines converge and diverge in their approach to a particular problem.

General education clusters are taught by some of the University's most distinguished faculty and are designed to strengthen the writing, quantitative reasoning, critical thinking, and information literacy skills that students need to excel at UCLA. During Fall and Winter Quarters, instruction in the clusters consists of lecture courses taught in concert with discussion sections. In Spring Quarter students enroll in one of a number of small satellite seminars whose topics are related to the cluster theme.

On completion of the entire yearlong cluster, students satisfy the equivalent of four general education courses.

For the current cluster course offerings and general education credit, refer to <http://www.college.ucla.edu/ge/clusters.htm>.

General Education Clusters

Lower Division Courses

M1A-M1B-M1C. Global Environment. (5-5-5) (Same as Environment M1A-M1B-M1C.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1C. Letter grading. **M1A-M1B.** Multidisciplinary Perspective I, II. Lecture, three hours; discussion, two hours. Human effects on Earth's ecosystem and social and technological solutions to environmental pollution and overpopulation. History and ecology in lectures; laboratory exercises included in discussions. **M1C.** Special Topics. Seminar, three hours. Small groups address environmental topics like smog, deforestation, and recycling. Exercises include field trips and oceanographic cruise.

20A-20B-20C. Interracial Dynamics in American Culture, Society, and Literature. (5-5-5) Course

20A is enforced requisite to 20B, which is enforced requisite to 20C. Letter grading. **20A-20B.** Lecture, three hours; discussion, two hours. Examination of nature and meaning of race in American society through study of history, literature, and the law. Consideration of construction of race as a social and cultural category among two or more groups and exploration of ways in which race has shaped understanding of American citizenship. **20C.** Special Topics. Seminar, three hours. Consideration of how experience, debates, and issues of race are represented and understood in historical, legal, cinematic, and literary contexts.

21A-21B-21C. History of Modern Thought. (5-5-5) Course

21A is enforced requisite to 21B, which is enforced requisite to 21C. Letter grading. **21A-21B.** Lecture, three hours; discussion, two hours. Introduction to key issues in humanities and social sciences through close reading of prominent social theories of past four centuries. Consideration in historical context of writers from Rousseau and Wollstonecraft to Foucault and Beauvoir and from perspectives of academic specialties for which their work is fundamental. **21C.** Special Topics. Seminar, three hours. Examination of cross-section of classical and modern social theories and debates that shape them.

70A-70B-70C. Evolution of Cosmos and Life. (5-5-5) Course

70A is enforced requisite to 70B, which is enforced requisite to 70C. **70A-70B.** Lecture, three hours; discussion, two hours. Use of concept of evolution, as it applies to biological organisms, Earth, solar system, and the universe itself, to introduce students to both the life and physical sciences. Examination of evolution of the universe, galaxy, solar system, and Earth in course 70A; focus on evolution of life in course 70B. **70C.** Special Topics. Seminar, three hours. Examination in depth of various issues of evolution. Topics may range from creation of California's physical landscape to debate between evolution and creationism.

GEOGRAPHY

College of Letters and Science

UCLA
1255 Bunche Hall
Box 951524
Los Angeles, CA 90095-1524
(310) 825-1071
<http://www.geog.ucla.edu/>

John A. Agnew, Ph.D., Chair
Glen M. MacDonald, Ph.D., Vice Chair

Professors

John A. Agnew, Ph.D.
William A.V. Clark, Ph.D.
Michael R. Curry, Ph.D.
J. Nicholas Entrikin, Ph.D.
Glen M. MacDonald, Ph.D.
Antony R. Orme, Ph.D.
Allen J. Scott, Ph.D.
Stanley W. Trimble, Ph.D.
Hartmut S. Walter, Ph.D.

Professors Emeriti

Charles F. Bennett, Ph.D.
C. Rainer Berger, Ph.D.
Henry J. Bruman, Ph.D.
Gary S. Dunbar, Ph.D.
Gerry A. Hale, Ph.D.
Huey L. Kostanick, Ph.D.
Clifford H. MacFadden, Ph.D.
Tom L. McKnight, Ph.D.
Howard J. Nelson, Ph.D.
Jonathan D. Sauer, Ph.D.
Melissa Savage, Ph.D.

Werner H. Terjung, Ph.D.
Benjamin E. Thomas, Ph.D.
Norman J.W. Thrower, Ph.D.

Associate Professors

Judith A. Carney, Ph.D.
J. Mark Ellis, Ph.D.
Chi-Fun Cindy Fan, Ph.D.
David L. Rigby, Ph.D.

Assistant Professors

Joshua S.S. Muldavin, Ph.D.
Marilyn N. Raphael, Ph.D.
Laurence C. Smith, Ph.D.

Scope and Objectives

Geography is concerned primarily with interpreting and explaining the occurrence, distribution, and interrelationships of the physical and social elements which can be seen in the landscape. The geographer concentrates on two essential questions: where are things located? and why are they located where they are? The answer to the former is largely descriptive, but the answer to the latter involves theory and analysis. The geographer's challenge is to provide continuing interpretation of the constantly changing physical and human landscapes on the Earth's surface.

The research and teaching interests of the faculty are highly ranked nationally by the Conference Board of the Associated Research Councils, cover major areas of geographical knowledge, and underlie both the undergraduate and graduate instructional programs. These areas of interest may be broadly grouped into urban and regional development studies, spatial demography and social processes in the city, culture and environment in the modern world, physical geography, and biogeography.

Geography is an especially attractive major for liberal arts students. Its body of theory and its methodologies provide ideas and techniques applicable to a wide range of questions about our environment; it also provides both the regional and world perspectives required of responsible citizens.

The department offers two undergraduate majors that lead to the Bachelor of Arts degree: (1) the major in Geography and (2) the major in Geography/Environmental Studies. The majors prepare students for employment opportunities in both the public and private sectors (in environmental analysis, assessment, and management, map making and remote sensing, regional analysis, economic and urban spatial analysis, and teaching) and for graduate study in law, management, urban and regional planning, education, other biophysical and social sciences, and applied programs, as well as in geography.

Producing geographers of high quality is the principal goal of the graduate program, designed primarily for students pursuing the Ph.D. degree. The Master of Arts degree, which involves coursework and a thesis, serves as an essential building-block of the doctoral program. The doctorate is awarded to those students who have achieved the level of geographical

knowledge and training required of a professional geographer. The degree recognizes the ability of students to make scholarly contributions in their fields of specialization and to undertake advanced research in those areas.

Undergraduate Study

Geography B.A.

Geography majors are encouraged to consult with the undergraduate adviser for the planning of a program suitable to their particular and individual objectives.

Preparation for the Major

Required: Geography 1, 2, 3, 4, M40. All courses must be taken for a letter grade.

The Major

Required: Ten upper division geography courses taken for a letter grade, which must include (1) five courses from one of the Concentrations for the Major listed below, (2) three additional courses in at least two different concentrations, (3) one regions course from Geography 122, 135, 136, 137, 152, 156, 180, 181, 182A, 183, 184, 185, 186, 187, 190, 191, and (4) one procedures course (four units) from 100A (two units), 105A (two units), 163, 167 (six units), 168, 169, 170, 171.

Major Concentrations

By the end of the junior year and no later than the beginning of the senior year, students are required to declare their specific concentration by filing a statement with the undergraduate adviser. The purpose of the concentration requirement is to expose students to systematic in-depth work within a specific area of geography. Completion of a concentration requires five upper division geography courses. Students must take a concentration's required course(s), if any, before declaring that concentration. They must select one of the following concentrations and meet its course requirements:

(1) *Urban and Regional Development Studies:* Five courses from M128, 135, 148, 150, 152, 155, 157, 159A.

(2) *Spatial Demography and Social Processes in the City:* Course 142 and four courses from 143, 144, 146, 150, 156, 159B.

(3) *Culture and Environment in the Modern World:* Five courses from 133, 134, 135, 136, 138, 140, 152, 159C.

(4) *Physical Geography:* Courses 100/100A, 104, 105/105A, and two courses from 101, 103, 107, 159D.

(5) *Biogeography:* Five courses from 108, 111, 112, 116, 118, 122, 123, 159E, 163.

Foreign Language/Mathematics Requirement

Every Geography major is required to pass five quarter courses in foreign language (in no more than two languages) or mathematics, in any combination. In foreign language, the de-

partment accepts UCLA foreign language departmental proficiency examination scores as evidence of foreign language competency. In mathematics, only Mathematics 2, 3A, 3B, 3C, 31A, 31B, 32A, 32B, 33A, or equivalent are acceptable. A grade of Passed or C (or better) is required in all courses intended to satisfy this requirement.

Allied Fields

Students must develop some competence in an allied field. This requirement consists of at least two upper division courses selected from at least one of the following disciplines: Afro-American studies, anthropology, art history, Asian American studies, atmospheric sciences, biology, chemistry, Chicana and Chicano studies, communication studies, Earth and space sciences, economics, folklore, history, management, philosophy, physics, political science, psychology, public health, sociology, women's studies. Urban Planning 187 and M190 are also acceptable. Other disciplines require departmental consent.

Honors Program

Honors in the Geography major may be obtained through procedures described under Geography 199HA-199HB.

Geography/Environmental Studies B.A.

The major in Geography/Environmental Studies develops and deepens students' understanding of environmental issues; it explores problem-solving approaches from an interactive people/nature viewpoint and involves analysis of social, physical, and biotic environmental systems. The major's uniqueness lies in its emphasis on its geographical perspective of human impacts on natural systems, as well as of implications of global change on local and regional human systems.

Preparation for the Major

Required: Geography 1, 2, 3, 4, 5, M40. All courses must be taken for a letter grade. *Recommended:* Chemistry and Biochemistry 2 or 20A, Life Sciences 1, Mathematics 3A, 3B, Organismic Biology, Ecology, and Evolution 21, Philosophy 6, Physics 3A or 10. Students considering graduate work are strongly advised to include Chemistry and Biochemistry 20A, 20B, Mathematics 31A, 31B, and 32A in their program.

Students are strongly advised to complete all requisites before beginning upper division work in the major.

The Major

Required: Twelve upper division geography courses taken for a letter grade which must be distributed as follows: (1) *natural systems core* — two courses from 100, 103, 104, 105, 108, 112; (2) *human systems core* — two courses from 118, 133, 134, 140, 142, 148, 150; (3) *environmental studies cluster* — five courses from 107, 110, 116, 120, 121, 122, 123, 124, 125, 126, M128, 129, 131, 135, 136, 137; (4)

procedures — two courses (eight units) from 100A (two units), 105A (two units), 163, 167 (six units), 168, 169, 170, 171; and (5) *regions* — one course from 122, 135, 136, 137, 152, 156, 180, 181, 182A, 183, 184, 185, 186, 187, 190, 191.

Geography/Environmental Studies majors are advised to complete the required courses in the natural and human systems cores before taking courses in the environmental studies cluster.

At least two upper division courses should be taken as electives in other social sciences departments (Anthropology, Economics, History, Political Science, Sociology), the Urban Planning Department (School of Public Policy and Social Research), or the School of Public Health. The courses should be complementary and/or supplementary to the major as students have constructed it.

Foreign Language/Mathematics Requirement

Every Geography/Environmental Studies major is required to pass five quarter courses in foreign language (in no more than two languages) or mathematics, in any combination. In foreign language, the department accepts UCLA foreign language departmental proficiency examination scores as evidence of foreign language competency. In mathematics, only Mathematics 2, 3A, 3B, 3C, 31A, 31B, 32A, 32B, 33A, or equivalent are acceptable. A grade of Passed or C (or better) is required in all courses intended to satisfy this requirement.

Honors Program

Honors in the Geography/Environmental Studies major may be obtained through procedures described under Geography 199HA-199HB.

Computing Specialization

Majors in Geography and Geography/Environmental Studies may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, 30, 60, and Mathematics 61 with a minimum grade of C in each course (Mathematics 32A and 32B are also highly recommended), and (3) completing at least two courses from Geography 104, 167, 168, 171. Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Geography offers the Master of Arts (M.A.) degree in Geography.

Admission

Application to the M.A. program may be made for admission to any quarter. An official application, a complete set of transcripts of prior university coursework, the results of the Graduate Record Examination (GRE) General Test, a statement of purpose, and three letters of evaluation must be submitted. Normally applicants should have (1) completed the undergraduate major in geography or in a related field, (2) received a B.A. or B.S. degree, (3) attained at least a 3.3 grade-point average in courses taken in the junior and senior years in the major, (4) attained a high GRE score (normally well above 1,200) in the combined verbal and quantitative sections, and (5) strong letters evaluating past academic and/or professional performance and indicating potential for high achievement in graduate studies. Exceptions to the guidelines may be made for students whose records indicate unusual promise.

In addition, a faculty member must be willing to serve as interim adviser.

The Test of English as a Foreign Language (TOEFL) is normally required of all international applicants whose native language is not English.

Areas of Study

Students commonly specialize in one or more of the following areas of geographical knowledge: environmental studies, geomorphology, climatology, biogeography, cartography, and economic, social, cultural/historical, population, and urban geography. At the M.A. level students emphasize at least one of these specialized areas. However, because geographical knowledge and its associated research questions frequently transcend disciplinary and subdisciplinary boundaries, students, in consultation with knowledgeable faculty members, are expected to refine and deepen their research interests further, within, across, and beyond these organized research and teaching areas.

Course Requirements

Students must complete at least six courses in addition to the three required core courses (Geography 298A, 298B, 298C), for a minimum of 36 units. The core courses must be completed within two years and with a grade of B or better in each. For students entering with a geography major, the courses be completed in the first year. Two 100-level courses and four units of a 500-level course may be applied toward the minimum coursework requirement. The course program must have the approval of the faculty mentor.

Two 500-series courses may be applied toward the minimum course requirement for the M.A. degree but not toward the minimum graduate course requirement.

Individual Study Courses. The following rules pertain to individual study courses (Geography 199, 596, 597, 598, 599):

- (1) Before enrolling in one of these courses, students must consult with the responsible faculty member and work out a program of study and consultation.
- (2) All 500-series courses must be taken on an S/U basis only.
- (3) Students may enroll in Geography 597, 598, or 599 as often as required.

Teaching Courses. Geography 375 and 495 cannot be applied to the minimum of nine courses for the M.A.

Comprehensive Examination Plan None.

Thesis Plan

Students must present a thesis, based in whole or in part on original investigation. Selection of a thesis topic, creation of a scientific design, and conduct of the investigation should proceed under the supervision of the M.A. committee. The thesis proposal should include the exact nature of the problem to be researched, an outline of the subject matter, the proposed methods of research, the degree of originality involved, and the anticipated time of completion of the study. The entire thesis project must be carried out in close consultation with all members of the thesis committee.

Doctoral Degree

Admission

Application to the program leading to the Ph.D. degree in Geography may be made for admission to any quarter. Applicants must submit an official application, a complete set of transcripts of prior university coursework, the results of the Graduate Record Examination (GRE) General Test, a statement of purpose, and three letters of evaluation. Normally applicants should have (1) completed the undergraduate major in geography or in a related field, (2) received a B.A. or B.S. degree, (3) attained at least a 3.3 grade-point average in courses taken in the junior and senior years and in the major, or a 3.5 GPA in graduate courses for students entering with an M.A., (4) attained a high GRE score (normally well above 1,200) in the combined verbal and quantitative sections, and (5) strong letters evaluating past academic and/or professional performance and indicating potential for high achievement in graduate studies. Exceptions to the guidelines may be made for students whose records indicate unusual promise.

Admission to the Ph.D. program usually requires an M.A. or M.S. degree. Applicants must provide clear evidence of ability to conduct substantive research and to articulate ideas clearly in writing. In addition, a faculty member must be willing to serve as interim adviser. Under rare circumstances, students may proceed directly toward the Ph.D. degree without taking a master's degree. Students must

have completed one year in the M.A. program, have three department faculty members review their dossiers and unanimously recommend such a course of action, and pass a four-hour qualifying examination set and evaluated by three faculty members competent in their area of specialization. The pass must be unanimous and receive the approval of at least two thirds of the voting faculty in a formal faculty meeting.

The Test of English as a Foreign Language (TOEFL) is normally required of all international applicants whose native language is not English.

Major Fields or Subdisciplines

Students commonly specialize in one or more of the following areas of geographical knowledge: environmental studies, geomorphology, climatology, biogeography, cartography, and economic, social, cultural/historical, population, and urban geography. The written qualifying examinations for the Ph.D. include one examination in three of these fields selected by the student in consultation with an adviser. However, because geographical knowledge and its associated research questions frequently transcend disciplinary and subdisciplinary boundaries, students are expected to refine and deepen their research interests further, in consultation with knowledgeable faculty members, within, across, and beyond these organized research and teaching areas.

Course Requirements

Students must successfully complete, within two years and with a grade of B or better in each, the required core courses (Geography 298A, 298B, and 298C) if these have not already been taken at the M.A. level. Students entering with a geography degree should complete them in the first year. At least three graduate geography courses in addition to the M.A. coursework (excluding Geography 298A, 298B, 298C, 375, 495, and the 500 series) are required as are three upper division or graduate courses in one or two fields (outside of geography) allied to the student's major research area or subdisciplinary specialization, subject to approval of the guidance committee. The allied field requirement must be met before taking the oral qualifying examination. Each quarter, the program of coursework must be approved by the guidance committee and the graduate adviser.

Individual Study Courses. The following rules pertain to individual study courses (Geography 199, 596, 597, 598, 599):

- (1) Before enrolling in one of these courses, students must consult with the responsible faculty member and work out a program of study and consultation.
- (2) All 500-series courses must be taken on an S/U basis only.
- (3) Students may enroll in Geography 597, 598, or 599 as often as required.

Teaching Courses. Geography 375 and 495 cannot be applied to the minimum course requirements for the Ph.D.

Written and Oral Qualifying Examinations

The written qualifying examination, consisting of five written papers and administered by the guidance committee, must be taken no later than the sixth quarter of the Ph.D. program (exceptions may be made in the case of students entering from disciplines outside of geography). Three papers pertain to three substantive fields of geographical inquiry in which the student is specializing; one general paper addresses the major issues, developments, and debates in the field at large; and one paper involves a field problem. The examination may be taken over a period of no more than two weeks. In case of failure, students may make one more attempt, but no sooner than three months nor longer than one year from the first examination.

Preparation of the dissertation proposal follows successful completion of the written qualifying examination. The dissertation proposal should specify the research question, describing in some detail the problem to be studied, its scientific background, and outline of the subject matter, the proposed methods of research, the degree of originality involved, and a timetable for completion of the degree. It is to be written in consultation with the official doctoral committee. Committee members should receive the dissertation proposal at least one month before the oral examination. The proposal must be approved unanimously by the committee before the oral examination can take place.

The University Oral Qualifying Examination, conducted by the official doctoral committee, focuses on the dissertation proposal. After successfully completing the oral examination, the student is eligible for advancement to candidacy. In instances of failure, the oral examination may be repeated once.

Geography

Lower Division Courses

1. Physical Environment. (4) Lecture, three hours; laboratory, two hours. Study of Earth's physical environment, with particular reference to the nature and distribution of landforms and climate.

2. Biogeography: Spatial Dynamics of Biological Diversity in a Changing World. (4) Lecture, three hours; discussion, 90 minutes; outside study, seven and one-half hours. Study of Earth's biosphere, with particular reference to evolution and disturbance of plants, animals, and soils. P/NP or letter grading.

3. Cultural Geography. (4) Lecture, three hours; discussion, 90 minutes. Broad examination of basic cultural variables in human occupation of Earth's surface. Ecological, spatial, and historical approaches.

4. Globalization: Regional Development and World Economy. (4) Lecture, three hours; laboratory, one hour. Emergence of global economy and examination of its main characteristics, with focus on economic geography in attempting to understand spatial variation in distribution of all forms of human productive activity at different spatial scales. Students to have understanding of basic features of contemporary global space-economy and have a sense of its historical evolution at end of course. P/NP or letter grading.

5. People and the Earth's Ecosystems. (4) Lecture, three hours; laboratory, two hours. Examination of historical and contemporary roles of man as a major agent of biological change in Earth's ecosystems.

M40. Introduction to Statistical Methods. (4) (Formerly numbered 40.) (Same as Statistics M12.) Lecture, three hours; laboratory, 90 minutes; outside study, seven and one-half hours. Satisfies statistics requirement for Geography major. Presentation and interpretation of data, descriptive statistics and measures of spatial patterns, introduction to statistical inference and measures of association. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Geography. (4 each) 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.

Upper Division Courses

100. Principles of Geomorphology. (4) Lecture, three hours; reading period, one hour. Requisite: course 1. Recommended: course 100A. Study of processes that shape the world's landforms, with emphasis on weathering, mass movement and fluvial erosion, transport, deposition; energy and material transfers; space and time considerations.

100A. Principles of Geomorphology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 100. Field and laboratory investigations of weathering, mass movement, fluvial erosion, transport, deposition; related geomorphic phenomena. P/NP or letter grading.

101. Coastal Geomorphology. (4) Lecture, three hours; reading period, one hour. Requisite: course 1. Recommended: course 101A. Study of origin and development of coastal landforms, emphasizing past and present changes, hydrodynamic processes, sediment transfers, and such features as beaches, estuaries, lagoons, deltas, wetlands, dunes, seacliffs, and coral reefs, together with coastal zone management. P/NP or letter grading.

101A. Coastal Geomorphology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 101. Field and laboratory investigations of coastal landforms, emphasizing past and present changes, hydrodynamic processes, sediment transfers, and such features as beaches, estuaries, lagoons, deltas, wetlands, dunes, and seacliffs, together with coastal zone management.

103. Paleoclimatology and Ice-Age Environments. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Study of past climates and their environmental impact, with emphasis on the last three million years, including evidence for glacial and interglacial oscillations, historic changes, paleogeographic reconstruction, external and internal forcing mechanisms, and human implications. P/NP or letter grading.

104. Climatology. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of the many relations between climate and the world of man. Application of basic energy budget concepts to the microclimates of relevance to ecosystems of agriculture, animals, man, and urban places. P/NP or letter grading.

105. Hydrology. (4) Lecture, three hours; reading period, one hour. Corequisite: course 105A. Recommended: courses M40, 104. Designed for juniors/seniors. Role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on the landscape. Field projects required. P/NP or letter grading.

105A. Hydrology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 105. Field and laboratory investigations into role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on the landscape. Students solve applied hydrology problems in laboratory and make hydrologic measurements in the field.

107. Soil and Water Conservation. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Recommended: course 105 or 106 or Civil Engineering 150. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forest engineering, mining, and other rural uses of land. P/NP or letter grading.

108. World Vegetation. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Characteristics, distribution, environmental and cultural relationships of world's principal vegetation patterns. P/NP or letter grading.

110. Population and Natural Resources. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of debate about environmental change and ability of the planet to maintain a growing population. Introduction and evaluation of basic demographic processes in context of food production, energy use, and environmental degradation. Discussion of major debates about use of resources in context of increasing population in developing countries and decreasing population in Western countries. P/NP or letter grading.

111. Forest Ecosystems. (4) Lecture, three hours; reading period, one hour; field trips. Requisites: course 2, Life Sciences 1. 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.

112. Analytical Animal Geography. (4) Lecture, three hours; reading period, one hour. Requisites: courses 1, 2 or Life Sciences 1, 40. 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.

M115. Environmentalism: Past, Present, and Future. (4 to 6) (Same as Urban Planning CM189.) Discussion, three hours; optional field study, five to 10 hours. Exploration of history, politics, and theories of environmental movements, dynamics of race, class, and gender in relation to environmental agendas, and potential role of environmentalism in reshaping our society. Readings, discussion, and research papers. Offered annually as a graduate research seminar and biannually as an undergraduate upper division lecture and field studies program. P/NP or letter grading.

116. Biogeography of Plant and Animal Invasions. (4) Lecture, three hours; reading period, one hour. Requisite: course 1 or 2 or 5 or Biology 2. 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.

118. Medical Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Examination of patterns of population/place/disease interactions and some effects of change and development on disease etiology and problems of health care.

120. Conservation of Resources: North America. (4) Requisites: courses 1, 2. Designed for juniors/seniors. Analysis of basic principles and problems associated with conservation of natural resources in the U.S. and Canada.

121. Conservation of Resources: Underdeveloped World. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of principles and problems of conservation of natural resources of the underdeveloped world. P/NP or letter grading.

122. Wildlife Conservation in Eastern Africa. (4) 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.

123. Bioresource Management. (4) Lecture, three hours; discussion, one hour. Requisites: courses 2, 5. Recommended: course 40. Designed for juniors/seniors. Theory and practice of management and conservation of bioresources. Introduction to wildlife management, endangered species conservation, and design and maintenance of National Parks and ecological reserves. P/NP or letter grading.

124. Environmental Impact Analysis. (4) Lecture, three hours; discussion, one hour. Preparation: two environmental studies cluster courses. Requisite: course 40. Introduction to interdisciplinary analysis of local and regional impacts on environmental systems. Evaluation of state and federal concepts for analysis of environmental impact. P/NP or letter grading.

125. Health and the Global Environment. (4) Lecture, three hours; reading period, one hour. Impact of the environment and lifestyle on individual health examined from a geographical perspective, with examples from both developed and developing countries. P/NP or letter grading.

126. Geography of Extinction. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Geographic and taxonomic survey and analysis of biotic extinctions over the past 15,000 years. Identification of extinction factors and pathways through case studies of extinct and endangered species and communities. P/NP or letter grading.

M127. Soils and Environment. (5) (Same as Environment M127 and Organismic Biology M127.) Lecture, five hours; discussion, one hour; field trips. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L. 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. Letter grading.

M128. Global Environment and Development: Problems and Issues. (4) (Same as Urban Planning CM128.) Lecture, three hours; discussion, one hour. Requisite: course 5. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and the environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Examination of emergent local and regional coalitions for self-reliance and sustainable development. Case studies from Africa, Latin America, Asia, and the U.S. P/NP or letter grading.

129. Seminar: Environmental Studies. (4) Seminar, three hours; reading period, two hours. Preparation: one course each from natural and human systems cores, three environmental studies cluster courses. Limited to seniors. Qualitative/quantitative analysis of problems associated with rational protection and use of selected environmental systems (urban, rural, forest, desert, coastal, water, soil, or others). P/NP or letter grading.

130. Geographical Discovery and Exploration. (4) Lecture, three hours; reading period, one hour. Requisites: courses 1, 3. Designed for juniors/seniors. Survey of history of exploration, from earliest times to modern, with emphasis on period from Marco Polo to the present.

131. Environmental Change. (4) 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.

133. Cultural Geography of the Modern World. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Evolutionary and structural approach to sociocultural geography of the modern world system, with particular emphasis on structure and functioning of its core, semi-periphery, and periphery. P/NP or letter grading.

134. Space, Place, and Nature in Western Thought. (4) Lecture, three hours. Designed for juniors/seniors. History of development of basic ideas of geography — space, place, and nature — in Western thought. Relationship between those ideas and conceptions of science, knowledge, and inquiry. P/NP or letter grading.

135. African Ecology and Development. (4) Lecture, three hours. Designed for juniors/seniors. Overview of contemporary ecological and development issues in sub-Saharan Africa. P/NP or letter grading.

136. Technology, Nature, and the American Landscape. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of evolution of cultural landscapes of the area that is now the U.S. Examination of past geographies and of geographical change through time. P/NP or letter grading.

137. Historical Geography of American Environment. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 1, 2. Designed for juniors/seniors. Study of systematic changes of natural environment in the U.S. during historical time, with emphasis on interplay between and among natural factors of climate, soils, vegetation, and landforms, and human factors of settlement, economic activity, technology, and cultural traits. P/NP or letter grading.

138. Place, Identity, and Networked World. (4) Lecture, three hours; reading period, one hour. Communications technologies, such as personal computers and Internet, seem to be connected to dramatic changes in identities of people, groups, and places. Exploration of those changes and their implications for social institutions and human values and practices. P/NP or letter grading.

140. Political Geography. (4) 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.

142. Population Geography. (4) 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.

143. Geography of Health Care. (4) Lecture, three hours. Examination of geography of health care delivery and planning, focusing on factors which influence accessibility and utilization of health services by consumers. Spatial aspects of organization of health care influence who gets care where. P/NP or letter grading.

144. Ethnicity in the American City. (4) Lecture, three hours; reading period, two hours. Recommended preparation: course 142. Designed for juniors/seniors. Designed to encourage and facilitate critical thinking about geographical aspects of ethnicity in contemporary America, with focus specifically on nonwhite ethnic minorities (blacks, Hispanics, Asian Americans, and Native Americans). Use of a comparative perspective to explain changing distribution, social, economic, and political behavior, and adjustment problems these groups face in the contemporary American city. P/NP or letter grading.

146. Gender, Race, and Geography of Employment in American Cities. (4) Lecture, three hours; reading period, two hours. Designed for juniors/seniors. Geography of employment of men and women of different racial and ethnic backgrounds in American cities. Examination of interrelationships between space and division of labor, and spatial restructuring on employment of women and minorities. P/NP or letter grading.

148. Economic Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 4. Designed for juniors/seniors. Geographical aspects of economic production and growth. General theory of the space-economy. Land-use processes. Location of industry. Regional development. P/NP or letter grading.

M149. Transportation Geography. (4) (Same as Urban Planning M149.) Requisite: course 3 or 4. Designed for juniors/seniors. Study of geographical aspects of transportation, focusing on characteristics and functions of the various modes and on complexities of intra-urban transport.

150. Urban Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of development, functions, spatial patterns, and geographic problems of American cities. P/NP or letter grading.

152. Cities of Europe. (4) Lecture, three hours; reading period, one hour. Designed for 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.

155. Industrial Location and Regional Development. (4) Lecture, three hours. Requisite: course 4 or Economics 1 or 2 or 5 or 11. Designed for juniors/seniors. Reexamination of industrial location theory in light of contemporary theories of industrial organization and local labor markets. Consideration of empirical patterns of industrialization and regional growth, with special reference to Frostbelt/Sunbelt shifts and offshore relocation. P/NP or letter grading.

156. Metropolitan Los Angeles. (4) 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 the Los Angeles metropolitan area. P/NP or letter grading.

157. Models of Regional Growth and Change. (4) Lecture, three hours; reading period, one hour. Requisite: course 4. Recommended: course 40. Examination of empirical and theoretical issues of regional growth and change. Introduction to supply and demand-based models of regional development.

159A-159E. Problems in Geography. (4 each) Discussion, three hours; reading period, one hour. Preparation: completion of three courses in a concentration. Limited to seniors. Seminar course in which students carry out intensive research projects developed from courses within a concentration. P/NP or letter grading. **159A.** Urban and Regional Development Studies; **159B.** Spatial Demography and Social Processes in the City; **159C.** Culture and Environment in the Modern World; **159D.** Physical Geography; **159E.** Biogeography.

Procedures

163. Field Analysis in Biogeography. (4) Fieldwork, eight hours. Requisites: courses 2, 5, 108, 112. Examination of field procedures and intellectual concepts used in observation, measurement, analysis, and interpretation of phenomena pertinent to biogeography and interrelated human influences. P/NP or letter grading.

166. Images of Earth: The World from Above. (4) Lecture, three hours. Use of maps, charts, diagrams, and other images to show how Earth has been represented through the ages, how they have been influenced by current ideas and, in turn, how they have themselves influenced the course of events. P/NP or letter grading.

167. Cartography. (6) Lecture, two hours; laboratory, six hours; outside study, three hours. Preparation: three courses from 1 through 5. Designed for juniors/seniors. Survey of the 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.

168. Introduction to Geographic Information Systems. (4) (Formerly numbered 170.) Lecture, two hours; laboratory, two hours; outside study, two hours. Designed for juniors/seniors. Introduction to basic geographic information systems (GIS) concepts and spatial analysis. Data structures, topology, and attribute information. Laboratory exercises use database query, manipulation, and spatial analysis to address "real world" problems. P/NP or letter grading.

169. Satellite Remote Sensing and Imaging Geographic Information Systems. (4) Lecture, two hours; laboratory, one hour; outside study, one hour. 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 system (GIS) software. P/NP or letter grading.

170. Advanced Geographic Information Systems. (4) (Not the same as course 170 prior to Spring Quarter 1997.) Lecture, three hours; discussion, one hour. Requisite: course 168. 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.

171. Quantitative Analysis. (4) Lecture, three hours; laboratory, one hour. Requisite: course 40. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

M178. Dating Techniques in Environmental Sciences and Archaeology. (4) (Same as Anthropology M116Q.) Lecture, three hours; reading period, one hour. Introduction to scientific dating methods such as radiocarbon dating, radiation damage methods, biological dating techniques, and magnetic dating, and applications in environmental sciences, archaeology, and physical anthropology.

Regions

180. North America. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Delimitation and analysis of principal geographic regions of the U.S. and Canada. P/NP or letter grading.

181. Mexico, Central America, Caribbean. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding the historical development of Middle America and the contemporary economic and cultural geography of Mexico and countries of Central America and the West Indies. P/NP or letter grading.

182A. Spanish South America. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding the historical development of Spanish South America and the contemporary economic and cultural geography of the individual Spanish-speaking countries. P/NP or letter grading.

182B. Brazil. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding the historical development of Portuguese South America and the contemporary economic and cultural geography of Brazil. P/NP or letter grading.

183. Europe. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic conditions and their relation to economic, social, and political problems in Europe. P/NP or letter grading.

184. Russia. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic conditions and their relation to economic, social, and political problems in Russia and former Soviet lands. P/NP or letter grading.

185. South and Southeast Asia. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Regional synthesis with varying emphasis on the people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation. P/NP or letter grading.

186. Contemporary China. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Systematic geographic analysis of elements of landscape, resources, population, and socioeconomic characteristics of the People's Republic of China. Dynamics that have led to China's major role in the East Asian and international scene, with special attention to China-Japan and Sino-American relations and their geographic bases. P/NP or letter grading.

187. Middle East. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of economic, social, and political geography of the area extending from Iran to Morocco and from Turkey to Sudan. Emphasis on geographical themes and problems during historical and modern times. P/NP or letter grading.

190. Australasia. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Regional synthesis of physical and cultural features which characterize Australia, New Zealand, and the islands of the South Pacific. P/NP or letter grading.

191. California. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Systematic and regional treatment of geography of California, including physical, cultural, and economic aspects and detailed studies of the various regions. P/NP or letter grading.

Special Studies

199. Special Studies. (2 to 8) Hours to be arranged. Limited to juniors with a B average in the major or seniors.

199HA-199HB. Honors in Geography I, II. (4-4) Hours to be arranged. Preparation: 3.25 grade-point average overall, at least five upper division geography courses with a 3.5 grade-point average. **199HA.** Independent study course taught by team of two faculty members who assist student with bibliographic research and/or field research on a topic of mutual interest to student and the faculty members. Successful completion of course 199HA entails preparation of a detailed bibliography and outline (to be evaluated by the two faculty members) for writing of a substantial paper during course 199HB. If that work is determined to be of A quality, student is allowed to continue in honors program. If that work is graded B or below, credit is awarded, but student is not permitted to continue in honors program. **199HB.** Devoted to writing of substantial paper researched and outlined in course 199HA. It also is evaluated by the two faculty members. If paper is determined to be of A quality, student graduates with honors in geography. If paper is graded B or below, credit is awarded, but student does not receive honors.

199I. Independent Studies for Internships. (2 to 4) Independent studies course to be supervised jointly by Field Studies Office and faculty adviser. Further supervision to be provided by placement for which student is doing internship. May not be applied toward major requirements. P/NP grading.

Graduate Courses

Environment

200. History and Paradigms of Geomorphology. (4) Lecture, two hours; discussion, one hour; reading period, eight hours. Preparation: two courses from 101, 103, 105, 107. Requisite: course 100. Analysis of geomorphic theories since the 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.

201. Coastal Geomorphology Seminar. (4) Discussion, three hours; reading period, five hours; fieldwork. Requisites: courses 100, 101. Discussion of selected topics pertaining to geomorphic processes and responses observable in the coastal zone. May be repeated for credit.

202. Fluvial Geomorphology Seminar. (4) Discussion, three hours; reading period, five hours; fieldwork. Requisites: courses 100 and 105, or Civil Engineering 150. Discussion of selected topics pertaining to action of running water in shaping the physical landscape. May be repeated for credit.

203. Glacial Geomorphology Seminar. (4) Discussion, three hours; reading period, five hours; fieldwork. Requisites: courses 100, 103. Discussion of selected topics pertaining to action of snow and ice in arctic and alpine environments. May be repeated for credit.

204A-204B-204C. Advanced Climatology. (4) Lecture, three hours; laboratory, one hour. Preparation: first year of calculus and acquaintance with FORTRAN IV. Requisite: course 104. Courses must be taken in sequence. Introduction to tools and concepts of environmental physics of relevance to natural and man-made landscapes. Such basic intellectual, mathematical, and computer programming tools are of special concern to physical geographers, ecologists, and architects.

205. Seminar: Climatology. (4) Discussion, three hours; reading period, one hour. Requisites: courses 204A-204B-204C. Selected topics. May be repeated for credit.

208. Advanced Biogeography: Plants. (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.

212. Advanced Biogeography: Animals. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisite: course 112 or 117. Intensive review and analysis of biophysical and cultural factors influencing animal distributions.

213. Seminar: Biogeography. (4) Discussion, three hours; reading period, two hours. Requisite: course 208 or 212. Related research projects growing out of course 208 or 212. May be repeated for credit.

215. Quaternary Studies: Physical Aspects. (4) Discussion, three hours; reading period, two hours; fieldwork, three hours. Preparation: at least one course from 200 through 205 or an appropriate graduate course in atmospheric sciences or Earth and space sciences. Analysis of the changing physical environment of the Quaternary period. May be repeated for credit.

217. Quaternary Studies: Ecological Aspects. (4) Discussion, three hours; reading period, two hours. Requisites: courses 202 or 204A-204B-204C or 208 or 212 or an appropriate graduate course in anthropology, botany, Earth and space sciences, or zoology. Analysis of ecological aspects of environmental change during the Quaternary period. May be repeated for credit.

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.

223. Seminar: Humid Tropics. (4) Seminar, three hours; reading period, two hours. Designed for graduate students. Selected topics. Biophysical and cultural complexes of the humid tropics, with emphasis on problems related to human settlement and livelihood. May be repeated for credit. S/U or letter grading.

M229. Resource-Based Development Issues: First World and Third World — Environmental Issues and Processes. (4) (Formerly numbered 229.) (Same as Urban Planning M267A.) Discussion, three hours. Recommended preparation: Urban Planning 266. 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 the state, corporations, and local groups, and environmental and social impact of its development.

Human Geography

230. Political Ecology. (4) Seminar, three hours; reading period, three hours. Designed for graduate students. Exploration of theoretical constructs and approaches to analyses of development and the environment associated with political ecology. Examination of relations between poverty, ecological degradation, and global restructuring. Case studies of changing production organization and ecology of land-use patterns within different and emergent economic and political contexts. S/U or letter grading.

231. Terminology and Theory in Political Economy: Deconstruction and Reconstruction of Approaches in Research, Writing, and Practice. (4) Discussion, three hours; reading period, three hours. Designed for graduate students. Deconstruction of oft-used terms in intellectual discourse with goal of making assumptions more explicit, analysis more concise, and use of theory to inform practice (and vice versa) more successful. Attempt to reconstruct a more concise and useful terminology to inform theoretical inquiry and research practice. S/U or letter grading.

232. Advanced Cultural Geography. (4) Lecture, 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.

233. Seminar: Cultural Geography. (4) Discussion, three hours; reading period, two hours. Requisite: course 232 or 236. Discussions on particular topics in cultural geography. Content may vary from year to year. May be repeated for credit.

234. Environment and Subsistence in Indigenous Cultures. (4) Seminar, three hours. Discussion on resource management strategies and environmental issues in indigenous cultures. Topics vary from year to year.

237. Seminar: Historical Geography. (4) Discussion, three hours; reading period, two hours. Requisite: course 236. Theory and practice of historical geography in North America and Europe. May be repeated for credit.

240. 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.

241. Seminar: Political Geography. (4) Discussion, three hours; reading period, two hours. Requisite: course 240. Related research projects growing out of course 240. May be repeated for credit.

242. 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.

244. Topics in Spatial Demography. (4) Discussion, three hours; reading period, two hours. Selected topics in migration and mobility, especially the nature of housing choice and neighborhood change. May be repeated for credit. S/U or letter grading.

248. Location and Space Economy. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Methods of locational analysis as applied to problems of regional growth and development. S/U or letter grading.

249. Seminar: Economic Geography. (4) Discussion, three hours; reading period, two hours. Requirement: course 248. Related research projects growing out of course 248. May be repeated for credit.

250. Urban Systems. (4) Lecture, 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.

251. Seminar: Urban Geography. (4) Discussion, three hours; reading period, two hours. Requirement: course 250. Related research projects growing out of course 250. May be repeated for credit.

254. Migration and Residential Mobility. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Description and modeling of national, regional, and intra-urban migration.

Procedures

260. Advanced Field and Laboratory Analysis in Geomorphology. (4) Laboratory/fieldwork, 10 hours. Preparation: two courses from 200, 201, 202, 203, 215. Designed for graduate students. Examination of advanced field and laboratory procedures used in contemporary geomorphic research, with emphasis on scientific design, instrumentation, and data evaluation.

262. 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 the impact of human activity.

268. Advanced Projects in Geographic Information Systems (GIS)/Remote Sensing. (4) Discussion, one hour; laboratory, three hours. Recommended prerequisite: course 169 or 170 or Earth and Space Sciences 150. Familiarity with a GIS or image processing package expected. Individualized research projects conducted on UNIX platforms within a structured course environment. All aspects of a modest but original project, including data acquisition, ingestion, and analysis; interpretation of results and presentation in publication-style format.

269. Remote Sensing of Environment. (4) Laboratory, three hours; independent study, two hours. Requirement: 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.

M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Atmospheric Sciences M272A-M272B-M272C and Earth and Space Sciences M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout the 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.

M272. Spatial Statistics. (4) (Same as Urban Planning M215.) Lecture, two hours; discussion, one hour; laboratory, one hour. Specific techniques useful in analysis of spatial data and modeling of spatial distributions.

Regions

283. Europe. (4) Seminar, two hours; discussion, two hours. Requirement: course 183. May be repeated for credit. S/U or letter grading.

286. 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. Advanced Regional Geography: Selected Regions. (4) Lecture, three hours; discussion, one hour. Preparation: appropriate upper division regional course. Lecture series devoted to a specific region at discretion of instructor. May be repeated for credit.

Seminar

295. Seminar: Geographic Thought. (4) Discussion, three hours; reading period, two hours. Designed for graduate students. Discussion and study of topics significant to growth of modern philosophy of geography.

Core Courses

298A. Philosophical Issues in Geographical Inquiry. (4) Lecture, three hours. Discussion of geographical research within context of philosophical debates concerning the nature of scientific inquiry.

298B. History of Modern Geography. (4) Lecture, three hours; reading period, one hour. Evolution of the field of geography in the 19th and 20th centuries, with emphasis on professionalization of geography and its emergence as a modern academic discipline.

298C. Statistical Methods for Geographic Research. (4) Lecture, three hours; laboratory, two hours. Requirement: course 171. Use of linear models, discriminant functions, and factor analysis to analyze problems in geography.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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.

596. Directed Individual Study or Research. (2 to 8) May be repeated for credit. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 8) Independent study. May be repeated for credit. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 8) Independent study. May be repeated for credit. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 8) Independent study.

GERMANIC LANGUAGES

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James Schultz, Ph.D., *Acting Chair*

Professors

Ehrhard Bahr, Ph.D. (*German*)
Jesse L. Byock, Ph.D. (*Old Norse*)
Robert S. Kirsner, Ph.D. (*Dutch, Afrikaans*)
Kathleen L. Komar, Ph.D. (*German*)
Wolfgang Nehring, Ph.D. (*German*)
James Schultz, Ph.D. (*German*)
Hans Wagener, Ph.D. (*German*)

Professors Emeriti

Franz H. Bäuml, Ph.D.
Marianna D. Birnbaum, Ph.D.
Carl W. Hagege, Ph.D.
Victor A. Oswald, Jr., Ph.D.
Donald J. Ward, Ph.D.
Terence H. Wilbur, Ph.D.

Associate Professor

Jill Anne Kowalik, Ph.D. (*German*)

Assistant Professor

Christopher M. Stevens, Ph.D. (*Germanic Linguistics and Philology*)

Lecturer

Jutta Landa, Ph.D. (*German*)

Scope and Objectives

The Department of Germanic Languages offers an extraordinary array of courses in languages, literatures, and cultures. This broad range of studies offers training in specialized fields such as film, linguistics, folklore, and critical theory. Courses prepare students for a variety of careers, including law, business, international relations, academic professions, and publishing.

Undergraduate majors earn a Bachelor of Arts degree. The graduate program offers Master of Arts and Ph.D. degrees. Refer to the Scandinavian Section later in this catalog for information about the degrees in Scandinavian studies.

At all levels of study various specializations are possible. Language, literature, and culture studies are available in Afrikaans, Dutch, Old Norse, and Icelandic, in addition to German. The program also provides opportunity for study, work-study, and internships in a German-speaking country or in a country related to the course of study.

Undergraduate Study

Grammar/Composition Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Afrikaans, Dutch, German, and Old Norse grammar and/or composition. Students with demonstrated preparation may be permitted to transfer to a more advanced course with consent of the instructor.

German B.A.

Preparation for the Major

Required: German 1, 2, 3, 4, 5, 6, or equivalent. Students who have completed one year of college-level German language courses should enroll in course 4. Students who are in doubt as to their level of language proficiency or who are native speakers should consult the language program supervisor.

The Major

Three plans are offered by the department:

Plan A: Literature and Culture

Plan A is designed for students who are interested in studying German language and thought by selecting courses in literature, film, folklore, and contemporary culture studies.

Required: German 130A-130B and 11 upper division German courses, at least three of which must be at the 150 level or above. Two of the 11 courses may be upper division courses in other departments. Students who enroll in any course taught in English translation in the department must sign a contract with the instructor that all texts authored in German are to be read in the original language. The contract must then be filed with the undergraduate adviser. Students may take up to two courses from the 120 series or below in satisfaction of major requirements. Two additional courses from the 120 series or below may be selected if students elect not to take courses in other departments. All courses must be taken for a letter grade.

Plan B: German Studies

Plan B is designed for students whose interests are primarily interdisciplinary in nature. Departmental majors receive credit not only for upper division courses in German literature, film, folklore, and contemporary culture, but for courses in related fields such as history, political science, philosophy, music, and others.

Required: German 130A-130B, seven upper division German courses (at least two of which must be at the 150 level or above), and four upper division courses in a related field or fields selected in consultation with the undergraduate adviser. Students who enroll in any course taught in English translation in the department must sign a contract with the instructor that all texts authored in German are to be read in the original language. The contract must then be filed with the undergraduate adviser. Only two such contract courses may be applied toward the major. All courses must be taken for a letter grade.

Plan C: Germanic Languages/Linguistics

Plan C is intended for students interested in the study of languages and linguistics and allows students to study more than one Germanic language

Required: German 130A-130B, 150, 170, C172, and eight additional upper division courses as follows: three courses in one other Germanic language (Hungarian taught in the Slavic Languages and Literatures Department or Scandinavian languages taught in the Scandinavian Section may be applied by petition to the undergraduate adviser), three linguistics courses from outside the department (i.e., anthropology, applied linguistics, linguistics, sociology) selected in consultation with the undergraduate adviser, and two electives from department offerings (excluding German 100A, 100B, 100C, and courses taught in English translation). All courses must be taken for a letter grade.

Honors Program

To qualify for graduation with departmental honors, students must earn a cumulative grade-point average of 3.6 or better in upper division German courses and a 3.3 overall

GPA, and complete German 195 with a grade of A. Contact the departmental honors adviser for procedures, special arrangements, possible exceptions, and other information.

Instructional Credential in German

Students desiring the general secondary instructional credential in German should consult the Department of Education, 1009 Moore Hall (310-825-8328), and the Department of Germanic Languages.

German Minor

To enter the German minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (eight units): German 5 and 6 or equivalent.

Required Upper Division Courses (20 units): Any five German courses (excluding German literature in translation).

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Germanic Languages Minor

To enter the Germanic Languages minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (28 units): Seven courses in any of the following languages and literatures: Afrikaans, Dutch, German (excluding German literature in translation), Hungarian, Old Norse, Scandinavian languages, Yiddish.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Germanic Languages offers the Master of Arts (M.A.) degree Germanic Languages.

Admission

A bachelor's degree in German, Germanic linguistics, or linguistics with a minor in German and a minimum grade-point average of 3.0

from an accredited U.S. institution or the equivalent is required for admission to the M.A. program. Applicants with deficiencies in undergraduate preparation may be admitted but are required to take remedial courses, as recommended by the graduate adviser. Three letters of recommendation are required. Graduate Record Examination (GRE) scores are required from applicants from the U.S. and other English-speaking countries.

Areas of Study

There are four M.A. plans that differ with respect to course requirements and comprehensive examinations. Plan A is for students who plan to terminate their studies with the M.A. and an instructional credential. Plan B is for students whose main interests are literary and linguistic rather than pedagogical and for students who plan to proceed toward the Ph.D. Plan C is for students with main interests in German studies who plan to terminate their studies with the M.A. Plan D is for students whose main interests are in Germanic linguistics who plan to proceed toward the Ph.D.

Course Requirements

Plan A requires a minimum of nine upper division and graduate courses, of which at least six courses must be graduate level (200 or 500 series). In addition, German 134, 150 (or equivalent) are required. Undergraduate credit for these courses is applicable in satisfaction of these requirements.

Plan B requires a minimum of nine upper division and graduate courses, of which at least six courses must be graduate level (200 or 500 series). One seminar must be included.

Plan C requires a minimum of nine upper division and graduate courses (at least six must be graduate courses), with six in the major field (German) and three in a related field such as history, musicology, philosophy, or political science. All related field courses must be in the 200 series. One major field and one related field seminar must be included.

Plan D requires a minimum of nine upper division and graduate courses beyond the language requirements, of which at least six courses must be graduate level (200 or 500 series) and of which up to four courses may be from other departments in a relevant area (e.g., linguistics, applied linguistics, Indo-European linguistics, Romance linguistics). German 217, C238, and one seminar must be included. Half of the coursework should be in synchronic linguistics and half in diachronic linguistics. All coursework must be approved in advance by the graduate adviser.

German 596, 597, and 598 are graded S/U. Course 596 may be taken only twice during graduate study (M.A. and Ph.D. programs.). Course 597 may be taken once before the M.A. degree; course 598 may be taken once. A maximum of two 500-series courses may be applied to the course requirements. However, if course 596 is taken twice before the M.A., it may not be applied to the eight graduate

courses required after completion of the M.A. Graduate students are expected to attend and participate in departmental lectures and colloquia.

Comprehensive Examination Plan

Examinations are offered each quarter, beginning with the written part during the fifth week of each quarter. Under exceptional circumstances, the chair of the department will receive petitions for M.A. examinations during the summer recess.

One examination committee is appointed for each quarter. The members of the committee administer the written and oral examinations.

For Plans A and B there are three examinations with the following structures:

One four-hour written examination. Three areas of study are required. A two-hour examination is required for the primary area. Two additional areas of study are chosen from those listed below. A one-hour examination is required for each of the two areas.

For Plan A, students must choose history and structure of Germanic languages as one area of study. Students who choose German literature after 1600 are advised to choose the German literature before 1600 and history and structure of Germanic languages area as well. Students who choose only the areas of history and structure of Germanic languages and German literature after 1600 must take German 202A and 202B.

- (1) German literature before 1600
- (2) History and structure of Germanic languages
- (3) German literature after 1600
- (4) Dutch and Afrikaans
- (5) Old Norse studies
- (6) Yiddish
- (7) Folklore
- (8) Hungarian

Bibliography Question. On the Monday following the completion of the written examinations, a bibliography take-home question is given out that is based on the primary concentration. The question is to be completed and returned no later than the following Monday.

One-hour oral examination. A one-hour oral examination follows in the week in which the bibliography question is returned.

For Plan C, students submit two essays of approximately 10,000 words in the major field of German studies and 7,500 words in the extra-departmental related field, written under the guidance of a three-member faculty committee, one of whose members must be from another department. After satisfactorily completing the essays, members of the committee decide whether or not the candidate has passed.

For Plan D, the M.A. examination consists of three written examinations of two hours each, followed by a one-hour oral examination. Stu-

dents are examined in the following areas: one examination on the history of Germanic languages, theory, and historical linguistics; one examination on the structure of Germanic languages, theory, and synchronic linguistics; one examination on languages and dialects. Students may select one modern language, one philological language, and a third language of their choice. The examination includes translation and parsing. To continue toward the Ph.D., students must receive a pass with the recommendation to continue.

After the written examinations have been taken, the M.A. committee decides whether students may proceed to the oral examination. If students fail the oral examination, the M.A. committee decides whether the entire examination must be repeated or only the oral portion. The examination may be repeated only once without petition.

If students apply for the M.A. under Plan B (to proceed toward the Ph.D.) and are awarded a terminal M.A., the examinations may be repeated if they choose not to have the M.A. degree officially awarded before the reexamination.

Thesis Plan

In lieu of the written examination requirement for Plans A, B, and D, students may submit a thesis to the department. Students in Plan B who elect to submit a thesis must, however, complete a two-hour oral examination in the area of their thesis as well as in two other areas of concentration in order to be approved for further doctoral study. Students in Plan D who elect the thesis option are required to take one two-hour written examination in addition to the thesis.

The following additional rules apply to the thesis option:

- (1) The thesis committee must consist of three members, one of whom serves as director. The student selects the director, and the other two members are appointed by the chair in consultation with the student.
- (2) No committee member from outside the department is required, except in the case of Plan C. For this plan, one member must be from the related field.
- (3) The thesis committee should be established no later than the end of the fourth quarter of the candidate's graduate studies. At that time, the thesis committee must approve the plan for the thesis in writing and submit a copy to the graduate adviser.
- (4) No 598 course is required, although students may take one such course in preparation for the degree.
- (5) Candidates who fail the examination may repeat it once without petitioning the department. The examination must be repeated no later than one quarter following the quarter in which the first examination was failed.
- (6) The *Schedule of Classes* specifies the date for filing of the final draft of a thesis with

the student's committee and the date on which revised and completed theses may be filed with the University. The examinations must be taken prior to the date on which revised and completed theses may be filed with the University.

Doctoral Degree

Admission

The department requires an M.A. degree in German or a Germanic language from an accredited U.S. institution for admission to the program leading to the Ph.D. degree in Germanic Languages. Also acceptable are European degrees such as German or Austrian *Staatsexam*, a German or Austrian *Magister*, or a Swiss *Lizenziat*. A German *Zwischenprüfung* is not acceptable. In the case of significant deficiencies in prior training, the graduate advisers make appropriate study or course recommendations. All deficiencies must be removed prior to taking the qualifying examinations. Applicants with an M.A. in fields other than German (for example, in Comparative Literature or in Linguistics) are required to pass the written part of the M.A. comprehensive examination in German or Scandinavian, as applicable, within three quarters after admission to the department. Three letters of recommendation are required.

Major Fields or Subdisciplines

Not applicable.

Course Requirements

Students must have completed eight graduate courses (at least four in the Department of Germanic Languages) beyond the M.A. degree, three of which must be seminars. If students have already taken a seminar in preparation for their M.A. degree, only two of these eight courses must be seminars.

Written and Oral Qualifying Examinations

Students must (1) pass the graduate reading examination in French; (2) pass a departmental reading examination either in a modern Scandinavian language or in Dutch-Flemish, Afrikaans, Latin, or Yiddish (or an approved substitute language); (3) successfully complete three seminars; (4) pass the qualifying examinations. Written examinations may be repeated in case of failure. The faculty must decide whether students who fail the examination twice may be permitted another repeat.

The written examinations may be taken any time after admission to the doctoral program and fulfillment of all requisite requirements. The written qualifying examinations consist of 11 hours of total examination time. Students in literature are expected to cover six different areas: one author, one genre, one period, one theoretical or historical problem, and two special topics of their choosing. Students in linguistics complete a three-hour examination in five target languages and a second three-hour examination in linguistic theory. Students in

Old Norse are examined for two hours in language, two hours in theoretical problems of interpretation, and two hours on issues concerning social and historical context. Students in Scandinavian complete a three-hour examination in their major Scandinavian literature, and a second three-hour examination in the other two Scandinavian literatures.

After the student has completed the written examinations successfully, the chair of the guidance committee schedules the University Oral Qualifying Examination to be administered by the doctoral committee as soon as possible after completion of the written examinations.

German

Lower Division Courses

1. Elementary German. (4) Lecture, five hours; laboratory, one hour; outside study, five hours minimum. P/NP or letter grading.

1G. Elementary German for graduate students. (4) Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

2. Elementary German. (4) Lecture, five hours; laboratory, one hour; outside study, five hours minimum. Enforced requisite: course 1. P/NP or letter grading.

2G. Elementary German for Graduate Students. (4) Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

3. Elementary German. (4) Lecture, five hours; laboratory, one hour; outside study, five hours minimum. Enforced requisite: course 2. P/NP or letter grading.

3G. German for Graduate Students. (4) Reading and translation, three hours. Requisite: course 2G. Preparation for Graduate Division foreign language reading requirement. Intensive reading and translation of humanities and social sciences texts. May not be applied toward degree requirements. S/U grading.

4. Intermediate German. (4) Lecture, five hours; laboratory, one hour; outside study, five hours minimum. Enforced requisite: course 3. P/NP or letter grading.

5. Intermediate German. (4) Lecture, four hours; laboratory, one hour; outside study, four hours. Enforced requisite: course 4. P/NP or letter grading.

6. Intermediate German. (4) Lecture, four hours; laboratory, one hour; outside study, four hours minimum. Enforced requisite: course 5. P/NP or letter grading.

8. Elementary German: Intensive. (12) Lecture, 15 hours; laboratory, five hours; outside study, 16 hours. Intensive basic course in German equivalent to courses 1, 2, and 3. P/NP or letter grading.

10. Intermediate German: Intensive. (12) Lecture, 20 hours; laboratory, four hours. Enforced requisite: course 3. Intensive intermediate course in German equivalent to courses 4, 5, and 6. P/NP or letter grading.

12. German Conversation. (2) Enforced requisite: course 1. Use of German language teaching films; students have opportunity to practice spoken German in small groups.

14. Intermediate Conversation. (2) Enforced requisite: course 3. Students have opportunity to practice spoken German in small groups.

50A-50B. Masterworks of German Literature in Translation. (4-4) Lecture, three hours. May not be applied toward completion of the major in German:

50A. Medieval Period through Classicism. Study and analysis of selected masterworks in English translation, including works from the earliest period, such as the heroic and courtly epic, to authors such as Grimelshausen, Lessing, Schiller, and Goethe.

50B. Romanticism to the Present. 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.

88. Lower Division Seminar. (4) Discussion, three hours. Course of variable content limited to topics of current interest and offered whenever a staff member is available.

Upper Division Courses

100A. German Civilization and Culture before 1700. (4) Lecture, three hours; discussion, one hour; outside study, five hours minimum. Lectures, discussions, and readings in English; knowledge of German not required. Study of development of German civilization and institutions from earliest times to 1700. Study of German culture as represented in its literature, art, music, and architecture. P/NP or letter grading.

100B. Modern German Civilization and Culture from 1700 to 1919. (4) Lecture, three hours; discussion, one hour; outside study, five hours minimum. Lectures, discussions, and readings in English; knowledge of German not required. Study of development of German civilization and institutions from 1700 to 1919. Study of German culture as represented in its literature, art, music, and architecture. P/NP or letter grading.

100C. German Civilization and Culture in the 20th Century. (4) Lecture, three hours; discussion, one hour; outside study, five hours minimum. Lectures, discussions, and readings in English; knowledge of German not required. Study of development of German culture and institutions from 1919 to the present, emphasizing developments in literature, arts, and architecture. P/NP or letter grading.

102A. German Film in Cultural Context: Early German Film. (4) (Formerly numbered 121B.) Lecture, two hours; discussion, one hour; outside study, nine hours. Lectures and texts in English; additional readings in German for majors. 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.

102B. German Film in Cultural Context: New German Film. (4) (Formerly numbered 121C.) Lecture, two hours; discussion, one hour; outside study, nine hours. Lectures and texts in English; additional readings in German for majors. Survey of German film since 1960 in its thematic and stylistic diversity. Films authored by Werner Herzog, Fassbinder, and Margarethe von Trotta are juxtaposed with commercial comedies of the 1990s. Film discussions enhanced by interactive media. Letter grading.

106. The Faust Tradition from the Renaissance to the Modern Age. (4) (Formerly numbered 119C.) Lecture, three hours; outside study, nine hours. Readings and discussions of the Faust theme in European literature and intellectual history, including chapbook of *Doktor Faustus*, Marlowe's and Goethe's dramas, and Thomas Mann's and Bulgakow's novels. Letter grading.

108. Love and Sex in German Literary Tradition. (4) (Formerly numbered 119D.) Lecture, three hours; outside study, nine hours. Study of major literary works that address issues of idealized desire, emotional/sexual boundaries, and development of sexual identity. Letter grading.

110. Nietzsche and Critique of Western Culture. (4) (Formerly numbered 118.) Lecture, two hours; discussion, one hour; outside study, nine hours. Readings that focus on Nietzsche's critique of Christianity, master/slave dynamic, and reciprocal relation between poetry and philosophy. German majors required to complete all readings in German. Letter grading.

112. Jewish Writing and Thought in German Culture from 1755 to the Present. (4) (Formerly numbered 119F.) Lecture, three hours; outside study, nine hours. 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.

116. Special Topics in Modern Literature and Culture. (4) (Formerly numbered 119E.) Lecture, three hours; outside study, nine hours. 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.

118. Feminist Issues in German Literature and Culture. (4) (Formerly numbered 121E.) Lecture, three hours; outside study, nine hours. 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.

M119K. Tristan, Isolde, and History of Heterosexuality. (4) (Same as Women's Studies M119.) Lecture, three hours; outside study, nine hours. Tristan and Isolde are among the more famous and enduring of European literary lovers, and following their tradition from Middle Ages to the present provides opportunity to consider a host of issues — from questions of genre to those of kinship, from representation of love to tyranny of gender, and history of heterosexuality. P/NP or letter grading.

120. German Folklore. (4) (Formerly numbered 134.) Lecture, three hours; outside study, nine hours. Survey of various folklore genres in cultural context, including legends, proverbs, and cultural enactments such as carnival. Letter grading.

M122. Fairy Tales in Literature and Society. (5) (Formerly numbered M119I.) (Same as Folklore M119.) Lecture, four hours; outside study, 11 hours. 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. Letter grading.

130A-130B. Conversation and Composition on Contemporary German Culture and Society I, II (4-4) (Formerly numbered 108A-108B.) Lecture, three hours; outside study, nine hours. Requisite: course 6. Course 130A is requisite to 130B. 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. Letter grading.

132. Business German. (4) (Formerly numbered 102.) Lecture, three hours; outside study, nine hours. Requisite: course 6. 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 the Internet. Letter grading.

134. Advanced German Language through Cultural History and Current Affairs. (4) (Formerly numbered 128.) Lecture, three hours; outside study, nine hours. Requisites: courses 130A-130B. 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.

136. Theory and Practice of Translation. (4) (Formerly numbered 103.) Lecture, three hours; outside study, nine hours. Requisite: course 130B with a grade of B or better. German/English and English/German translation of literary texts, popular press articles, and business documents, with attention to issues of style. Letter grading.

140A. Introduction to German Poetry. (4) (Formerly numbered 101A.) Lecture, three hours; outside study, nine hours. Close reading of representative examples of German lyric poetry from early as well as recent literary periods, including systematic consideration of poetic conventions and forms, diction, imagery, symbolism, and metrics. Letter grading.

140B. Introduction to German Drama. (4) (Formerly numbered 101B.) Lecture, three hours; outside study, nine hours. Analysis of selected dramatic genres (e.g., tragedy, comedy, one-act play, lyric drama, lyric theater, historical drama, etc.), including systematic review of dramatic forms, techniques, and theories. Texts selected from both contemporary and earlier periods. Letter grading.

140C. Introduction to German Narrative Prose. (4) (Formerly numbered 101C.) Lecture, three hours; outside study, nine hours. Analysis of narrative prose genres (e.g., short story, novella, fairy tales, etc.), including systematic review of narrative forms, techniques, and styles. Texts selected from both contemporary and earlier periods. Letter grading.

142. Introduction to 18th-Century Studies. (4) (Formerly numbered 104.) Lecture, three hours; outside study, nine hours. Topics in Enlightenment literature, social history, and culture. Works by Goethe, Lessing, Schiller, Kant, Mozart, and others. Letter grading.

144. Introduction to 19th-Century Studies. (4) (Formerly numbered 105.) Lecture, three hours; outside study, nine hours. Presentation of major texts from Romanticism to realism. Works by Kleist, Büchner, Heine, Fontane, and others. Letter grading.

146. Introduction to Modern Literature. (4) (Formerly numbered 106.) Lecture, three hours; outside study, nine hours. Analysis of selected modern works written between 1890 and 1945, including texts by authors such as Thomas Mann, Kafka, Rilke, Brecht, and others. Letter grading.

148. Introduction to Contemporary Literature. (4) (Formerly numbered 107.) Lecture, three hours; outside study, nine hours. Analysis and discussion of German, Austrian, Swiss, and ex-GDR literatures from 1945 to the present. Examination of writers such as Heinrich Böll, Günther Grass, Friedrich Dürrenmatt, Elfriede Jelinek, and Christa Wolf with a view to their specific political and cultural context. Letter grading.

150. Language and Linguistics. (4) (Formerly numbered 129.) Lecture, three hours; outside study, nine hours. Prerequisite or corequisite: course 130A. 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.

152. Studies in German Literature before 1750. (4) (Formerly numbered 122.) Lecture, three hours; outside study, nine hours. Prerequisite: course 140A. Readings and analysis of major works from the Middle Ages to the baroque. Letter grading.

154. Goethe. (4) (Formerly numbered 123.) Lecture, three hours; outside study, nine hours. Prerequisite: course 130A. Reading and discussion of representative works (except *Faust*) from Goethe's early period through maturity and old age. Letter grading.

156. Goethe's *Faust*. (4) (Formerly numbered 132.) Lecture, three hours; outside study, nine hours. Prerequisite: course 130A. Detailed interpretation of Goethe's major work, Parts I and II, together with general consideration of other treatments of the *Faust* theme in European literature. Letter grading.

158. Romanticism. (4) (Formerly numbered 124.) Lecture, three hours; outside study, nine hours. Prerequisite: course 130A. Reading and analysis of major works by German Romantics, including Friedrich Schlegel, Novalis, E.T.A. Hoffman, and Eichendorff. Letter grading.

160. Advanced Study of Modern Literature. (4) (Formerly numbered 126.) Lecture, three hours; outside study, nine hours. Prerequisite: course 130A. Naturalism, Expressionism, and other early 20th-century literary movements and works. Letter grading.

162. Advanced Study of Contemporary Literature and Culture. (4) (Formerly numbered 127.) Lecture, three hours; outside study, nine hours. Prerequisite: course 130A. Literature after 1945 in German-speaking countries, including issues such as national borders, ethnic identity, gender relations, and commercialization of culture. Letter grading.

170. Current Topics in Germanic Linguistics. (4) (Formerly numbered 137.) Lecture, three hours; outside study, nine hours. Prerequisite: course 130A. 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. Letter grading.

C172. Linguistic Theory and Grammatical Description. (4) (Formerly numbered C138.) Lecture, three hours; outside study, nine hours. Prerequisite: course 150 or Linguistics 20. 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.

195. Senior Thesis Course. (4) Extensive reading, research, and writing of senior thesis. May be used for writing honors thesis.

199. Special Studies. (2 to 4) To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

Graduate Courses

201A. Bibliography, Research Methods, and Scholarly Writing. (4) Lecture, three hours. Introduction to current state of advanced research and analysis of literary and philological materials, with emphasis on bibliographies and such tools of research as reference works, series publications, journals, archives, literary histories, and computer data banks. Practical exercises in analysis of sources, compilation and presentation of bibliographies, and writing of research papers.

201C. Theories of Literary Criticism. (4) Lecture, three hours. Analysis and discussion of foundations of literary criticism and current theories such as hermeneutics, positivism, psychoanalytical criticism, social historical approaches, intellectual history (*Geistesgeschichte*), New Criticism, Marxist Criticism, Russian and Czech Formalism, structuralism, and semiotics.

202A. Middle High German. (4) Introduction to grammar, syntax, and vocabulary of the Middle High German language. Exercises in reading Middle High German literary works, combined with study of sociocultural contexts in which works of the medieval period were produced and performed.

202B. Readings in Middle High German Literature. (4) Extensive reading of literary monuments of the medieval period in Germany. Introduction to cultural and literary history of the Middle Ages.

205. Baroque Literature. (4) Definition of the term baroque; development of modern baroque scholarship; influence of foreign models; analysis of sample theoretical writings (prosodies) and of representative poems, dramas, novels, and prose satires of the 17th century.

206A. Enlightenment and Sentimentalism. (4) Study of representative authors of the earlier part of the 18th century from Gottsched through Lessing, including authors such as Leibniz, Thomasius, Wolff, Bodmer and Breitinger, Johann Elias Schlegel, Haller, Brockes, Anacreontic poets, Gessner, Klopstock, Mendelssohn, and Wieland.

206B. *Sturm und Drang*. (4) Study of representative authors of the *Sturm und Drang* period, such as Herder, Forster, Gerstenberg, Leisewitz, Klingner, Wagner, R.M. Lenz, Moritz, Heine, Schubart, and the young Goethe and Schiller.

207A. Classicism: Goethe. (4) Selected topics from works of Goethe in the period from 1786 to 1832, such as *Iphigenie auf Tauris*, *Torquato Tasso*, *Wilhelm Meisters Lehrjahre*, *Die natürliche Tochter*, *Pandora*, and poetry selections.

207B. Classicism: Schiller. (4) Selected topics from critical and dramatic works of Schiller in the period from 1793 to 1805, such as *Über Anmut und Würde*, *Über das Erhabene*, *Wallenstein*, *Maria Stuart*, *Jungfrau von Orleans*, and *Wilhelm Tell*.

208. Romanticism. (4) Analysis of selected works of the Romantic period by authors such as Wackenroder, Tieck, the brothers Schlegel, Novalis, Hölderlin, Brentano, Arnim, the brothers Grimm, "Bonaventura," E.T.A. Hoffmann, Eichendorff, and others. Course may be genre or topic oriented.

209A. 19th-Century Lyrics. (4) Development of German lyric poetry from the classic/Romantic period to symbolism. Discussion of forms, attitudes, tendencies. Analyses may include poetry by Romantic authors, as well as Heine, Platen, the political poets of *Vormärz*, Droste-Hülshoff, Keller, Storm, C.F. Meyer, Nietzsche, George, and others.

209B. 19th-Century Drama. (4) Reading and analysis of selected dramas by Kleist, Büchner, Hebbel, Grillparzer, and others. Discussion and analyses may include topics such as *Schicksalstragödie*, bourgeois trivial drama, sociopolitical drama, historical drama, *Viennese Volkstheater*.

209C. 19th-Century Narrative Prose. (4) Analysis of German prose works from Romanticism to naturalism. Discussion of the problem of reality and literary realism with respect to narrative techniques. Authors may include Heine, Büchner, Droste-Hülshoff, Stifter, Gotthelf, Keller, C.F. Meyer, Fontane, and the early naturalists.

210A. Naturalism and Symbolism. (4) Sociological background and theoretical writings concerning naturalism and symbolism. Analysis of representative poems, dramas, and shorter narratives by authors such as Holz, G. Hauptmann, George, Hofmannsthal, and Rilke.

210B. Expressionism and Neorealism. (4) Historical and sociological background in the period from 1910 to 1933. Literary magazines, theoretical writings, poetry of expressionism and Dadaism, expressionist dramas, and shorter narratives. Definition and representative works of neorealism.

210C. 20th-Century Novel to 1945. (4) Analysis of selected 20th-century novels written prior to 1945. Authors of different literary and historical eras, such as Broch, Döblin, Hesse, Kafka, Heinrich Mann, Thomas Mann, and Rilke.

211A. Contemporary Novel. (4) Study of selected novels in the period from 1945 to the present. Works by authors from West and East Germany, Austria, and Switzerland, such as Böll, Grass, Handke, Frisch, and Christa Wolf, analyzed and placed in context of literary, cultural, and political trends.

211B. Contemporary Lyrics and Drama. (4) Study of selected dramas and poems in the period from 1945 to the present. Works by authors from West and East Germany, Austria, and Switzerland, such as Dürrenmatt, Frisch, Handke, Celan, and Brecht, analyzed and placed in context of literary, cultural, and political trends.

217. History of the German Language. (4) Historical survey of development of the standard literary German language from the time of Indo-European unity through proto-Germanic, West Germanic, medieval period, Reformation, baroque period, and Enlightenment until its final codification at the end of the 19th century.

230. Survey of Germanic Philology. (4) Systematic survey of major problems in the field of Germanic linguistics: origin and historical diffusion of Germanic dialects and their classification; problems in evolution of nominal and verbal morphology of the various dialects; problems in phonological evolution of the various dialects.

231. Gothic. (4) Systematic study of phonology and grammar of the Gothic language, with readings in Wulfila's translation of the Bible and introduction to history of the Goths and their place in the development of modern Europe.

232. Old High German. (4) 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.

233. Old Saxon. (4) Introduction to study of earliest documents in Old Low German. Readings in the *Heliand* and study of the *Old Saxon Genesis*.

C238. Linguistic Theory and Grammatical Description. (4) Lecture, three hours; outside study, nine hours. Requisite: course 150 or Linguistics 20. 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 C172. Graduate students meet as a group one additional hour each week and write research papers of greater length and depth. Letter grading.

251. Seminar: Syntax and Phonology of German. (4) Topics selected from the field of contemporary German syntax and phonology according to needs and preparation of students enrolled (e.g., *Dialektgeographie*, generative phonology, generative syntax, *Val-enztheorie*, *Texttheorie*).

252. Seminar: Historical and Comparative German Linguistics. (4) Topics selected from the field of historical German phonology and syntax according to needs and preparation of students enrolled (e.g., West Germanic problem and classification of the Germanic languages, development of Germanic verbal and nominal morphology, proto-Germanic syntax).

253. Seminar: Medieval Literature. (4) Selected topics in medieval literature, with emphasis on problems in literary analysis and applicability of various types of analysis to medieval texts.

255. Seminar: Baroque Literature. (4) Selected problems of German baroque literature, such as a particular genre, author, or theme. Textual analysis supplemented by critical review of research and application of methods of literary analysis pertinent to literature of this age.

256. Seminar: Enlightenment and *Sturm und Drang*. (4) Selected topics in 18th-century literature, such as utopian literature, love and money as motifs, family structure and family life, image of women and women's literature, Jacobin literature, seduction and betrayal as motifs, nobility and middle class in 18th-century literature. Textual analysis and review of current research.

257. Seminar: Age of Goethe. (4) Selected topics in German literature between 1775 and 1832, such as Schiller's theoretical writings, Goethe's *Faust II*, Goethe's *Wanderjahre* and *West-östlicher Divan*, Goethe's *Faust II* and Hegel's *Phänomenologie des Geistes*, the French Revolution and German classicism. Textual analysis and review of current research.

258. Seminar: Romanticism. (4) Discussion of a specific author or topic from the Romantic period, possibly in close connection with course 208. Critical review of secondary works.

259. Seminar: 19th-Century Literature. (4) Discussion of a specific author or topic of 19th-century literature, possibly in close connection with course 209A, 209B, or 209C. Critical review of secondary works.

260. Seminar: Modern Period. (4) Selected genre, author, or theme of 20th-century German literature prior to 1945.

261. Seminar: Contemporary Literature. (4) Study of selected works, a specific author, genre, period, or topic from 1945 to the present. Texts analyzed and placed in context of literary, cultural, and political trends.

262. Seminar: Germanic Folklore. (4) Detailed research on individual aspects of Germanic folklore. Topic selected generally is from course in the German 240 series that preceded the seminar. Emphasis on problems of theory and method.

263. Seminar: Theories of Literature. (4) Specialization in literary theories, such as *Rezeptionsästhetik*, Neo-Marxist Criticism, New Criticism, psychoanalytic criticism or sociology of literature, structuralism, semiology, and hermeneutics.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495A. Preparation for College Teaching of German. (2) Study of problems and methods in teaching German on college level, with emphasis on teaching and testing the listening, speaking, reading, and writing skills. May not be applied toward M.A. course requirements. S/U grading.

495B. College Teaching of German: Special Problems. (2) Requisite: course 495A. Study of contemporary issues in German language pedagogy, with emphasis on textbook evaluation and proficiency-oriented instruction. May not be applied toward M.A. course requirements. S/U grading.

596. Directed Individual Study or Research. (4) To be arranged with faculty member who directs the study or research (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated once; however, only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4) To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be taken only once before and only once after M.A. degree, except for Ph.D. candidates with a formal minor field of studies who may take course twice after M.A., once in the major and once in the minor. Only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4 to 12) To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). Only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 12) To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated. S/U grading.

Afrikaans

Upper Division Courses

105A. Elementary Afrikaans. (4) Lecture/language laboratory. Introduction to a sister language of modern Dutch and a national language of South Africa. Grammar, practice in listening, speaking, reading, and writing.

105B. Intermediate Afrikaans. (4) Lecture/language laboratory. Requisite: course 105A. Grammatical exercises; reading and linguistic analysis of texts from both literary and nonliterary sources.

114. Afrikaans Literature in Translation. (4) Lecture, three hours. Readings and analysis of works by selected authors such as Brink, Joubert, Krige, Leroux, Marais, and Rabie and selected poets such as Breytenbach, Eybers, Lion Cachet, W.E.G. Louw, Van Wyk Louw, and Opperman.

135. Introduction to Afrikaans Literature. (4) Discussion, three hours. Requisite: course 105B. Analysis of selected works from founding of the Genootskap van Regte Afrikaners in 1875 to the present time, including novels by recent writers such as Leroux and Brink, as well as work of poets such as Eybers, Opperman, W.E.G. Louw, Van Wyk Louw, and Breytenbach.

199. Special Studies in Afrikaans. (2 to 4) Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

Graduate Courses

596. Directed Individual Study or Research in Afrikaans. (4) To be arranged with faculty member who directs the study or research (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated once. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) To be arranged with instructor (see department for I.D. number). S/U grading.

Dutch

Upper Division Courses

100. Modern Dutch Culture and Society. (4) Lecture, three hours. Lectures, discussions, and readings in English. Survey of art, architecture, literature, film, Dutch government (including 'Pillarization' — *verzuiling*), the two World Wars, housing policy, mass media, and rise of a multiracial society.

103A-103B. Elementary Dutch. (4) Lecture/language laboratory. Course 103A is requisite to 103B. Introduction to the standard language of the Netherlands and one of the three standard languages of Belgium. Practice in grammar, listening, speaking, reading, and writing.

103C. Intermediate Dutch. (4) Lecture/language laboratory. Requisite: course 103B. Grammatical exercises, conversation, reading and analysis of simple texts.

104A-104B. Accelerated Dutch (6-6) Lecture, four hours; discussion, one hour; laboratory, two hours. Covers material in courses 103A-103B, 103C in two terms rather than three.

113. Modern Dutch and Flemish Literature in Translation. (4) Lecture, three hours. Readings and analysis of works by selected authors of the 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.

120. Introduction to Dutch Studies. (4) 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 the scope of 20th-century Neerlandistiek.

131. Introduction to Modern Dutch Literature. (4) Discussion, three hours. Requisite: course 103B or 120. Selected works of literature of the Netherlands and northern (Flemish) Belgium from the mid-1850s to the present, including novels by such writers as Multatuli, Couperus, Hermans, Mulisch, and Reve and poetry by such groups as the symbolist *Beweging van Tachtig* and the post-War *Beweging van Vijftig*.

199. Special Studies in Dutch. (2 to 4) Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

Graduate Courses

596. Directed Individual Study or Research in Dutch. (4) To be arranged with faculty member who directs the study or research (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated once. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) To be arranged with faculty member who directs the study (see department for I.D. number). S/U grading.

Old Norse Studies

Lower Division Course

40. The Heroic Journey in Northern Myth, Legend, and Epic. (4) Comparison of the journeys of heroes. Readings in mythology, legend, folktale, and epic, including *Nibelungenlied*, *Volsunga saga*, *Eddas*, and *Beowulf*. Cultural and historic backgrounds to the texts. All readings in English.

Upper Division Courses

C139. The Saga. (4) Seminar, three hours. The sagas are the largest extant medieval prose literature. Texts in English, with selections from the different types of Icelandic sagas. Consideration of the history and society that produced these narratives. Concurrently scheduled with course C268.

C140. Viking Civilization and Literature. (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 C241.

C145. Old Norse Literature and Society. (4) Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C272.

151. Elementary Old Norse. (4) Introduction to grammar and pronunciation of Old Norse. Selected readings from the sagas and *Prose Edda*.

152. Intermediate Old Norse. (4) Requisite: course 151. Continued grammar, pronunciation, and readings from the *Eddas* and sagas of Icelanders, Norwegian kings, and legendary heroes.

153. Modern Icelandic. (4) Requisite: course 152. Grammar, readings, and conversation.

199. Special Studies in Old Norse. (2 or 4) Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

Graduate Courses

221. Advanced Old Norse Prose. (4) Requisite: course 152. Readings of major saga texts. Also, secondary sources which bear on specific issues in Old Norse literature and medieval Scandinavian history.

222. Advanced Old Norse Poetry. (4) Requisite: course 152. Readings of mythological and heroic poems from *Poetic Edda*. Secondary sources used where appropriate.

C241. Viking Civilization and Literature. (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 C140. Graduate students do additional readings and write more extensive research papers.

245A. Germanic and Scandinavian Mythology. (4) Seminar, three hours. Study of Northern myth and religion through close reading of Eddic texts and secondary sources.

C268. The Saga. (4) Seminar, three hours. The sagas are the largest extant medieval prose literature. Texts in English, with selections from the different types of Icelandic sagas. Consideration of the history and society that produced these narratives. Concurrently scheduled with course C139. Graduate students do additional readings and write more extensive research papers.

C272. Old Norse Literature and Society. (4) Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C145. Graduate students do additional readings and write more extensive research papers.

596. Directed Individual Study or Research. (4) To be arranged with faculty member who directs the study or research (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). May be repeated once; however, only one course in the 500 series may be applied toward M.A. graduate course requirement. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) To be arranged with faculty member who directs the study (see department for I.D. number). S/U grading.

GERONTOLOGY

*Interdepartmental Program
College of Letters and Science*

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http://www.psych.ucla.edu/Undergrad/gerontology_minor.htm

Larry L. Butcher, Ph.D., *Director*

Professors

Emily K. Abel, Ph.D. (*Health Services*)
Larry L. Butcher, Ph.D. (*Psychology*)
Steven G. Clarke, Ph.D. (*Chemistry and Biochemistry*)
Rita B. Effros, Ph.D., *in Residence (Pathology and Laboratory Medicine)*
Robert M. Emerson, Ph.D. (*Sociology*)
James E. Lubben, D.S.W. (*Social Welfare*)
Donald G. MacKay, Ph.D. (*Psychology*)
Melvin Pollner, Ph.D. (*Sociology*)
Arnold B. Scheibel, M.D. (*Neurobiology, Psychiatry and Biobehavioral Sciences*)
Fernando M. Torres-Gil, Ph.D. (*Social Welfare*)
F. Eugene Yates, M.D. (*Medicine*)

Associate Professor

Steven P. Wallace, Ph.D. (*Community Health Sciences*)

Assistant Professor

Kathleen McGarry, Ph.D. (*Economics*)

Adjunct Assistant Professors

JoAnn Damron-Rodriguez, Ph.D. (*Social Welfare*)
Valentine Villa, Ph.D. (*Social Welfare*)

Scope and Objectives

The explosive expansion of the older population in this country and the world — the “Age Revolution” — insures that issues regarding aging will dominate our environmental, economic, social, political, psychological, and medical concerns and endeavors well into the twenty-first century. The undergraduate minor in Gerontology (1) introduces students to the field, (2) prepares them for advanced academic work, (3) lays the groundwork for careers involving a burgeoning aging population, (4) contributes to increased public awareness of issues regarding aging, and (5) helps students plan more effectively for their own futures as they and their families age.

Undergraduate Study

Gerontology Minor

To enter the Gerontology minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (28 units): Gerontology M140 and six courses from M104C, M104D, M104E, M119O, M150, Psychology 124G, 193 (only eight units may be applied toward the minor; fieldwork placements must be approved by the chair of the minor), Women’s Studies 185 (only when the special topic is women, health, and aging).

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Gerontology

Upper Division Courses

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Social Welfare M104C and Women’s Studies M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of the aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in a multidisciplinary perspective utilizing faculty from a variety of fields to address issues of diversity. Letter grading.

M104D. Public Policy and Aging. (4) (Same as Social Welfare M104D.) Examination of theoretical models and concepts of the 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 the elderly. P/NP or letter grading.

M104E. Social Aspects of Aging. (4) (Same as Social Welfare M104E.) Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around a key aspect of social gerontology. P/NP or letter grading.

M1190. Psychology of Aging. (4) (Same as Psychology M1190.) Prerequisite: 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.

M140. Introduction to Study of Aging. (4) (Same as Psychology M140 and 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 the range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

M141. Women, Health, and Aging: Policy Issues. (4) (Same as Health Services CM141 and Women's Studies M141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Letter grading.

M150. 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 the aged; caregiving relations and institutions; professions concerned with the aged and aging.

HEALTH SERVICES

School of Public Health

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Thomas H. Rice, Ph.D., *Chair*
Stuart O. Schweitzer, Ph.D., *Vice Chair*

Professors

Emily K. Abel, Ph.D.
Ronald M. Andersen, Ph.D. (*Fred W. and Pamela K. Wasserman Professor of Health Services*)
Robert H. Brook, M.D., Sc.D.
E. Richard Brown, Ph.D.
William Comanor, Ph.D.
Jonathan E. Fielding, M.D., M.P.H.
Patricia A. Ganz, M.D.
Charles E. Lewis, M.D., Sc.D.
Marvin Marcus, D.D.S.
Thomas H. Rice, Ph.D.
Stuart O. Schweitzer, Ph.D.
Paul R. Torrens, M.D., M.P.H.
Robert O. Valdez, Ph.D.

Professors Emeriti

Lester Breslow, M.D., M.P.H.
Carl E. Hopkins, Ph.D., M.P.H.
Milton I. Roemer, M.D., M.P.H.
William Shonick, Ph.D.

Associate Professors

Roshan Bastani, Ph.D., *in Residence*
Gerald F. Kominski, Ph.D.

Assistant Professors

William E. Cunningham, M.D., M.P.H.
Mark S. Litwin, M.D., M.P.H.
Jeff Luck, Ph.D., M.B.A., *in Residence*

Lecturers

Bruce W. Bennett, Ph.D.
Geraldine Dallek, M.P.H.
William Gurtner, M.P.H.
Joe Hafey, M.P.A.
Alain Jourdir
Joyce Mann, Ph.D.
Eric McLaughlin, Ph.D., M.B.A.
Richard Sinaiko, M.P.H.

Adjunct Professors

Ellen Alkon, M.D., M.P.H.
Michael Bobrow, A.I.A.
Caswell A. Evans, Jr., D.D.S., M.P.H.
Arlene Fink, Ph.D.
Jacqueline B. Kosecoff, Ph.D.
Ruth J. Roemer, J.D., *Emerita*

Adjunct Associate Professors

Raymond D. Goodman, M.D., M.P.H.
Anthony Schiff, J.D.

Adjunct Assistant Professors

Barbara Berman, Ph.D.
Diana W. Hilberman, Dr.P.H.

Visiting Professors

Stuart P. Bowne, M.D.
Molly J. Coye, M.D., M.P.H.

Visiting Assistant Professors

Jonh Riddle, Ph.D.
Louis Rubino, Ph.D.
Elizabeth Yano, Ph.D.

Scope and Objectives

The field of health services examines the organization and financing of various activities to prevent and treat disease. This includes programs in both the public and private sectors at all levels — local, state, and federal.

Faculty members come from such diverse fields as economics, management, law, statistics, operations research, planning, medicine, history, sociology, and political science. These diverse backgrounds are harmonized by their devotion to the analysis of problems in the financing and delivery of health services, with focus on populations rather than individual patients.

The Department of Health Services offers both practice-oriented and research-oriented graduate programs. The primary professional degree, the Master of Public Health (M.P.H.), includes training in various aspects of health administration such as policy formulation, health planning, organization, and management. For more advanced professional work, the Dr.P.H. degree offers education in the full scope of public health services and prepares candidates for leadership in community health work at all jurisdictional levels. For information on the M.P.H. and Dr.P.H., see Public Health Schoolwide Programs.

For those interested in careers in research and teaching, the department offers M.S. and Ph.D. degrees in Health Services. These programs maintain close ties with related activities in the Schools of Dentistry and Medicine, including

the Robert Wood Johnson Clinical Scholars Program, the Program in Prevention, and the Cancer Control Division. The RAND/UCLA Center for Health Policy Study and the RAND/UCLA Center for Health Care Financing Research afford opportunities for joint activities with the RAND Health Sciences Program. Graduates of the academic degree programs pursue careers in universities, as well as in public and private agencies involved in health services research and health policy analysis.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Health Services offers the Master of Science (M.S.) degree in Health Services. For information on the Master of Public Health (M.P.H.) degree, see Public Health Schoolwide Programs.

Admission

Admission requirements for the M.S. program in Health Services are the same as for the M.P.H. See the M.P.H. admission section under Public Health Schoolwide Programs.

Areas of Study

Consult the graduate adviser.

Course Requirements

Students must complete Health Services 200A-200B, 237A-237B, 237C, and M422, Biostatistics 100A, 100B, and Epidemiology 100. Students must complete 16 full courses (64 units) and at least one year of graduate residence at the University of California. A minimum of five courses must be in the 200 or 500 series. Only four units of either Health Services 596 or 598 may be applied to the degree. Health Services 597 may not be applied toward the degree requirements. Students are strongly encouraged to take the following courses or equivalents: Biostatistics 200A-200B, and Epidemiology 201A-201B. Elective courses should be selected in consultation with an adviser. Electives may be chosen from offerings in the department of Health Services or other departments in the School of Public Health.

Students with a prior doctoral-level degree (M.D., Ph.D., J.D., D.D.S., or equivalent), and relevant experience, must complete 12 full courses (48 units). The four courses (16 units) not required for these students are identified through a waiver petition when the student advances to candidacy.

Only courses in which a grade of C– or better is received may be applied toward the requirements for a master's degree. Students must maintain an average of no less than 3.0 (B) in all courses required or elected during graduate residence at the University of California.

Comprehensive Examination Plan

If the comprehensive examination/report plan is approved, a guidance committee of three faculty members is appointed. The comprehensive examination consists of an extensive written research report in the major area of study. It must be approved by the guidance committee which also must certify successful completion of all degree requirements.

Thesis Plan

If the thesis option is approved, a thesis committee is established. The committee approves the thesis prospectus before students file for advancement to candidacy. The thesis must be acceptable to the thesis committee.

Doctoral Degree

Admission

In addition to the University minimum requirements, the department requires for the Ph.D. degree in Health Services (1) satisfactory performance on the Graduate Record Examination (GRE); (2) at least a 3.0 junior/senior grade-point average, at least a 3.5 GPA in graduate studies or demonstrated superiority in graduate work, and at least a B in each of the mandatory core courses; (3) a positive recommendation by the Health Services Department; (4) approval by the doctoral admissions committee and the department chair; (5) completion of the M.S. in Health Services or an appropriately related field is preferred. Screening examinations may be required by the department.

Major Fields or Subdisciplines

Consult the graduate adviser.

Course Requirements

In addition to the requirements for an M.S. in Health Services, major field course requirements include Health Services 249H and Biostatistics 200A and 200B. A cognate is required with at least 12 units (three courses) from a department that grants a Ph.D. degree. Cognate courses must be at the graduate level and should be core theory and research courses for the discipline chosen. Acceptable cognate areas would be from one of the following disciplinary areas: economics, epidemiology, history, management, political science, psychology, and sociology.

Written and Oral Qualifying Examinations

Before advancement to candidacy, students must pass a written examination in the major field, complete the requirements in a minor field, and pass an oral qualifying examination on the major and minor fields. Normally no more than one reexamination is allowed. When students are ready to take the University Oral

Qualifying Examination, a doctoral committee is nominated.

The doctoral committee consists of at least four faculty members who hold professorial appointments. Two of the faculty must be tenured. Three of the four must hold appointments in the Department of Health Services; at least one must hold an appointment in another department at UCLA.

The doctoral committee administers the oral qualifying examination after students have successfully completed the written examination.

After passing the University Oral Qualifying Examination, students may be advanced to candidacy and commence work on a dissertation in the principal field of study. The doctoral committee guides the student's progress toward completion of the dissertation.

Health Services

Lower Division Course

88. Lower Division Seminar: Special Topics in Health Services. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in health services approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member. Letter grading.

Upper Division Courses

100. Health Services Organization. (4) Lecture, four hours; discussion, one hour. Preparation: four units of social sciences. Structure and function of American health care system; issues and forces shaping its future. P/NP or letter grading.

M110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems. (4) (Formerly numbered 110.) (Same as Asian American Studies M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and health care delivery in the U.S. Letter grading.

131. Structure and Function of Health Care Facilities. (4) Lecture, two hours; discussion, two hours. Prerequisite or corequisite: course 100. Introduction to structure, organization, and function of health care facilities. P/NP or letter grading.

132. Financial and Managerial Accounting for Health Services Organizations. (4) Lecture, four hours. Prerequisite: course 100. Introduction to financial and managerial accounting and its application to the health services industry. P/NP or letter grading.

133. Introduction to Health Economics. (4) Lecture, four hours. Presentation of tools of economic analysis. Topics include introductory concepts of microeconomics, theory of demand for health insurance and health care, substitution of health personnel, hospital cost functions, and costs and benefits of health programs. P/NP or letter grading.

134. Introduction to Comprehensive Health Planning. (4) Lecture, four hours; fieldwork, four hours. Preparation: one upper division microeconomics, statistics, calculus, or political science course. Concepts underlying health planning, state of the art, and some relevant literature. P/NP or letter grading.

136. Introduction to Health Services Research. (4) Lecture, four hours. Prerequisite: Biostatistics 100A. Review of the field of health services research. Uses of quantitative methods and applications of conceptual/theoretical constructs (as well as methodologies) from social and behavioral sciences and epidemiology to studies of workings of health services. P/NP or letter grading.

CM141. Women, Health, and Aging: Policy Issues. (4) (Same as Gerontology M141 and Women's Studies M141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Concurrently scheduled with course CM241. Letter grading.

150. Contemporary Health Issues. (4) Lecture, four hours. Designed for juniors/seniors. Exploration of nation's health challenges, epidemiologic basis of public's health, organization and financing of health services in the U.S. and elsewhere, and current strategies for advancing people's health. Letter grading.

199. Special Studies. (2 to 4) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study. Limited to seniors. Individual undergraduate guided studies under direct faculty supervision. Study to be structured by instructor and student at time of initial enrollment. Only four units may be taken each term. P/NP or letter grading.

Graduate Courses

200A-200B. Health Systems Organization and Financing (4 units each). (Formerly numbered 200A-200B-200C.) Lecture, four hours; discussion, two hours. Limited to graduate health services students. In-depth analysis of health services systems in the U.S., using relevant theories, concepts, and models. S/U or letter grading.

M204A-M204B-M204C. Seminars: Pharmaceutical Economics and Policy (1 unit, 1 unit, 2 units). (Same as Economics M204L-M204M-M204N.) Seminar, three hours every other week for three terms. Prerequisites: course M236, Economics 201A-201B-201C. 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 and S/U or letter grading.

214. Measurements of Effectiveness and Outcomes of Health Care. (4) Lecture, three hours. Prerequisites: courses 200A-200B, M422, Biostatistics 100A. 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.

220. Seminar: Cost Containment. (4) Seminar, three hours. Through lectures and discussion of journal articles, analysis of success and failure of alternative methods of controlling U.S. health care costs. Examination of how other countries have controlled their costs. Letter grading.

221. Tobacco: Prevention, Use, and Public Policy. (4) Lecture, three hours; discussion, one hour. 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 the U.S., and international trends in tobacco use. 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 health care providers, health care institutions, health care reform movements, public health activities, childbirth, and AIDS. S/U or letter grading.

232. Governmental Health Services and Trends. (4) Lecture, four hours. Preparation: two upper division social or behavioral sciences courses. Requisite: course 100. Systematic analysis of interface between organized programs of personal health services and governmental agencies at all jurisdictional levels. Study of changing relationships between traditional public health and newer medical care and quality control functions. S/U or letter grading.

M233. Health Policy Analysis. (4) (Same as Community Health Sciences M252.) Lecture, three hours. Requisites: courses 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy. Letter grading.

234. Health Services Organization and Management Theory. (4) Lecture, four hours. Preparation: two upper division social sciences courses. Requisites: courses 100, 131. 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.

M236. Microeconomic Theory of Health Sector. (4) (Formerly numbered 236.) (Same as Policy Studies M268.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

237A-237B. Special Topics in Health Services Research Methodology (4 units each). Lecture, one hour; discussion, three hours. Requisites: Biostatistics 100A, 100B. In-depth consideration of problems in application of statistical and other quantitative methods in health services research. Critique of adequacy of study designs, appropriateness of analyses, and degree to which conclusions are supported by data. Letter grading.

237C. Issues in Health Services Methodologies. (4) Lecture, four hours. Requisites: courses 237A-237B. Designed for doctoral students. Intended to assist students in understanding the research process and its application in study of health services in the U.S. Introduction to issues related to reporting, disseminating, and documenting research findings. Letter grading.

238. Politics of Health Care. (4) Lecture, four hours. Requisite: course 100. Concepts and procedures for political analysis; national, state, and local politics in health care; examination of selected case studies. S/U or letter grading.

239. Aging and Long-Term Care. (4) Lecture, four hours. Requisites: courses 100, 238, Community Health Sciences 270A-270B. Long-term care of the chronically ill elderly examined from perspective of political and sociodemographic trends, including populations at risk, policy options, and alternative forms of care such as nursing homes, home care, and care by informal support systems. Letter grading.

240. Health Care Issues in International Perspective. (4) Lecture, four hours. Preparation: two health administration courses, two upper division social sciences courses. Analysis of crucial issues in health care; manpower policy, economic support, health facilities, patterns of health service delivery, regulation, planning, and other aspects of health care systems probed in settings of European welfare states, developing nations, and socialist countries. S/U or letter grading.

CM241. Women, Health, and Aging: Policy Issues. (4) (Formerly numbered M241.) (Same as Social Welfare M290D.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Concurrently scheduled with course CM141. Letter grading.

M242. 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.

244. Seminar: Health Services and Policy Evaluation. (4) Seminar, four hours. Preparation: basic courses in program evaluation and health services organization. Requisites: Biostatistics 100A, 100B. Designed for doctoral students. Seminar applying alternative evaluation research theories and methods to health service organizations and systems. Topics include linking evaluation criteria to policy decisions, theories, and previous research; political and organizational context of evaluation; utilization of findings; and meta-evaluation. S/U or letter grading.

245. Society's Response to Aging. (4) Lecture, four hours. Preparation: two health services courses, two upper division social sciences courses. Examination of central issues of health care delivery to the elderly in the U.S. Topics include demographic trends, economic characteristics, health status, demand for care, health care financing, long-term care, and continuum of care for the aged. S/U or letter grading.

246. Seminar: Special Populations — Health Services Policy Issues. (4) Seminar, four hours. Requisites: courses 200A-200B, 232, 238. Limited to doctoral students or M.S. and M.P.H. students with advanced degrees. Doctoral-level seminar which focuses on health services for selected priority population groups, integrating scientific, organizational, economic, ethical, and political evidence as a basis for public policy. Different populations may be selected for attention each year. Letter grading.

247. Research Topics in Health Economics. (4) Lecture, four hours. Requisites: courses 100, M236, 446. Seminar in economic analysis of current health services issues. Critical examination of studies pertaining to health manpower, health care costs and controls, diffusion of technology, and cost-benefit analysis of health programs. S/U or letter grading.

249A-249Z. Special Topics in Health Services. (2 to 4 each) Hours to be arranged. Requisites for each offering announced in advance by department. Advanced seminars covering current issues and special topics in health policy, health financing, and organization and administration of health services. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change:

249D. Principles of Organization Leadership: Applications in Public Health and Welfare. (4) Lecture, three hours; discussion, three hours. Designed for graduate students. Examination of principles and models of organization leadership, including presentation by current leaders in the fields of health and welfare. Theories and empirical investigations of leadership qualities. Letter grading.

M249E. Health Care Policy and Finance. (4) (Formerly numbered 249E.) (Same as Policy Studies M269.) Seminar, four hours. Requisites: courses 200A-200B, M236, Biostatistics 100A, 100B. Public policy concerning payment for medical care services and characteristics of the market for those services: demand for care, fee-for-service and prepaid payment systems, regulation of price and capital investment, private sector efforts to control health care costs. Letter grading.

249F. Quality Assessment and Assurance. (4) Seminar, four hours. Preparation: one health services or epidemiology course. Requisites: course 100, Biostatistics 100A, Epidemiology 100. Fundamental issues in quality assessment, quality assurance, and measurement of health status. S/U or letter grading.

249G. Medical Technology — Development, Diffusion, Assessment, and Health Services. (4) Seminar, four hours. Preparation: one upper division policy analysis course. Requisites: courses 200A-200B, 238. Doctoral-level seminar focusing on public policies that pertain to advancement of medical science and development of new technologies and promotion and regulation of their use. Letter grading.

249H. Current Research Issues. (2 to 4) Discussion, two hours. Designed for doctoral students. Review of articles in health services journals nominated as the best published during 1990. Analysis of articles to determine contribution to theory, methods, and/or implications for management or policy in health services organizations or health services as a field. S/U or letter grading.

249I. Research Methodology. (4) Lecture, one hour; discussion, three hours. Requisites: courses 237A-237B. Designed for doctoral students. Theory-driven model building and specification, operationalization, data definition and documentation, data screening and transformation techniques, use of indexes and scales, and data reduction methods. Some hands-on measurement and analysis work. Research project with term-paper analysis required. Course builds on concepts and research methods learned in courses 237A-237B, 237C. Letter grading.

M249J. Mental Health Services. (4) (Formerly numbered 249J.) (Same as Psychiatry M251.) Lecture, three hours. Requisites: courses 200A-200B-200C. Designed for doctoral students. Survey of contemporary American delivery of health services to emotionally and mentally ill and retarded. Analysis of characteristics of such services, with historical background of their evolution and projections of their future prospects. Letter grading.

249K. Health Care Practice Guidelines, Variations in Care, and Patient Outcomes. (4) Lecture, three hours. Requisites: courses 200A-200B, M422, Biostatistics 100A, 100B. Designed for graduate students. Participation of students in critical review and discussion of selected papers dealing with course topics, including small and large area variations in care, and development and implementation of clinical guidelines. Emphasis on implications for health policy. Letter grading.

M249L. Ethical Issues in Public Health. (4) (Formerly numbered 249L.) (Same as Community Health Sciences M249L.) Lecture, four hours. Requisites: courses 200A-200B-200C. 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.

250. Evolution of Health Professions in the 20th Century. (4) Lecture, two hours; discussion, two hours. During the 20th century there have been dramatic changes in composition of "helping" professions. Review of forces responsible for these changes and description of processes by which lay persons are educated/socialized into major subgroups of health professions. Review of major social forces external to health care system that affect its composition. Letter grading.

251. Process Improvement and Information Systems in Health Care Organizations. (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A. Introduction to concepts of health care quality measurement, process improvement, and information systems, as well as organizational aspects of implementing them. Letter grading.

M252. Medicare Reform. (4) (Same as Policy Studies 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.

M287. Politics of Health Policy. (4) (Same as Community Health Sciences M287.) Lecture, three hours; discussion, one hour. Requisites: courses 200A-200B or Community Health Sciences 210. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading.

400. Field Studies in Health Services. (2 or 4) Lecture, three hours. Preparation: summer internship. Required of all graduating M.P.H. 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.

M411. 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 the cancer epidemic, cancer control goals for the nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

M422. Practices of Evaluation in Health Services: Theory and Methodology. (4) (Formerly numbered 422.) (Same as Sociology M402.) Lecture, four hours. Requisites: courses 200A-200B. Introduction to health services evaluation. Examination and performance of specific evaluation procedures. Conducting of health services investigations, reporting results and methodologies. Letter grading.

425. Law and Epidemiology. (4) Lecture, four hours. Requisite: course 235 or Epidemiology 100. Examination, generally, of relationship between law and epidemiology, including use of epidemiology to regulate exposure to risk. Letter grading.

427. Population-Based Health Planning. (4) Lecture, four hours. Requisites: courses 200A-200B, Biostatistics 100A. Introduction to techniques of forecasting health care needs, utilization, and expenditures using population-based planning. Letter grading.

431. Managerial Processes in Health Services Organizations. (4) Lecture, one hour; laboratory, three hours. Requisites: courses 100, 234. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, system, and interorganization. Unique features of health services organizations are stressed as applications are presented. Letter grading.

432. Integrative Seminar: Health Services Management. (4) Seminar, four hours. Requisite: course 431. Residents and preceptors are responsible for presenting cases of actual administrative problems for solution by teams of students and faculty. S/U or letter grading.

433. Health Services Organization Policy and Strategy. (4) Lecture, three hours; discussion, one hour. Requisites: courses 200A-200B, 234, M236, Biostatistics 100A, 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. Employer/Employee Health Management. (4) Lecture, two hours; discussion, two hours. Preparation: a combination of three graduate courses in health planning, hospital finance, health policy, health insurance, occupational health, health services research, and health information systems. Requisite: course 100. Preview and analysis of how employer and employee groups provide, sponsor, and manage health-related services for others. S/U or letter grading.

435. Management Science for Health Planning and Administration. (4) Lecture, three hours; laboratory, two hours. Requisites: Biostatistics 100A and either Biostatistics 403 or Management 404. Introduction to use of quantitative analyses to support managerial and operational decisions in health services organizations. Topics include mathematical models for structuring decisions, resource allocation, inventory control, task sequencing, scheduling, and forecasting. Use of microcomputers. S/U or letter grading.

436. Financial Management of Health Service Organizations. (4) Lecture, four hours. Requisites: courses 131, 132, 234. Application of financial management and accounting principles to health care facilities, including unique financial characteristics of health care facilities, third-party reimbursement, cost finding and rate setting, operational and capital budgeting, auditing, and risk management. S/U or letter grading.

437. Legal Environment of Health Services Management. (2) Lecture, four hours. Requisite: course 131. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, contracts, negligence, and case law related to health facility operations. S/U 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. Dental Care Administration. (4) Lecture, three to four hours. Requisites or corequisites: Biostatistics 100A, Epidemiology 100. In-depth examination of several specific dental care policy issues: manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms. Letter grading.

440A. Health Information Systems: Organization and Management. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 200A-200B. Principles of and systems related to organization and management of a health facility's health information system. 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. Ambulatory Care in the U.S.. (4) Seminar, three hours. Requisites: courses 132, 200A-200B, Management 403. Introduction to organization and management concepts, problems, and issues in ambulatory health services, including financial management and information systems requirements. Letter grading.

442A. Managed Health Care: Quality and Cost. (4) (Formerly numbered 442.) Lecture, three hours. Overview of issues related to growth, management, and planning of managed health care systems. Review of role of HMOs and PPOs, as well as discussion of managed care as a solution. Letter grading.

442B. Managed Care Practices. (4) Lecture, four hours. Requisite: course 442A. Introduction to practices and methodologies required of those participating in managed care sector. Attention to pros and cons and advantages and disadvantages of various aspects of managed care. Topics include revenue maximization and cost control, negotiating and contractual relationships among the parties to deliver care, and quality and performance measurement. Letter grading.

443A. Biological and Social Bases of Prevention. (4) Lecture, two hours; discussion, two hours. Requisites: courses 100 or 200A-200B, Biostatistics 100A, Epidemiology 100. Designed for graduate students. Development, current status, and potential of preventive medicine in public health practice, focusing on risk indicator approach (exercise, alcohol, stress, etc.), with consideration of program settings, delivery problems, and issues. Letter grading.

443D. Advanced Hospital Financial Management Simulation. (4) Lecture, one hour; discussion, one hour; laboratory, two hours. Requisites: courses 100, 132, 436. Practical aspects of hospital management decisions in a changing environment examined through computer simulation, with particular attention to economic projections, demand patterns, investment programs, and health care regulations. S/U or letter grading.

443E. Advanced Hospital Financial Management Seminar. (4) Seminar, four hours. Requisites: courses 100, 131, 132, 436. Hospital financial management, including reimbursement management, capital financing, and capital investment analysis, discussed and analyzed with respect to students' individual residency sites. S/U or letter grading.

444. Applied Methodology in Health Planning. (4) Lecture, three hours; fieldwork, four hours. Requisites: courses 200A-200B. Demonstration of methodology of health planning by involving students in formulation of actual health plan for existing agency in Los Angeles area. Letter grading.

445. Strategic Planning and Marketing in Health Care. (4) Lecture, three hours. Requisites: courses 200A-200B, Biostatistics 100A, 100B. Survey course covering theory and applications of strategic planning and marketing concepts as they apply to health care organizations. Lectures and discussion of case studies for which students must prepare in advance, fieldwork, and microcomputer exercises. Letter grading.

446. Financing Health Care. (4) Lecture, four hours. Requisites: course 100, Economics 1, 2. Patterns of health care financing by consumers, providers, third-party intermediaries; trends in health service use; expenditures, national health insurance, and international comparisons of health financing. S/U or letter grading.

447. State Health Policy Issues. (4) Seminar, three hours. Requisite: course 238. Focus on health policy development and implementation at state government level, with emphasis on financing, direct provision, and regulation of health care services, facilities, equipment technology, and manpower. Exploration of intergovernmental relationships. S/U or letter grading.

447D. Management of Health Maintenance Organizations. (4) Lecture, three hours. Requisites: courses 100, 134. Alternative approaches to fee-for-service for paying, providing, or arranging for delivery of health care services, and relating these approaches to national health policy. S/U or letter grading.

447E. Health Insurance Principles and Programs. (4) Lecture, four hours. Preparation: one health services course. Requisites: courses 100, 232. Examination of social, actuarial, and commercial assumptions underlying private health insurance. Comparison with government-sponsored health insurance. Analysis of diversity of voluntary medical care insurance plans under different sponsorships and with varied scopes of coverage and benefits and their implications for public and private medical care developments. S/U or letter grading.

M448. Health Policy Issues for Dental Professionals. (2) (Same as Dentistry M422.) Lecture, two hours. Requisites: course 100, Biostatistics 100A, Epidemiology 100. Current public health policy issues in dental health, including cost, financing, role of government, and quality assurance. S/U grading.

M448D. Case Studies in Dental Practice. (2) (Same as Dentistry M433A.) Lecture, two hours. Provides students with practice methodology for evaluation of dental care settings. Didactic and field experience, providing foundation for evaluation of programs. S/U grading.

M449A-M449B. Child Health, Programs, and Policies (4-4). (Same as Community Health Sciences M436A-M436B.) Lecture, four hours. Requisite: course 100. 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.

450. Financial Theory of Health Services Organizations. (4) Lecture, four hours. Requisites: courses 200A-200B. Study of health care financial management, including variables of cost of funds, availability of physicians to provide the necessary patients, efficiency of operations, and legal constraints. Letter grading.

495. Teacher Preparation in Health Services. (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 eight 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 four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. Only four units may be applied toward M.P.H. and M.S. 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 8) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

HISTORY

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Ivan T. Berend, Ph.D.
Edward G. Berenson, Ph.D.
Kathryn Bernhardt, Ph.D.
Robert P. Brenner, Ph.D.
Mortimer H. Chambers, Jr., Ph.D.
Brian P. Copenhaver, Ph.D.
Ellen DuBois, Ph.D.
Christopher Ehret, Ph.D.
Benjamin A. Elman, Ph.D.
Saul Friedlander, Ph.D. (*"1939" Club Professor*)
Patrick Geary, Ph.D.
Carlo Ginzburg, Laurea in lettere (*Franklin D. Murphy Professor of Italian Renaissance Studies*)
Juan Gómez-Quiñones, Ph.D.
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Michael O. Jones, Ph.D.
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Fred G. Notehelfer, Ph.D.
Herman Ooms, Ph.D.
Theodore Porter, Ph.D.
Anthony J.S. Reid, Ph.D.
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Dora B. Weiner, Ph.D.
Richard Weiss, Ph.D.
James W. Wilkie, Ph.D.
Robert Wohl, Ph.D.

Professors Emeriti

Amin Banani, Ph.D.
Kees W. Bolle, Ph.D.
Giorgio Buccellati, Ph.D.
Robert I. Burns, S.J., Ph.D.
Robert N. Burr, Ph.D.
Claus-Peter Clasen, Ph.D.
Stanley Coben, Ph.D.
Robert Dallek, Ph.D.
Frank O. Gatell, Ph.D.
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Stanford J. Shaw, Ph.D.
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Laura Edwards, Ph.D.
Henry Em, Ph.D.
James L. Gelvin, Ph.D.
Vinay Lal, Ph.D.
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Geoffrey Robinson, Ph.D.
Michael Salman, Ph.D.
William Summerhill, Ph.D.
Kevin Terraciano, Ph.D.
Mary Terrall, Ph.D.
Jessica Wang, Ph.D.
Joan Waugh, Ph.D.
Henry Yu, Ph.D.

Lecturer

Larry Lauerhass, Ph.D., *Emeritus*

Adjunct Professors

S. Scott Bartchy, Ph.D.
Russell Jacoby, Ph.D.
Robert C. Ritchie, Ph.D.

Adjunct Associate Professors

Darryl Holter, Ph.D.
Yuji Ichioka, Ph.D.

Adjunct Assistant Professor

Fredelle Zaiman Spiegel, Ph.D.

Scope and Objectives

History is the study of the past of our own society and how it emerged out of the traditions that produced it. At the same time, self-knowledge for students of history comes not only from self-discovery, but from a comparison of their own tradition and experience with those of others. It is only by studying the history of other civilizations and cultures that we can hope to gain perspective on our own.

The course offerings in history at UCLA are designed to bring about an understanding of the forces that have shaped the many cultures of this country and the world. UCLA has one of the largest, most distinguished, and most diverse history faculties in the country. Its main emphasis is on the many aspects of social history, but intellectual, cultural, and political history are also strongly represented.

Of all undergraduate majors, History is probably the most flexible and far-reaching. Leading to a Bachelor of Arts degree, it is excellent preparation for a wide variety of careers — law, teaching, business, the communications media, public services, and medicine.

The department offers graduate programs leading to the M.A. and Ph.D. and accepts qualified applicants for either or both degrees. There is also a joint master's program with the Graduate School of Education and Information Studies. Traditionally, the M.A. and Ph.D. in History have led to careers in high school, col-

lege, and university teaching. Increasingly, they are also being put to use in government service, international business, museum and archival work, and journalism.

Undergraduate Study

History B.A.

The History Department's undergraduate program consists of 16 courses in history (six lower division — the Preparation for the Major, including the premajor requirements; 10 upper division — the Major).

Preparation for the Premajor and Major

Required for the Premajor: Three courses, including two in Western civilization (History 1A, 1B, 1C) or two in world history (courses 20, 21, 22), and 99.

After completing the three courses with a minimum grade-point average of 2.0, students should petition to enter the major at the undergraduate counselor's office in 6248 Bunche Hall. Transfer credit for the premajor courses is subject to department approval. Transfer students should consult the undergraduate counselor before enrolling in any courses for the major.

Required for the Major: Three additional lower division history courses.

The Major

Required: At least 10 upper division history courses, including (1) two courses in U.S. history, (2) two courses in non-Western history from the same area (i.e., Latin America, Asia, Near East, Africa), (3) two courses in European history or in history of science, and (4) History 197.

The requirements for U.S., non-Western, and European history may be fulfilled with either upper or lower division courses, but majors are required to take a minimum of 10 upper division history courses.

There is no language requirement for the major; however, students wishing to enter the honors program or planning to do graduate work in history are urged to pursue language study early in their undergraduate careers.

Advanced Placement Credit in History

The College of Letters and Science allows eight quarter units toward the B.A. for each Advanced Placement Test in History. The History Department applies this credit to the Preparation for the Major as follows: AP European History fulfills History 1C; AP American History with a score of 4 or 5 allows eight units of History 13A-13B-13C credit on the history preparation. The excess units may be applied only toward the degree.

Honors Program

The honors program is designed for History majors who are interested in carrying out a year-long independent research project that culminates in an honors thesis. A 3.5 depart-

mental grade-point average is normally required for admission, but students with a lower GPA may apply to the honors committee for admission. Application should be made at the beginning of the junior year.

The proposal, research, analysis, and writing of the paper take place over three terms through History 199HA, 199HB, and 199HC. Course 199HA is taken in Spring Quarter of the junior year, followed by courses 199HB and 199HC in Fall and Winter Quarters of the senior year. Contact the undergraduate adviser for more information.

Instructional Credential in History

For information on the single subject instructional credential in history, consult the Department of Education, 1009 Moore Hall, (310) 825-8328).

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of History offers the Master of Arts (M.A.) degree in History and participates in a concurrent degree program with the Department of Information Studies.

Admission

For admission to the M.A. program, applicants should normally have completed the undergraduate major or its equivalent, have received a B.A. degree or its equivalent from an accredited college or university, and have maintained at least a B+ average in upper division work. For the European field, demonstrated proficiency in at least one foreign language (usually French or German) is expected. Prospective students are strongly urged to have proficiency in two foreign languages. Three letters of recommendation and the scores on the General Test of the Graduate Record Examination (GRE) must be submitted to the department. For applicants who do not meet the grade-point average requirements, admission is granted in exceptional cases where the letters of recommendation, GRE scores, or other factors indicate unusual promise. Applicants may also be admitted with subject deficiencies but such deficiencies must be removed by completing courses in addition to the requirements for an advanced degree program. Applicants who have had a year or more of graduate study at other institutions should have attained a grade-point average of 3.5 or better (on a 4.0

scale) if they wish to work toward the Ph.D. degree. Admission to the department depends on the number of openings in the field in which the applicant expects to specialize. Applications must be submitted before December 1; notification is made on or before May 1. Students are expected to begin graduate work in the Fall Quarter; deferred admissions are not granted.

The department has no separate application form; it uses the *Application for Graduate Admission* distributed by Graduate Admissions Student and Academic Affairs. In addition, all applicants must submit the UCLA Department of History Applicant Profile Sheet. All materials, including three letters of recommendation, submitted to the history department must be in one envelope. Departmental information may be obtained by writing to the department.

There is no screening examination. Nonhistory majors may be required to take specified courses depending on background and field of specialization. Students are expected to work in the field for which they are admitted. A change of fields after admission requires approval of the relevant admissions committee.

The *Guide to Graduate Study in History*, which explains in detail the requirements and procedures of the history graduate program, is distributed to all new graduate students at the orientation meeting which takes place during registration week. The guide lists all faculty, their major publications, and descriptions of courses offered during the year. Information on the program and the faculty is at <http://www.sscnet.ucla.edu/history/>.

M.L.I.S./M.A. History

The history/library and information science master's degree is a concurrent degree program of the Department of History and the Department of Information Studies (Graduate School of Education and Information Studies). Applicants wishing to receive the M.A. in History and the Master of Library and Information Science (M.L.I.S.) in three years may apply for this program. Applications for admission are reviewed by committees in both departments. Further information may be obtained by writing to the Department of History or the Department of Information Studies, Graduate School of Education and Information Studies.

Areas of Study

The comprehensive examination covers one of the following fields: (1) ancient (includes ancient Near East); (2) medieval (includes Byzantine and medieval Jewish history); (3) Europe, 1450 to present (also includes British, Jewish, and Russian history); (4) Africa; (5) Near East (includes Armenia); (6) India and Southeast Asia; (7) China; (8) Japan; (9) Latin America; (10) U.S.; (11) history of science; (12) special fields (students in the history of religions or history of Christianity are normally examined in one of the above fields but, with the approval of the faculty in these fields, may petition the graduate guidance and curriculum committee for an M.A. examination in their field of specialization).

Course Requirements

The department requires a minimum (and preferably a maximum) of nine upper division and graduate courses in history, at least six of which must be graduate courses. No course in the 300 series may be counted toward this requirement, and only one in the 500 series may be applied. For students in U.S. history, a minimum of seven of the nine courses must be at the 200 level, including at least two two-quarter seminars and History 245. Students in European history must include History 225 and two two-quarter seminars. Africanists must take History 275A-275B-275C.

Only one 500-series course may be included toward both the total course requirement and the minimum six graduate (200 series) course requirement. This could be either four units of course 596 or four units of 597.

Comprehensive Examination Plan

The department follows the comprehensive examination plan. Individual fields specify the fulfillment of the examination requirement by (1) a three-hour written examination designed to assess the candidate's ability to synthesize a broad field of knowledge or (2) the submission of three essays written for at least two different professors as part of the candidate's program of study. At least two of these papers must have been submitted for graduate courses in the 200 series. The U.S. field requires a comprehensive examination in the form of two two-quarter research papers to be submitted at the end of six quarters of full-time study. (This requirement does not apply to students entering the program with an M.A. in U.S. history.) The European field requires a comprehensive examination in the form of two completed two-term research seminars, together with two completed research papers with grades of B or better within the period of six quarters of graduate study, and a satisfactory pass in the doctoral written qualifying examination administered during the sixth quarter. The African field requires a three-hour comprehensive examination which is given in May of each year.

The medieval M.A. examination is given in May of each year. First-year graduate students are encouraged to take it at that time, and second-year graduate students must take it. Students who already hold an M.A. degree from another institution (or have comparable academic experience) are expected to take this examination in May of their first year at UCLA. The amount of preparation needed varies according to the student's background. Normally, the best preparation for the examination is to audit, or preferably to take for credit, several of the lecture courses on Western medieval history offered within the department. The questions are broad and general in character, reflecting the extensive familiarities gained through survey courses far more than the intensive knowledge acquired through seminars. The purpose of this examination is diagnostic: to ascertain that while studying languages and mastering research skills, students are also making

progress in learning the larger outlines of medieval history.

Students in medieval history working with Professor Krekić may satisfy the M.A. examination requirement by the other departmental examination option, namely, the submission of three papers as described in the general regulations.

In order to file for a master's degree, all students must file an Advancement to Candidacy form within the first two weeks of the quarter in which they expect to receive their degree. The comprehensive requirement is graded pass to continue, pass subject to reevaluation, terminal pass, or fail. In cases where the M.A. is awarded with pass subject to reevaluation, the field M.A. committee conducts a special reevaluation of the candidate's progress after no more than three additional quarters of study.

Thesis Plan

None.

Doctoral Degree

Admission

Admission requirements for the program leading to the Ph.D. degree in History are the same as those for the M.A., but applicants for the doctorate are urged to seek an interview or to correspond with a member of the History department faculty in the field in which they intend to work. Applicants may be admitted with subject deficiencies, but such deficiencies must be removed by completing courses in addition to the requirements for an advanced degree.

While no examination is required for admission to the Ph.D. program, the following evaluation procedures determine whether students may continue to the Ph.D. degree.

For students entering the graduate program with a B.A. degree, an evaluation comparable to the M.A. comprehensive examination must occur within the period of six quarters.

For students entering with a master's degree from another department, evaluation must be completed by the end of three quarters of study in the History Department in order to determine whether or not they are permitted to continue toward the Ph.D. This evaluation is conducted in the same manner as described under the M.A. program.

Students must present to the graduate guidance and curriculum committee a field approval form signed by the faculty member who has agreed to support their work for the Ph.D. according to the following schedule: by the end of the seventh quarter or earlier for those entering with only a B.A. and by the end of the third quarter or earlier for those entering with an M.A. from another department. Students who do not meet the time limits for proceeding to the Ph.D. are subject to dismissal.

The *Guide to Graduate Study in History*, which explains the requirements and procedures of the history graduate program in detail, is available in September to all new graduate students who have filed a Statement of Intent to Regis-

ter. The guide lists all faculty with their major publications and descriptions of courses offered during the year.

For academic counseling, students choose a faculty sponsor who chairs the doctoral committee and guides them in their Ph.D. program. A faculty adviser is assigned to all entering graduate students for the first quarter only.

There is a graduate guidance and curriculum committee consisting of five faculty members and one graduate student, appointed by the chair of the department, which reviews and makes recommendations regarding all doctoral programs and any petitions requesting variations from the program as described in this catalog. The vice chair for graduate affairs is an *ex officio* member of this committee and channels all petitions and programs for review to the committee. The student's chair is normally consulted about petitions and variances.

An annual review of all graduate students is made each Spring Quarter by the graduate guidance and curriculum committee. Letters are written to those students with program or grade-point deficiencies or other academic problems.

Students are encouraged to consult the graduate adviser, a full-time staff member, about requirements and procedures for progress toward the Ph.D. degree.

Major Fields or Subdisciplines

Ancient Greece; ancient Rome; medieval constitutional and legal; medieval social and economic; medieval ecclesiastical and religious; medieval intellectual and cultural (specialists in medieval history may offer no more than two of these fields in medieval history); Byzantine; Russia since 800; East Central and Southeast Europe since 1450; England prior to 1485; Britain since 1450; the British Empire; ancient Near East; the Near East, 500 to 1500; the Near East since 1500; Armenian; survey of African history; topics in African history (preferably on a regional basis); history of science since 1450; Europe, Renaissance/Reformation; Europe, Renaissance to the French Revolution; Germany since 1450; France since 1450; Italy since 1450; Spain and Portugal since 1450; Europe since 1740; European socioeconomic history; European intellectual and cultural history; psychohistory; China, 900 to 1800; China since 1800; early modern Japan; modern Japan; South Asia; Southeast Asia; Latin America, 1492 to 1830; Latin America since 1759; history of religions; Jewish history; history of Christianity; comparative history; U.S.: (1) mastery of the general field of U.S. history sufficient to teach a college-level survey course and (2) a specialized field chosen from the following: Afro-American, American diplomatic, American West, American Indian, Asian Americans, California, history of the South, Civil War and Reconstruction, Colonial, cultural, economic, immigration, intellectual, Jeffersonian and Jacksonian American (1800 to 1850), labor, Mexican American, social, the new nation (1763 to 1800), 20th century, ur-

ban, women's history. Both the general and a specialized field must be offered by specialists in U.S. history and only two fields in U.S. history are permitted. Either field 1 or 2 or both may be chosen as minor fields for the Ph.D.

The history of Christianity may be offered as a major or minor field for the doctorate in history. Students may offer this field with emphasis on a particular aspect such as the early church, protestantism, or orthodox Christianity, although by definition they are required to be familiar with the historical New Testament. Where possible, the field is defined as chronologically and geographically coterminous with an existing departmental field. Emphasis in either American Christianity or medieval Latin Christianity counts as an American or medieval field.

To offer a field in the history of Christianity, students must prepare a written statement defining in detail the parameters of the field and must submit the statement to the graduate guidance and curriculum committee for approval. Before submission the statement must be endorsed by and bear the signatures of the examining faculty member and the chair of the Ph.D. committee.

Comparative history Ph.D. students may choose comparative history as one of their four fields. This means choosing one topic across three existing Ph.D. fields. The topic should be chosen with the help of the student's Ph.D. advisers; among possible topics are labor history, women's history, history of religions, economic history, and many others. The geographical/temporal fields covered may correspond to some or all of the student's other three Ph.D. fields. The comparative field is more intensive and involves genuine comparisons. It is highly recommended (and comparative chairs may require) that those majoring in a Western field choose one non-Western field and vice versa. Two or three professors may, if needed, supervise a comparative program, and may help examine the candidate either on the orals or by written examination.

Candidates in the history of science program must select three of the above fields and either the history of medicine or an allied field. They must also demonstrate a detailed knowledge of the substance and historical development of a particular science or a type of engineering or technology as a subfield common to the historical fields.

Course Requirements

Candidates for the Ph.D. must meet the special requirements for admission to the doctoral program listed above and the general requirements set forth under the Graduate Division. Additionally, the following requirements must be fulfilled: (1) a command of good English, spoken and written; (2) the ability to read at least two foreign languages (except in the U.S. field where only one foreign language is required); (3) an acquaintance with general history; and (4) completion of at least one continuing two- or three-quarter seminar which

must include completion of a substantial research paper.

All students must write a dissertation prospectus (written for credit as History 596 or 597) which is expected to contain (1) a full statement of the dissertation topic; (2) a historiographical discussion of the literature bearing on the topic; (3) a statement of the methodology to be employed; and (4) a survey of the sources sufficient to demonstrate the viability of the topic. The prospectus must be submitted in writing to and be approved by the dissertation adviser prior to the oral part of the qualifying examinations. After approval, copies are given to each member of the examining committee.

The following coursework is required in specific fields: (1) U.S. history — History 245 (History 246A-246B-246C are strongly recommended for all first-year students); (2) European history — History 225; (3) African history — History 275A-275B-275C (unless exempted by petition); (4) medieval history — Latin 130 or 131, Latin 243, and History 219A-219B (a graded History 596 in paleography may be substituted for 219A-219B with permission of faculty).

Faculty serving on doctoral committees may require such courses as they deem necessary as preparation for qualifying examinations. Courses taken to fulfill M.A. degree requirements may also be used to satisfy Ph.D. requirements.

Written and Oral Qualifying Examinations

In the written and oral qualifying examinations students are expected to show not only a mastery of their special subject, but also an extensive knowledge covering the wider field of historical knowledge and an ability to correlate historical data and to explain their significance. The examinations are designed to test not merely factual knowledge, but also power of historical analysis and synthesis, critical ability, and capacity for reflective thinking. Knowledge of the history of any area includes a solid understanding of its historiography and bibliography, its geography, and its political, cultural, economic, and other historical aspects.

In the oral examination, students are examined in four fields, one of which may be an approved field in anthropology, economics, geography, language and literature, philosophy, political science, or other allied subjects. The allied field must be comparable in size and scope to the history fields listed above. Students should select the fields in consultation with their adviser and must receive the department's approval of all four fields no less than six months before the written qualifying examination is taken. In the case of the European field, students must choose their four fields by the quarter after they have successfully passed the doctoral written qualifying examination (i.e., normally by the seventh quarter of residency). To obtain approval, students should supply the Graduate Guidance and Curriculum Committee with the name of the faculty member who has agreed to

serve as the sponsor of the doctoral work and with the details of the proposed program. A full-time graduate student must begin the written qualifying examinations no later than the end of the ninth quarter of graduate work.

The written qualifying examination includes the major field only, except in the European field which requires a written examination in three fields. In the case of U.S. and European history, each field administers a written qualifying examination as outlined below. The oral examination covers all four fields (except for the African field) and is normally held after the written examination. In most fields, the oral examination is held shortly after the written examination or, at the discretion of the doctoral committee, as late as six months after the written examination. For the U.S. and European fields, see below. Both the written and oral examinations are to be considered by the committee as a whole in arriving at a judgment of the student's performance, except in the European field. The written qualifying examination is normally prepared and administered by the chair of the committee and read by the entire committee before the oral qualifying examination, except for the U.S. and European fields (see below). All students in the European field take the doctoral written qualifying examination during the sixth quarter in residence.

In the U.S. field students must take the doctoral written qualifying examination after 12 months in residence. Prior to taking the examination, students must have secured the agreement of a qualified member of the department in the U.S. field to serve as chair of the doctoral committee. The written examination (not to exceed eight hours) is administered once a year at the beginning of the Fall Quarter. Those failing the examination may retake it on petition the following Spring Quarter. The examination may be retaken only once. The examination committee consists of three faculty members who in the previous year taught History 246A-246B-246C. If any of these faculty members are unavailable, preference is given, in replacing such members, to faculty members who have taught History 246A-246B-246C in recent years. The written examination is intended to test a comprehensive broad understanding of American history both before and after the independence of the U.S. All facets of history (political, social, diplomatic, etc.) are included. An ability to synthesize factual information, sometimes across long chronological periods, is consequently essential. Knowledge of the scholarly literature and of the principal historiographical controversies arising out of it are tested along with the student's interpretive capabilities. Passing of the examination implies that the student is qualified, in the judgment of the U.S. field, to teach courses in U.S. history at the college level. Questions related to the planning of such courses may appear on the examination.

All students in the European field take the doctoral written qualifying examination during the sixth quarter in residence. The European writ-

ten examination is administered once a year late in the Spring Quarter. Those failing the examination may retake it on petition in the following Spring Quarter. The examination may be retaken only once. The entire European faculty in residence during the Spring Quarter administers the examination. The examination is divided into the following sections: Europe, Renaissance/Reformation; Europe, Reformation to French Revolution; Europe since 1740; European social and economic history since 1450; European intellectual and cultural History since 1450; Russia since 800; Jewish History; East Central and Southeast Europe since 1450; Germany since 1450; Italy since 1450; Spain and Portugal since 1450 (not currently offered); European history of science since 1450. Students choose three sections in which they are examined. The entire examination lasts one and one-half days. Students entering with a B.A. who fail the doctoral examination are allowed to complete the M.A. program as outlined. Prior to taking the written qualifying examination, a student must have secured the agreement of a qualified member of the department in the European field to serve as chair of the doctoral committee. The examination is intended to test a comprehensive broad understanding of European history, both of the modern and early modern periods. Different facets of history (political, social, intellectual, etc.) are included. An ability to synthesize factual information, sometimes across long chronological periods is, consequently, essential. Knowledge of the scholarly literature and of the principal historiographical controversies arising out of it is tested, along with interpretive capabilities. Questions related to the planning of college-level history courses may appear on the examination. Before taking the written examination, students must have passed at least one language examination.

At the oral qualifying examination, students must submit four fields selected to enhance the scope and quality of the dissertation. During the period subsequent to the written examination, students may select a comparative field, or a field outside Europe or the department. The oral examination concerns the dissertation prospectus and the substantive elements of the four fields as they relate to the prospectus. The oral examination normally takes place at the end of nine quarters of residence but must be taken by the end of the twelfth quarter. The second language examination must be passed before taking the oral examination. Should students fail the oral examination, they must retake it at a time set by the committee within six months. Any variance from time limits must be approved by the European field before going to the Graduate Guidance and Curriculum Committee for final approval.

The four fields of the University Oral Qualifying Examination must be related to the dissertation and are selected to enhance the scope and quality of the dissertation. The oral examination concerns the dissertation prospectus and the substantive elements of the four fields

as they relate to the prospectus. The written examination, if failed, must be retaken at the next administration of the examination if students wish to continue; if students fail the oral examination, it must be retaken at a time specified by the doctoral committee, but not to exceed six months. Any variance from these time limits must be approved by the U.S. field before going to the Graduate Guidance and Curriculum Committee for final approval. After passing the oral qualifying examination, students are advanced to candidacy and may begin work on their dissertations.

History

Lower Division Courses

1A-1B-1C. Introduction to Western Civilization. (4-4-4) Lecture, two hours; discussion, two hours. Broad, historical study of major elements in Western heritage from the world of the Greeks to that of the 20th century, designed to further beginning students' general education, introduce them to ideas, attitudes, and institutions basic to Western civilization, and acquaint them, through reading and critical discussion, with representative contemporary documents and writings of enduring interest. **1A.** Ancient Civilizations from Prehistory to Circa A.D. 843; **1B.** Circa A.D. 843 to Circa 1715; **1C.** Circa 1715 to the Present.

1AH-1BH-1CH. Introduction to Western Civilization (Honors). (4-4-4) Lecture, two hours; discussion, two hours. Honors sequence parallel to courses 1A-1B-1C.

2A. Power, Ethics, and Technological Change. (4) (Formerly numbered 98.) Lecture, three hours; discussion, two hours. Examination of historical and theoretical relationships between ethical behavior, corporate power, and technological change. Topics include engineering practice and business profits, gender and engineering cultures, product liability and consumer safety, and engineering and computer ethics. Historical case studies include Three Mile Island, Chernobyl, the DC-10, and Challenger Disaster. P/NP or letter grading.

2B. Social Knowledge and Social Power. (4) Lecture, three hours; discussion, two hours. Historical introduction to social thought and the social sciences since the 18th century. Consideration of the great social thinkers, including Smith, Mill, Comte, Marx, and Freud. Examination of practical and political uses of social science by addressing such topics as psychology and mental testing, anthropology and race, cost-benefit analysis, measurement and creation of norms, definition of sex and gender, and cultural construction of expertise and objectivity. P/NP or letter grading.

3A-3B-3C. Introduction to History of Science. (4-4-4) Lecture, three hours; discussion, two hours. History majors may not apply these courses on science general education requirements:

3A. Scientific Revolution. Survey of the beginnings of physical sciences involving transformation from Aristotelian to Newtonian cosmology, mechanization of the natural world, rise of experimental science, and origin of scientific societies.

3B. Physical Sciences since the Enlightenment. Broad survey of development of ideas in classical and modern physical science since Newton. Theories of matter, but more specifically chemistry, thermodynamics, electromagnetic theory of light, energy conservation, relativity, and quantum mechanics.

3C. Biological Sciences, 1800 to 1955. Survey of development of biological sciences from the period of Bichat and Müller to discovery of the double helix.

3CH. Introduction to History of Science (Honors). (4) Honors course parallel to course 3C. P/NP or letter grading.

3D. Themes in History of Medicine. (4) Lecture, three hours. Not open to freshmen. Limited to 30 students. 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.

4. Introduction to History of Religions. (4) Lecture, three hours; discussion, two hours. Discussion of various systems, ideas, and fashions of thought that have dominated Western approaches to religions of the world since antiquity. Survey of development from classical Greek and early Christian theories to modern history with its discoveries of the religions of India, China, ancient Near East, etc., and the problem of the encounter of various religions in the 19th and 20th centuries.

8A. Colonial Latin America. (4) Lecture, three hours; discussion, two hours. 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.

8AH. Colonial Latin America (Honors). (4) Lecture, three hours; discussion, two hours. Honors course parallel to course 8A. P/NP or letter grading.

8B. Political Economy of Latin American Underdevelopment, 1750 to 1930. (4) Lecture, three hours. Interaction of precapitalist and modern modes of social organization in Latin American history, particularly during the "long" 19th century, by focusing on relationship between economic change, social and cultural structures, and politics in the region. P/NP or letter grading.

8BH. Political Economy of Latin American Underdevelopment, 1750 to 1930 (Honors). (4) Lecture, three hours; discussion, three hours. Honors course parallel to course 8B. P/NP or letter grading.

8C. Latin American Social History. (4) 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.

8CH. Latin American Social History (Honors). (4) Lecture, three hours; discussion, two hours. Honors course parallel to course 8C.

9A-9D. Introduction to Asian Civilizations. (4-4-4-4) Lecture, three hours; discussion, two hours:

9A. History of India. Introductory survey for beginning students of major cultural, social, and political ideas, traditions, and institutions of Indic civilization.

9C. History of Japan. 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.

9CH. History of Japan (Honors). Honors course parallel to course 9C.

9D. History of the Near and Middle East. Introduction to history of the Muslim world from advent of Islam to the present day.

10A-10B. Introduction to Civilizations of Africa. (4-4) Lecture, three hours; discussion, two hours. Survey of history of Africa from 1800 to the present, with particular attention to 19th-century historical background, era of colonial rule, and regaining of African independence in postcolonial era. P/NP or letter grading.

10BH. Introduction to Civilizations of Africa (Honors). (4) Lecture, three hours; discussion, two hours. Honors course parallel to course 10B.

11A-11B. History of China. (4) Lecture, three hours; discussion, two hours. **11A.** To 1000. 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. **11B.** 1000 to 1950. Survey of later history of China — evolution of characteristic Chinese institutions and modes of thought from 1000 to 1950. Focus on social, political, intellectual, and economic aspects of late empires and rise of modern China in the contemporary era.

11AH-11BH. History of China (Honors). (4-4) Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 11A-11B.

13A-13B-13C. History of the U.S. and Its Colonial Origins. (4-4-4) Lecture, two hours; discussion, two hours. 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. **13A.** Colonial Origins and First Nation Building Acts; **13B.** 19th Century; **13C.** 20th Century.

20. World History to A.D. 600. (4) 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 A.D. 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, 1200 to 1800. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Exploration of early modern world through "eyewitness" accounts, with focus on both humanistic and social science aspects of historical change, specifically addressing social, political, economic, and cultural spheres of activity important in world affairs before American and French Revolutions. P/NP or letter grading.

22. Contemporary World History, 1870 to the Present. (4) Lecture, three hours; discussion, two hours. Broad thematic survey of world history since the mid-19th 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.

M70. Survey of Medieval Greek Culture. (4) (Same as Classics M70.) Lecture, three to four hours. Classical roots and medieval manifestation of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including discovery of America).

88A-88U. Lower Division Seminars. (5 each) Seminar, three hours. Limited to 15 freshmen/sophomores. Open to nonhistory majors. Readings, discussions, papers. Sign-ups and descriptions of offerings each term are available in undergraduate counselor's office (6248 Bunche Hall). Ten units may be taken for credit. **88A.** Ancient Greece; **88B.** Ancient Rome; **88C.** Medieval; **88D.** Early Modern Europe; **88E.** Modern Europe; **88F.** Russia/Eastern Europe; **88G.** Britain; **88H.** U.S.; **88I.** Latin America; **88J.** Near East; **88K.** India; **88L.** China; **88M.** Japan; **88N.** Africa; **88O.** Science/Technology; **88P.** History of Religions; **88Q.** Theory of History; **88R.** Jewish History; **88S.** Armenia and the Caucasus; **88T.** Southeast Asia; **88U.** Psychohistory.

97H. Three Trials. (4) Discussion, three hours. Limited to 20 students. Intensive study of three trials, each of which led to the execution of the accused: Socrates, Jesus of Nazareth, and Joan of Arc. View of each trial as a conflict between legitimate but irreconcilable interests and world views. For each, class constitutes itself as a court (prosecution, defense, jury) and reviews the verdict of original trial.

99. Introduction to Historical Practice. (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. P/NP or letter grading.

Upper Division Courses

Upper division lecture courses in the History Department are usually scheduled for three hours. Periodically, additional one-hour discussion sections are offered with the lectures. Consult the quarterly *Schedule of Classes* to determine the offerings for each term.

100. History and Historians. (4) (Formerly numbered 100A.) Lecture. 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.

102. Explorations in Psychoanalysis and History. (4) Designed for juniors/seniors. Art of psychological and historical interpretation; assessment of recent writings in the field of psychohistory.

M103A-M103B. Historical Archaeology. (4-4) (Same as Anthropology M115A-M115B.) Lecture, three hours. Designed for juniors/seniors. P/NP or letter grading. **M103A.** World Perspective. Historical archaeology requires appreciation of historical sources, archaeology, and material culture. Thematic emphasis, with exploration of breadth of the discipline both in the Old World and the Americas. **M103B.** American Perspective. Emphasis on historical archaeology in North America, particularly to some practical applications.

M104A-M104B. Ancient Egyptian Civilization. (4-4) (Same as Ancient Near East M104A-M104B.) Lecture, three hours. Course M104A is not requisite to M104B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. **M104A.** Chronological discussion of Prehistory, the Old and Middle Kingdom. **M104B.** The New Kingdom and the Late period until 332 B.C.

M105. History of Ancient Mesopotamia and Syria. (4) (Same as Ancient Near East M105.) Lecture, three hours. Designed for juniors/seniors. Political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achae-menid period.

106A-106B-106C. Survey of the Middle East from 500 to the Present. (4-4-4) Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of the Islamic Empire, and its development. Rise of Dynastic Successor States and the Modern Nation States. Social, intellectual, political, and economic development. **106A.** 500 to 1300; **106B.** 1300 to 1700; **106C.** 1700 to the Present.

107A-107B. Islamic Civilization. (4-4) Designed for juniors/seniors. **107A.** Premodern Islam. Origins of Islamic civilization, Muhammad and the Qur'an; development of Islamic doctrine, ritual, piety and law, sectarian Islam, and mysticism. **107B.** Islam in the Modern World. Reform movements, legal issues, sociopolitical trends, movements of opposition.

108A-108B. History of the Arabs. (4-4) Course 108A is requisite to 108B. Designed for juniors/seniors. Political, social, intellectual, and economic history of the Arabs from the 18th century to the present.

109A-109B. History of North Africa from the Moslem Conquest. (4-4) Designed for juniors/seniors. **109A.** To 1578; **109B.** 1578 to the Present.

109C. History of Islamic Iberia. (4) Designed for juniors/seniors. Survey of political, social, economic, religious, artistic, and literary history of an Islamic culture in Western Europe, with special attention to ethnic and religious pluralism in premodern society and transmission of science and philosophy to Christian Europe. P/NP or letter grading.

110A-110B. Iranian History. (4-4) Designed for juniors/seniors. Political, social, and cultural history of Persia. **110A.** Islamic Iran to 1800; **110B.** Iran from 1800 to the Present.

111A-111B. History of the Turks. (4-4) Designed for juniors/seniors. Survey of society, government, and political history of the Turks from earliest times to the present. P/NP or letter grading. **111A.** Origins to 1808. Turkish origins, early Central Asian and Middle Eastern states. Rise and fall of the Ottoman Empire. **111B.** 1808 to the Present. Modernization of the Ottoman Empire, 1808-1923. The Turkish Republic. The Turks in the world.

111C. History of Jews in the Ottoman Empire and the Turkish Republic, 1300 to 1923. (4) Designed for juniors/seniors. Preliminary introduction to the Jews in Byzantium and the Islamic world before the Ottoman conquest, followed by discussion of Jewish communities and Judaism in Southwestern Europe, Anatolia, and the Middle East while they were under Ottoman rule (1300 to 1923) and in the Turkish Republic since 1923. P/NP or letter grading.

112A-112B-112C. Armenian History. (4-4-4) Designed for juniors/seniors. **112A.** Armenia in Ancient and Medieval Times, 2nd Millennium B.C. to A.D. 11th Century; **112B.** Armenia from Cilician Kingdom through Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries; **112C.** Armenia in Modern and Contemporary Times, 19th and 20th Centuries. Armenian question and genocide, national republic, Soviet Armenia, and the dispersion.

C112D. Introduction to Armenian Oral History. (4) Lecture/discussion, three hours. Designed for juniors/seniors. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments and interviews. May be concurrently scheduled with course C212.

113. The Caucasus under Russian and Soviet Rule. (4) Designed for juniors/seniors. Survey of political, economic, social, and cultural history of the Caucasus region since 1801. Georgian, Armenian, and Azerbaijani response to Russian and Soviet rule; the nationality question and the Soviet national republics.

114. Topics in Middle Eastern History. (4) Designed for juniors/seniors. Examination of major issues in history of Middle East. P/NP or letter grading.

115A-115B-115C. History of Ancient Mediterranean World. (4-4-4) Designed for juniors/seniors. **115A.** Survey of history of the ancient East from earliest times to foundation of the Persian Empire. **115B.** History and institutions of the Greeks from their arrival to the death of Alexander. **115C.** History and institutions of Rome from founding of the city to the death of Constantine.

116A-116B. History of Ancient Greece. (4-4) Designed for juniors/seniors. **116A.** Rise of the Greek City-State. Emphasis on archaic period and early classical age through the Persian Wars. **116B.** Classical Period. Clash between Athens and Sparta, consequent rise of Macedonia, and aftermath of Alexander the Great.

117A-117B-117C. History of Rome. (4-4-4) Designed for juniors/seniors. P/NP or letter grading. **117A.** To Death of Caesar. Emphasis on development of imperialism and on constitutional and social struggles of the late republic. **117B.** From Death of Caesar to the Time of Constantine. The early empire treated in more detail, supplemented by survey of social and economic changes in the 3rd century. **117C.** Transformation of the Classical World. Political, cultural, and religious history of the Mediterranean in late antiquity, from crisis of Roman Empire in the 3rd century to barbarian and Arab invasions and beginning of medieval states and societies in the 7th century.

118. Topics in Ancient History. (4) 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 credit. P/NP or letter grading.

C119C. From Roll to Codex: Manuscripts in Early Middle Ages. (4) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society to 1100. Concurrently scheduled with course C219C. P/NP or letter grading.

C119D. From Parchment to Print: Manuscripts in Later Middle Ages. (4) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society from 1100 to 1500. Concurrently scheduled with course C219D. P/NP or letter grading.

119M. The Christian Church, 100 to 1517. (4) (Formerly numbered 119.) Lecture. Designed for juniors/seniors. Constitutional, political, and economic history of the Church: Christianization of Roman Empire and Germanic kingdoms; governance and institutions of the Church; relations between Church and monarchy; the high tide of papalism; crises of authority on eve of the Reformation. P/NP or letter grading.

120M. The Christian Religion, 100 to 1350. (4) (Formerly numbered 120.) Lecture. Designed for juniors/seniors. Religious experience of Christians — conversion, doctrine, belief, heresy, spirituality, worship, liturgy, and art. Religious life of lay Christians, as well as that of the Church's institutional, intellectual, and spiritual leaders. P/NP or letter grading.

121A-121B. Medieval Europe. (4-4) Designed for juniors/seniors. Basic introduction to Western Europe from Latin antiquity to the age of discovery, with emphasis on medieval use of Greco-Roman antiquity, history of the manuscript book, and growth of literacy. **121A.** 400 to 1000; **121B.** 1000 to 1500.

121C. Medieval Civilization: Mediterranean Heartlands. (4) Designed for juniors/seniors. Survey of Western Mediterranean Europe, social/economic/cultural within a political framework, including its relation with other cultures.

121D. Medieval People: The 13th Century. (4) Designed for juniors/seniors. Movements and creative contributions to Western culture in this central century of the Middle Ages, as seen in its representative men and works.

M122. Power and Imagination in Byzantium. (4) (Same as Classics M170.) Lecture, three hours. Requisites: courses M70 or 123A-123B. Designed for juniors/seniors. Study of relations of authority and the intelligentsia in the highly centralized Byzantine Empire. Topics include criticism of the emperor, iconoclasm, intellectual freedom, attempts at reform.

123A-123B. Byzantine History. (4) Designed for juniors/seniors. Political, socioeconomic, religious, and cultural continuity in the millennial history of Byzantium. Reforms of Diocletian. Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks.

124A-124B. East-Central Europe. (4-4) Designed for juniors/seniors. **124A.** The Long 19th Century, 1780 to 1914. Analysis of characteristics of peripheral 19th-century capitalism, effort to modernize and catch up, and factors and consequences of its partial failure in the economy, politics, and culture. **124B.** The Short 20th Century, 1918 to 1990. Analysis and interpretation of stormy history of crisis zone of Europe where wars, revolts and revolutions, different types of extremisms led to a historical detour: 70 years of departure from Western values and at last an effort to turn back to them.

124C. East-Central Europe in Transition, 1988 to 1993. (4) Designed for juniors/seniors. State-socialism and Soviet domination collapsed in East-Central Europe in 1989. Analysis of cause and consequence of the collapse, as well as the road of transformation in seven (now 12) countries of the 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 the future. P/NP or letter grading.

124D. Film and History: Central and Eastern Europe, 1945 to 1989. (4) 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.

125A-125F. History of Modern Europe. (4 each) Designed for juniors/seniors. P/NP or letter grading:

125A. Renaissance and Reformation, 1450 to 1660. Reorganization of power, new forms of representation, and discourses about rule and obedience in Europe from the mid-15th through 16th century; popular culture; peasant society; refashioning of religion and power; localization.

125B. Baroque Culture and Absolutist Politics, 1600 to 1715. 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 the family, sexuality, and the body; witch persecutions.

125C. Old Regime and Revolutionary Era, 1715 to 1815. Enlightened absolutism and reform, challenge of new political and economic ideas, crisis of the Old Regime, impact of French Revolution and Napoleonic empire.

125D. Bourgeois Century, 1815 to 1914. 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.

125E. Era of Total War, 1914 to 1945. 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).

125F. World War II and Its Aftermath, 1939 to the Present. World War II, origins and persistence of the Cold War, reconstruction in the West, de-Stalinization, decolonization, crisis of the welfare state, background to and course of the 1989 revolutions, current political configuration.

126A-126F. Cultural and Intellectual History of Modern Europe. (4 each) Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of the time in historical context. P/NP or letter grading. **126A.** 15th Century. 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. **126B.** 16th Century. **126C.** 17th Century. **126D.** 18th Century. **126E.** 19th Century. **126F.** 20th Century.

127A-127B-127C. War and Diplomacy in Europe. (4-4-4) (Formerly numbered 127A-127B.) Designed for juniors/seniors. P/NP or letter grading. **127A.** 1650 to 1815. Survey of military and diplomatic history, seen in relation to social and economic developments and growth of the state. **127B.** 1815 to 1945. Balance of power; growth of the nation state; imperial and colonial rivalries; the two World Wars. **127C.** The Cold War. Relations of the West, Soviet Union, and the world from 1945 to 1991. Origins, development, and end of power-political, military, and ideological confrontations between the superpowers and their allies and clients in Europe, Asia, and Latin America.

128A-128B-128C. History of France. (4-4-4) Designed for juniors/seniors. **128A.** France, 1500 to 1715. 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. **128B.** France, 1715 to 1871. "Ancien Régime" and the time of revolutions. Critical discourse leading to the French Revolution, collapse of the state, Napoleonic era, reconstruction of society through the monarchies and revolutions of the 19th century. **128C.** The Making of Modern France, 1871 to the Present. From oligarchy to democratic bureaucracy in two wars and three republics.

129A. Baroque and Enlightenment Germany. (4) 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 a political system, and baroque and Enlightenment cultures as new discourses on power and hierarchy. P/NP or letter grading.

129B. Nationalism and Modernization in 19th-Century Germany. (4) Designed for juniors/seniors. Problems of class society and state formation, emancipation, assimilation, growth of national consciousness, emergence of a "bourgeois public sphere," dynamics of gender in civil society and political life, post-Napoleonic tensions between reform and reaction, 1848, and national unification. P/NP or letter grading.

129C. 20th-Century Germany. (4) Designed for juniors/seniors. Transitions that Germany has faced during this century: two world wars, shift from monarchy to republic to national socialism to a "divided nation," and finally "reunification." Consideration of political, social, economic, and cultural spheres. P/NP or letter grading.

130. Europe in the Age of Revolution, Circa 1775 to 1815. (4) (Formerly numbered 130A-130B-130C.) Lecture. Designed for juniors/seniors. Period from revolt of the Thirteen Colonies to French Revolution of 1789, and Napoleonic regime, viewing social and political changes unleashed by these revolutionary movements in a comparative and transnational perspective. P/NP or letter grading.

131A-131D. History of Russia. (4-4-4-4) Designed for juniors/seniors. P/NP or letter grading:

131A. From the Origins to the Rise of Muscovy. Kievan Russia and its culture, Appanage principalities and towns; the Mongol invasion; unification of the Russian state by Muscovy, Autocracy and its Servitors; serfdom.

131B. Imperial Russia from Peter the Great to Nicholas II. 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 the old regime.

131C. Revolutionary Russia and the Soviet Union. The Revolutions of 1917, Civil War, consolidation of the 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?

131D. Culture and Society in Imperial Russia. Recommended preparation: course 131B or Russian 99A or 119. 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.

132A-132B-132C. History of Italy. (4-4-4) Lecture. Designed for juniors/seniors. P/NP or letter grading. **132A.** 1350 to 1559. Most important social, economic, political, and cultural developments in history of Italy during later Middle Ages and Renaissance. **132B.** 1559 to 1848. (Formerly numbered 132A.) Counter-Reformation and absolutism, Enlightenment reforms, revolutionary era, and first phase of the Risorgimento. **132C.** 1848 to the Present. (Formerly numbered 132B.) Political, economic, social, diplomatic, and ideological developments.

133A-133B. Social History of Spain and Portugal. (4-4) Designed for juniors/seniors. **133A.** Age of Silver in Spain and Portugal, 1479 to 1789. Development of popular history in the Iberian Peninsula. Emphasis on peasants and urban history, gold routes, slave trade, history of women, and development of different types of collective violence. **133B.** Rebellion and Revolution in Modern Spain and Portugal, 1789 to the Present. 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.

134A. Southeastern Europe, 500 to 1500. (4) Designed for juniors/seniors. Political, economic, and cultural survey of the independent Balkan states in the Middle Ages.

134B. Southeastern Europe, 1500 to 1918. (4) Designed for juniors/seniors. The Balkans under Ottoman rule, movements of national liberation, and formation of nation states.

135A-135B. Marxist Theory and History. (4) Course 135A is generally requisite to 135B. 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.

136. Topics in European History. (4) Designed for juniors/seniors. Integrated introduction to important aspects of European history, with emphasis on a specific topic within a broad framework. May be repeated for credit. P/NP or letter grading.

137A-137B. History of Women in Europe. (4-4) (Formerly numbered 137A-137B-137C.) Lecture. Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to the present. P/NP or letter grading. **137A.** 800 to 1715; **137B.** 1715 to the Present.

138A-138B. Topics in Medieval English History. (4-4) Designed for juniors/seniors. Topics include the village community and economy, family and landholding, Church and society, war, politics, and feudal relations.

139B-139C. Economic History of Europe. (4-4) Designed for juniors/seniors. P/NP or letter grading. **139B.** 1780 to 1914. 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. **139C.** 20th Century. Changing European economy after World War I and II and in the 1990s; impact of fourth and fifth Industrial Revolutions; Great Depressions of the century during the 1930s, 1970s, and 1980s; and changing modernization strategies; import-substituting industrialization in the peripheries; Soviet "modernization dictatorship" in East Central Europe and its collapse; integration process of second half of the century and rise of European Union; modernization model at end of the century.

140A-140B-140C. Europe and the World. (4-4-4) Lecture. P/NP or letter grading:

140A. Exploration and Conquest, 1400 to 1700. (4) Lecture. First phase of European expansion in the 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.

140B. Colonialism, Slavery, and Revolution, 1700 to 1870. (4) Lecture. 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 the 18th century, and beginnings of industrialization. P/NP or letter grading.

140C. Imperialism and Post-Colonialism, 1870 to the Present. (4) Lecture. 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 the world. P/NP or letter grading.

141A-141B-141C. History of Britain. (4-4-4) Designed for juniors/seniors. Analysis of British economy, society, and polity, focusing on dynamics of both stability and change. P/NP or letter grading. **141A.** Tudor-Stuart Times, 1485 to 1715. Political, socioeconomic, religious, and cultural history of Britain under the Tudors and Stuarts. Topics include Reformation, transformation of the economy, establishment of overseas colonies, 17th-century political upheavals and their impact on political and socioeconomic structures. **141B.** Making of Modern Britain, 1715 to 1867. 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. **141C.** Modern Britain since 1832.

142A-142B. British Empire since 1783. (4-4) Designed for juniors/seniors. Political and economic development of the British Empire, including evolution of colonial nationalism, development of the commonwealth idea, and changes in British colonial policy.

143. History of Canada. (4) Designed for juniors/seniors. Survey of growth of Canada into a modern state from its beginnings under the French and British colonial empires.

144. History of Australasia. (4) Designed for juniors/seniors. History of Australia and New Zealand from the European settlement, with emphasis on interrelationships between settlers and aborigines; comparisons and contrasts between the Australian and New Zealand experience.

145A. Colonial America, 1600 to 1763. (4) Designed for juniors/seniors. Examination of the molding of an American society in English North America from 1600 to 1763. Emphasis on interaction of three converging cultures: Western European, West African, and American Indian.

145B. Revolutionary America, 1760 to 1800. (4) Designed for juniors/seniors. Inquiry into origins and consequences of the American Revolution, nature of the revolutionary process, creation of a constitutional national government, and development of a capitalist economy. P/NP or letter grading.

146. U.S. History, 1800 to 1850. (4) (Formerly numbered 146A.) Designed for juniors/seniors. Discussion of major social, political, economic, and cultural transformations of first half of the 19th century and how these changes helped to drive a wedge between the North and South. P/NP or letter grading.

147A. U.S., Civil War and Reconstruction. (4) Designed for juniors/seniors. Rise of sectionalism, anti-slavery crusade; formation of the Confederate States; war years; political and social reconstruction.

147B. U.S., 1875 to 1900. (4) Designed for juniors/seniors. American political, social, and institutional history in a period of great change. Emphasis on the altering concepts of role of government and responses to that alteration.

147C. American South, 1877 to the Present. (4) Designed for juniors/seniors. Analysis of political, economic, social, intellectual, and cultural history of the South from cotton belt to Sunbelt. Topics include origins of segregation, sharecropping, Southern politics, Southern culture, and civil rights movement.

148A-148B. U.S., 20th Century. (4-4) Designed for juniors/seniors. Political, economic, intellectual, and cultural aspects of American democracy. **148A.** 1900 to 1928; **148B.** 1929 to 1945.

148C. U.S. since 1945. (4) Designed for juniors/seniors. History of political, social, and diplomatic developments that have shaped the U.S. since 1945.

149A-149B. American Economic History. (4-4) Designed for juniors/seniors. **149A.** 1790 to 1910. Roles of economic forces, institutions, individuals, and groups in promoting or impeding effective change in the American economy, 1790 to 1910. During this period the technical skeleton of the modern industrial structure was formed. Why and how American economy evolved into a dual economy, characterized by a center of firms large in size and influence and a periphery of smaller firms. **149B.** 1910 to the Present. Dynamics of change in the dual economy, focusing in greater detail on interrelationships between macro and micro developments in the economy and on the growing interdependency between the U.S. and world economy, 1910 to the present.

150A-150B. Intellectual History of the U.S. (4-4) Designed for juniors/seniors. Principal ideas about humanity and God, nature and society, which 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.

150C. History of Religion in the U.S. (4) Designed for juniors/seniors. Consideration of the religious dimension of people's experience in the U.S. Examination of a number of religious traditions which have been important in this country, with emphasis on relating developments in religion to other aspects of American culture.

151A-151B. Constitutional History of the U.S. (4) Designed for juniors/seniors. **151A.** Origins and Development of Constitutionalism in the U.S. Particular emphasis on framing of the Federal Constitution in 1787 and its subsequent interpretation. Judicial review, significance of the Marshall Court, and effects of slavery and the Civil War on the Constitution. **151B.** Constitutionalism since the Civil War. Particular emphasis on development of the Supreme Court, due process revolution, the Court and political questions, and the fact of judicial supremacy within self-prescribed limits.

152A-152B. American Diplomatic History. (4-4) Designed for juniors/seniors. **152A.** Establishment of an independent foreign policy, territorial expansion of the U.S., and emergence of a world power. **152B.** Role of the U.S. in the 20th-Century World.

152BH. American Diplomatic History (Honors). (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Role of the U.S. in the 20th-century world.

M153. The U.S. and the Philippines. (4) (Same as Asian American Studies M153.) Lecture, three hours. Recommended preparation: courses 190A-190B, 190C. Designed for juniors/seniors. Examination of complex interrelationships between U.S. colonialism, Philippine nationalism, history or Filipino Americans, and Philippine diaspora in the 20th century.

154A-154B. U.S. Urban History. (4-4) Designed for juniors/seniors. **154A.** U.S. Cities: Overview. 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. **154B.** Topics in U.S. Urban History. Requisite: course 154A. 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.

154C-154D. History of American Architecture and Urban Planning, 1600 to the Present. (4-4) Designed for juniors/seniors. Aspects of American cultural history as explored through architecture, urban planning, and allied arts, with emphasis on development of an architectural consciousness in America, ways in which the built environment has affected its users and observers, and extent to which it has reflected their values and ways of living. **154C.** 1600 to 1890; **154D.** 1890 to the Present.

155A-155B. American Working Class Movements. (4-4) Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of the American working class from Colonial times to the present, emphasizing both organized and unorganized labor, history of the Knights of Labor, A.F. of L. and C.I.O., and development of labor politics.

156A-156B. American Social History, 1750 to 1960. (4-4) Designed for juniors/seniors. Historical analysis of American society and culture, with emphasis on the family, religious values, Afro-American life, women's work, urbanization and industrialization, immigration and nativism, and movements for social reform. **156A.** 1750 to 1860; **156B.** 1860 to 1960.

156C-156D-156E. Social History of American Women. (4-4-4) Designed for juniors/seniors. Survey of major demographic, economic, social, and intellectual factors shaping the lives of women in families, at work, and in larger social collectivities. Emphasis on class, regional, racial, and ethnic comparisons. **156C.** Colonial and Early National, 1600 to 1820; **156D.** Victorian and Industrial, 1800 to 1920; **156E.** 20th Century, 1900 to 1975.

156F-156G. History of the American Family. (4-4) Designed for juniors/seniors. Perspective on the contemporary American family through study of its development over the course of four centuries. Topics include Western European origins, sex roles, child-rearing, sexuality, work patterns. Emphasis on class, racial, ethnic, and regional variations. **156F.** 1600 to 1870; **156G.** 1870 to 1990.

156H. Medicine and Society in 19th-Century America. (4) Designed for juniors/seniors. Therapeutics, theories of disease, and medical science scrutinized with the understanding that these are never value-neutral, but are shaped by social structures of which they are products. Why have doctors become so powerful and over whom did they wield power in the 19th century?

157A-157B. North American Indian History. (4-4) Designed for juniors/seniors. History of Native Americans from contact to the 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. **157A.** Precontact to 1830; **157B.** 1830 to the Present.

M158A. Comparative Slavery Systems. (4) (Same as Afro-American Studies M158A.) Designed for juniors/seniors. Examination of the slavery experience in various New World slave societies, with emphasis on outlining similarities and differences among the legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies.

M158B-M158C. Introduction to Afro-American History. (4-4) (Same as Afro-American Studies M158B-M158C.) Designed for juniors/seniors. Survey of the Afro-American experience, with emphasis on the 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.

158D. Afro-American Urban History. (4) Designed for juniors/seniors. Examination of Afro-American urban life prior to 1945, with emphasis on transformation from slavery to freedom and shift from Southern to Northern areas. Forces which both propelled Afro-Americans to the cities and which also inhibited their adjustment to them.

M158E. African American Nationalism in First Half of the 20th Century. (4) (Same as Afro-American Studies M158E.) Designed for juniors/seniors. Critical examination of the African American search in first half of the 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

M159A. History of the Chicano Peoples. (4) (Same as Chicana and Chicano Studies M159A.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of the Rio through the 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical forces affecting the 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of a paper.

M159B. History of the Chicano Peoples. (4) (Same as Chicana and Chicano Studies M159B.) Designed for juniors/seniors. Survey lecture course on historical development of the Mexican (Chicano) community and people of Mexican descent in the U.S. through the 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in the Mexican community by inquiry into major formative historical and policy issues affecting the community. Within a 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 the U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of a paper.

160A-160B. U.S. and Comparative Immigration History. (4-4) Designed for juniors/seniors. Use of overlapping diaspora model which 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 the present. Special focus on Southern California in course 160B. P/NP or letter grading.

161. Asians in American History. (4) Designed for juniors/seniors. Study of the politically troubling question of entry into the U.S. of immigrants ineligible for citizenship and their citizen children in American history.

162. American West. (4) Designed for juniors/seniors. Study of the West as frontier and as region, in transit from the Atlantic seaboard to the Pacific, from the 17th century to the present.

163. History of California. (4) Designed for juniors/seniors. Economic, social, intellectual, and political development of California from earliest times to the present. P/NP or letter grading.

164. History of Los Angeles. (4) Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to the present. Emphasis on the diverse peoples of the area, changing physical environment, various interpretations of the city, and Los Angeles' place among American urban centers.

165A. Early Latin America. (4) Designed for juniors/seniors. Advanced survey of Latin American history from conquest to independence, with emphasis on society, culture, and ethnic aspects.

165C. Indians of Colonial Mexico. (4) Designed for juniors/seniors. Survey of social and cultural history of the Indians of Mexico, especially central Mexico, from time of the European conquest until Mexican independence, emphasizing an internal view of Indian groups and patterns on basis of records produced by the Indians themselves.

166. Latin America in the 19th Century. (4) Designed for juniors/seniors. Intensive analysis of economic, social, and political problems of Latin American nations from their independence to around 1910.

167A-167D. Latin America in the 20th Century. (4-4-4-4) Designed for juniors/seniors. Experiments in national development analyzed to relate the timing of social changes to economic, political, cultural, and geographic context. Successive country case studies each focus on world pressures and interplay of overlapping themes: struggle between centralized and decentralized government agencies (emphasized in course 167A), role of personalist leaders (emphasized in course 167B), definition of the national polity (emphasized in course 167C), and "rightist" and "leftist" models of development (emphasized in course 167D). Mexico is treated in course 171. Within each course, countries are studied according to the chronological contribution to the theme emphasized. **167A.** Haiti, Uruguay, Costa Rica, Cuba, Chile; **167B.** Bolivia, Dominican Republic, Argentina, Paraguay, Venezuela; **167C.** Panama, Colombia, Ecuador, Honduras, El Salvador; **167D.** Brazil, Guatemala, Peru, Nicaragua.

168. History of Latin American International Relations. (4) Designed for juniors/seniors. Emphasis on developing interests of Latin American nations in their relationship with one another and with other areas of the world, beginning with 19th-century independence.

169. Latin American Eliteloire. (4) Requisite: course 167A, 167B, 167C, or 171. 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.

170A. Latin American Cultural History. (4) Designed for juniors/seniors. Intellectual, artistic, and folk expressions of the Latin American spirit and character examined in readings and lectures, with emphasis on unique contribution of Latin Americans to develop self-interpretation. Music, films, and slides supplement discussions.

170B. Classic Travel Accounts of Latin America since 1735. (4) Designed for juniors/seniors. Recommended for prospective researchers before they select their region of study. Introduction to "enlightened traveler" accounts as they reveal cultural change from wide-ranging spatial and temporal vantage points. Comparison of published works to photographic series to analyze the great variety of geographic regions, peoples, customs, occupations, dress, food, architecture, and transportation in the 20 countries of the area.

170C. Issues in Latin America History. (4) Designed for juniors/seniors. Examination of major issues in history of Latin America. P/NP or letter grading.

171. Mexican Revolution since 1910. (4) Designed for juniors/seniors. Examination of concept of "permanent crisis" to describe and explain the 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.

172. History of Argentina. (4) Designed for juniors/seniors. History of economic, political, social, and cultural developments that have shaped Argentina from colonial time to the present. Emphasis on 19th-century development of an agro-export economy and 20th-century formation of a mass society.

173. Modern Brazil. (4) Designed for juniors/seniors. Selected topics in political, economic, social, and cultural development of Brazil, with emphasis on modernization and the struggle for change, 1850 to the present. Discussions, films, slides, and guest speakers supplement and complement lectures.

174. Brazilian Intellectual History. (4) Designed for juniors/seniors. General intellectual development of Brazil, with emphasis on those introspective movements in which Brazilians attempted to interpret themselves, their nation, and their civilization.

M175A-175Z. Topics in African History. (4 each) Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Examination of specific topics which have a continental application rather than proceeding on a strictly chronological or regional basis:

M175A. Prehistoric Africa — Technological and Cultural Traditions. (Same as Anthropology M119.) Survey of nondocumentary sources of early African history, with emphasis on archaeological evidence from origins of humanity until A.D. 1600. P/NP or letter grading.

175B. Africa and the Slave Trade. Social, economic, political, and cultural impact of the slave trade on African society, with emphasis on Atlantic trade without neglecting those of ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and the African diaspora.

175C. Africa in the Age of Imperialism. Topics include penetration of precapitalist social formations by capital, emergence of classes, nature of the colonial and postcolonial state, and struggle for national liberation in a global context.

175E. Africa from 1945 to the Present. History of Africa south of the Sahara from end of World War II to the present. Last phases of colonial rule in Africa, African nationalism, Pan-Africanism, liberation movements, and achievement of independence. Political, social, and economic change in the colonies and in the 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.

176A-176B. History of West Africa. (4-4) Designed for juniors/seniors. **176A.** West Africa from Earliest Times to 1800; **176B.** West Africa since 1800.

176C. Social and Economic History of West Africa since 1600. (4) Designed for juniors/seniors. Analysis of main currents of West African social, cultural, and economic history since the fall of the Songhai Empire, with emphasis on the family, religious values, education, urbanization, migrations, arts, slavery, and the slave trade. Roles of economic forces and institutions in promoting or inhibiting economic change in West Africa; ethnic diversity and sociopolitical integration; colonial economic systems and efforts at economic planning and development since the 1950s.

177. History of Northeast Africa. (4) Lecture. Designed for juniors/seniors. Survey of history of Ethiopia, Sudan, and Somalia in regional context of northeast Africa from earliest times to the present, with emphasis on economy and society, evolution of the state, and significance of Christianity and Islam. P/NP or letter grading.

178A. History of East Africa. (4) (Formerly numbered 178A-178B.) Lecture. 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.

178B. History of Central Africa. (4) (Not the same as course 178B prior to Winter Quarter 1999.) Lecture. 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.

179A-179B. History of Southern Africa. (4-4) Designed for juniors/seniors. Attention to social and economic as well as political aspects. P/NP or letter grading. **179A.** From the Origins to 1870. Origins of the South African peoples and their interactions to 1870. **179B.** Since 1870. Interactions between inhabitants of southern Africa since 1870.

182A-182B. Thought and Society in China. (4) Designed for juniors/seniors. **182A.** To 1000. Recommended preparation: course 11A. Elite and popular expressions of Chinese cultural life examined in readings and lectures. Focus on diversities of thought in the classical legacy and their evolution under the impact of Buddhism to 1000. Emphasis on intersections between intellectual life and social, political, and economic conditions. **182B.** Since 1000. Recommended preparation: course 11B. Elite and popular expressions of Chinese cultural life from 1000 to the 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 the 20th century in light of earlier currents of thought.

183A. Culture and Power in Late Imperial China. (4) 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 the afterlife; political, legal, and medical discourses of body, personhood, and social identity; love, sexuality, and private life. P/NP or letter grading.

183B. Society and Economy in China since 1500. (4) Recommended preparation: course 11B. Designed for juniors/seniors. Social-economic change and involution of the late imperial period in comparative perspective; Western impact and Chinese development and underdevelopment; change and continuity in revolutionary China.

183C. History of Women in China, A.D. 1000 to the Present. (4) Designed for juniors/seniors. Topics include women and the family, women in Confucian ideology, women in literati culture, feminist movement, and women and the communist revolution. P/NP or letter grading.

184. 20th-Century China. (4) 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 the 20th century.

185. Japanese Popular Culture. (4) 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.

186. Shinto, Buddhism, and Japanese Folk Religion. (4) 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 the warrior culture, folk religious aspects such as shamanism, ancestor worship, and millenarianism.

187A-187B-187C. Japanese History. (4-4-4) Designed for juniors/seniors. Political, economic, and cultural development of Japan from prehistory to the present. P/NP or letter grading. **187A.** Ancient, Prehistory to 1600; **187B.** Early Modern, 1600 to 1868; **187C.** Modern, 1868 to the Present.

188A. Early History of India. (4) Designed for juniors/seniors. Introduction to civilization and institutions of India. Survey of history and culture of the South Asian subcontinent from earliest times to founding of the Mughal Empire.

188B-188C. History of British India I, II. (4-4) Designed for juniors/seniors. **188B.** Examination of expansion of British rule, theories and practice of governance, constitution of India as an "oriental despotism," epistemological projects of the state, and other modes by which the British achieved the conquest of knowledge. **188C.** Political economy of imperialism and Britain's "civilizing mission." Encounter, especially in terms of race and gender, between the colonized and colonizers and to questions of resistance and nationalism.

189A. Cultural and Political History of Contemporary South Asia. (4) 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.

M189B. Indian Identity in the U.S. and the Diaspora. (4) (Formerly numbered 189B.) (Same as Asian American Studies M133.) Lecture, three hours. 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.

189C. Special Topics in Contemporary Indian History. (4) Designed for juniors/seniors. Treatment of major issues in history of contemporary India. P/NP or letter grading.

190A-190B. History of Southeast Asia. (4-4) Designed for juniors/seniors. **190A.** Early History of Southeast Asia. Political and cultural history of the peoples of Southeast Asia from earliest times to about 1815. **190B.** Southeast Asia since 1815. History of modern Southeast Asia, with emphasis on expansion of European influence in political and economic spheres, growth of nationalism, and process of decolonization.

190C. Philippine History. (4) Designed for juniors/seniors. Social, cultural, and political history of Philippine societies from the Spanish conquest through independence. Emphasis on questions of identity under colonialism, understanding the 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.

190D. Vietnam: Past and Present. (4) Designed for juniors/seniors. Survey of history and culture of Vietnam from about 700 B.C. to the present, including political, social, and economic developments as well as international relations in post-1954 period. P/NP or letter grading.

M191A-M191B. Survey of Jewish History. (4-4) (Same as Jewish Studies M191A-M191B.) Designed for juniors/seniors. Survey of social, political, and religious developments. **M191A.** From Biblical Times to End of the Middle Ages; **M191B.** From End of the Middle Ages to the Present.

M191C-M191D. Focal Themes in Jewish History. (4-4) (Same as Jewish Studies M191C-M191D.) Designed for juniors/seniors. Treatment in depth of one major theme in Jewish history (such as history of Messianic Movements, structure of the Jewish communities) through the ages.

191E-191F. The Third Reich and the Jews. (4-4) Designed for juniors/seniors. **191E.** 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. **191F.** 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 the occupied territories.

191G. European Jewry from 1881 to the Present. (4) Designed for juniors/seniors. Survey of major social, economic, and political factors that shaped the lives of Europe's Jews from outbreak of the First World War to the present. Emphasis on the diverse Jewish communities of interwar Europe, fate of Jews under the Nazis, and character of the postwar Jewish community. P/NP or letter grading.

M192A-M192B. Jewish Intellectual History. (4-4) (Same as Jewish Studies M192A-M192B.) Designed for juniors/seniors. **M192A.** Medieval Period. Examination of three intellectual worldviews that competed for hegemony in the medieval Jewish world — rabbinic Judaism, medieval rationalism as embodied in philosophy, and cabala; **M192B.** Modern Period. Exploration of some of most important currents and figures in Jewish intellectual history from the 18th century to the present.

193A. History of Religions: Myth. (4) 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.

193B. Religions of South and Southeast Asia. (4) Requisite: course 4 or 193A. Designed for juniors/seniors. Topics vary from year to year and include religion of the Veda; Brahmanism; (later) Hinduism. Consult *Schedule of Classes* for specifics. May be taken independently for credit.

193C. Religions of South and Southeast Asia. (4) Requisite: course 4 or 193A. 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.

193D. Religions of the Ancient Near East. (4) Designed for juniors/seniors. Main polytheistic systems of the ancient Near East, with emphasis on Mesopotamia and Syria and with reference to the religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct.

193E. Special Topics in History of Religions. (4) Designed for juniors/seniors. Topics announced in *Schedule of Classes* and include ancient Germanic cults; Renaissance mysticism; mystics of the low countries; goddesses; religion in a secular age.

194A. History of Early Christians. (4) Designed for juniors/seniors. Christian movement from its origins to circa 160 C.E., 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.

194B. Religious Environment of Early Christians. (4) Designed for juniors/seniors. Rich variety in religious practice and thought in the Mediterranean world of the 1st century C.E. as in context of the developing Christian movement. Topics include the Pharisees, Qumran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, "mysteries," astrology, magic, gnosticism, and emperor-worship.

194C. Jesus of Nazareth in Historical Research. (4) Recommended preparation: course 194A. 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 the life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts.

195A. History of Technology. (4) (Not the same as course 195A prior to Spring Quarter 1999.) Lecture. Designed for juniors/seniors. Development of technology from global perspective. Role of technology in Western Europe's interactions with Asia and the Americas, interaction of military and industrial technologies, social and political contexts for technology. P/NP or letter grading.

195B. History of Medicine. (4) (Not the same as course 195B prior to Spring Quarter 1999.) Lecture. Designed for juniors/seniors. Exploration of themes in history of medicine: education of physicians and their relationships to patients, identification and classification of diseases, contagion and epidemics, hospitals and asylums, medical technology and specialties, evolution of health care professions. P/NP or letter grading.

195C. Historical Perspectives on Gender and Science. (4) (Not the same as course 195C prior to Spring Quarter 1999.) Lecture. 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 the feminine. P/NP or letter grading.

195D. Science and Technology in the 20th Century. (4) Lecture. 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.

195E. Topics in History of Science. (4) Lecture.

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. P/NP or letter grading.

M195F-M195G. History of Biological Sciences. (4-4) (Same as Neurobiology/Medical History M108A-M108B.) Lecture, three hours. Designed for juniors/seniors. **M195F.** Biological Sciences from Ancient Times to the Early 19th Century; **M195G.** Biological Sciences from the Early 19th Century to the Mid-20th Century.

196. Field Research Methods. (4) Lecture, three hours. Designed for juniors/seniors. Provides opportunity for students to learn and practice field research, with particular emphasis on relationship between theory, field methodology, and research findings. P/NP or letter grading.

197A-197Z. Undergraduate Seminars. (4 each) Seminar, three hours. Designed for juniors/seniors. Limited to 15 students meeting with a faculty member. Organized on a topics basis with readings, discussions, papers. Signups and descriptions of offerings each term are available in undergraduate counselor's office (6248 Bunche Hall). May be repeated once for credit. When concurrently scheduled with courses 201A-201U or M203A-M203B, undergraduates must obtain consent of instructor to enroll.

199. Special Studies in History. (4) Designed for juniors/seniors. Intensive directed research program. Eight units may be applied toward major requirements.

199HA. Directed Study for Honors. (4) Discussion, three hours. Limited to history honors program students. Must be taken in Spring Quarter of junior year. Seminar on historical research and writing; student meetings with honors adviser to define research and preparation for the project. Extensive reading and research in field of proposed honors thesis.

199HB. Directed Study for Honors. (4) Requisite: course 199HA. Must be taken in Fall Quarter of senior year. Independent study and research on honors project under supervision of honors adviser, with presentation of research report and thesis outline to the thesis adviser and second reader at end of quarter. Both must approve continuation of honors thesis project. In Progress grading (credit to be given only on completion of course 199HC). Only students approved for course 199HC receive credit for this course.

199HC. Directed Study for Honors. (4) Discussion, three hours. Requisite: course 199HB. Must be taken in Winter Quarter of senior year. Preparation of final version of honors thesis and presentation of portions of work-in-progress to other students engaged in honors projects. Completed thesis must be submitted to thesis committee by last day of class in Winter Quarter.

199I. Independent Studies for Internships. (4) Preparation: maintenance of 3.0 grade-point average in major. Independent studies course to be supervised jointly by Field Studies Office and faculty adviser. Further supervision to be provided by business for which student is doing internship. May not be used to satisfy requirement for course 197 or 199. Normally, only four units of internship with History Department are allowed. P/NP grading.

Graduate Courses

200A-200U. Advanced Historiography. (4 each) Seminar, three hours. May be repeated for credit.

200A. Ancient Greece; **200B.** Ancient Rome; **200C.** Medieval; **200D.** Europe; **200H.** U.S.; **200I.** Latin America; **200J.** Near East; **200K.** India; **200L.** China; **200M.** Japan; **200N.** Africa; **200O.** Science/Technology; **200P.** History of Religions; **200Q.** Theory of History; **200R.** Jewish History; **200S.** Armenia and the Caucasus; **200T.** Southeast Asia; **200U.** Psychohistory.

M200V. Advanced Historiography: Afro-American. (4) (Same as Afro-American Studies M200A.) Seminar, three hours. May be repeated for credit.

M200W. Advanced Historiography: American Indian Peoples. (4) (Same as American Indian Studies M200A.) Seminar, three hours. Designed to familiarize students with major genres of literature related to American Indian history. Subjects include theories of Indian origins, historical demography, Euro-American attitudes toward Indian peoples, studies of U.S. Indian policy, and tribal histories. Standard theoretical approaches, including cultural ecology and dependency theory.

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-201U. Topics in History. (4 each) Seminar, three hours. Topic titles are same as for courses 200A-200U. Graduate courses involving reading, lecturing, and discussion of selected topics. Does not fulfill seminar requirements for Ph.D. degree. May be repeated for credit. When concurrently scheduled with course 197, undergraduates must obtain consent of instructor to enroll.

202A-202B. Seminars: Comparative Modern Economic History. (4-4) Discussion, three hours. 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 and S/U or letter grading.

M203A-M203B. Social Theory and Comparative History. (4-4) (Same as Political Science M291A-M291B and Sociology M296A-M296B.) Colloquium, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following the program of the Center for Social Theory and Comparative History. Each course may be taken independently for credit.

M203C. Theories in Cultural History. (4) (Same as Sociology M296C.) Discussion, three hours. Introduction to social, linguistic, semiotic, or other new interpretive theories and practices developed in other fields and applied to historical material.

204A-204B. Seminars: Near and Middle Eastern History. (4-4) Seminar, three hours. Methodology, socioeconomic and political change in the Arab world. In Progress and S/U or letter grading.

205A-205B. Seminars: Medieval Middle Eastern History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

206A-206B. Seminars: Social History of the Middle East. (4-4) Seminar, three hours. Interrelationship of city, tribe, and village in the Middle East; role of such definable social groups as women, religious classes, middle classes, landlords, tribesmen, and peasants; social change. In Progress and S/U or letter grading.

M207. Seminar: Ancient Mesopotamia. (4) (Same as Ancient Near East M250.) Seminar, three hours. Selected topics on political, social, and intellectual history of ancient Mesopotamia. May be repeated for credit.

209A-209B. Seminars: Ottoman and Modern Turkish History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

211A-211B. Seminars: Armenian History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

C212. Methods in Armenian Oral History. (4) Seminar, three hours. Preparation: proficiency in Armenian language. Lectures and laboratory in methods of taking, processing, and utilizing depositions and other oral sources for Armenian history, including project assignment in the field. May be concurrently scheduled with course C112D.

214. Problems in World History, 800 to 1800. (4) Seminar, three hours. Training course for graduate students to develop a field of world history and to prepare department teaching assistants to teach sections for the general education sequence in world history by helping them to grasp diverse cultures and daily workings of world societies to date.

215A-215B. Seminars: Ancient History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

216A-216B. Seminars: Byzantine History. (4-4) Seminar, three hours. In Progress and S/U or 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. Medieval Latin Literary History. (4) Seminar, three hours. Recommended preparation: reading knowledge of Latin and German or French. Examination of aspects of medieval history through study of paleography, medieval libraries, and transmission of ancient medieval authors.

219A-219B. Paleography I, II. (4-4) Seminar, three hours. Preparation: reading knowledge of Latin and German or French. S/U or letter grading. **219A.** History of the manuscript book from antiquity through the Carolingian renaissance, with emphasis on dating and localization as well as on proficiency in reading. **219B.** History of the manuscript book from the Carolingian renaissance through the invention of printing, with emphasis on dating and localization as well as on proficiency in reading.

C219C. From Roll to Codex: Manuscripts in Early Middle Ages. (4) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society to 1100. Concurrently scheduled with course C119C. S/U or letter grading.

C219D. From Parchment to Print: Manuscripts in Later Middle Ages. (4) Lecture, three hours. Examination of history of medieval manuscripts and circumstances of their production, use, and survival as evidence for study of medieval European society from 1100 to 1500. Concurrently scheduled with course C119D. S/U or letter grading.

221A-221B. Seminars: Medieval History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

222A-222B. Seminars: Medieval Intellectual History and History of Science. (4-4) Seminar, three hours. Selected problems from medieval and early modern philosophy, science, political theory, theology. In Progress and S/U or letter grading.

M223. Introduction to Transmission of Ancient Latin Literature. (4) (Same as Classics M223.) Discussion, three hours. Designed for graduate students. Examination of role of Latin classical authors in history of Middle Ages and Renaissance to understand processes by which Latin literature has been preserved.

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-226B. Seminars: Italian Renaissance. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

227A-227B. Seminars: Reformation. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

229A-229B. Seminars: Early Modern European History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

M230A-M230B. Seminars: Modern European History. (4-4) (Same as Art History M241A-M241B.) Seminar, three hours. May be repeated for credit with consent of adviser. In Progress and S/U or letter grading.

231A-231B. Seminars: Modern European Intellectual and Cultural History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

232A-232B. Seminars: French History of the 19th and 20th Centuries. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

233A-233B. Seminars: Russian/Soviet History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

234A-234B. Seminars: Modern History of Spain, Portugal, and Italy. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

235A-235B. Economic History of Europe, 1780 to 1939. (4-4) Lecture, three hours. 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 and S/U or letter grading.

M236A. Proseminar: Political Psychology. (4) (Same as Political Science M261A and Psychology M228A.) Discussion, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

236B-236C. Seminars: Psychohistory. (4-4) Seminar, three hours. Exploration of individual and group psychological processes and their uses in historical research. In Progress and S/U or letter grading.

239A-239B. Seminars: English History — Middle Ages. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

240A-240B. Seminars: English History — Modern History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

241A-241B. Seminars: German History. (4-4) Seminar, three to four hours. Designed for graduate students. In Progress and S/U or 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-244B. Seminars: British Empire History. (4-4) Seminar, three hours. In Progress and S/U or 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-246B-246C. Introduction to U.S. History. (4-4-4) 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. **246A.** Colonial Period; **246B.** 1790 to 1900; **246C.** 20th Century.

247A-247B. Seminars: Early American History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

249A-249B. Seminars: Jacksonian America. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

250A-250B. Seminars: U.S. History of the Middle 19th Century. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

252A-252B. Seminars: Recent U.S. History to 1930. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

253A-253B. Seminars: Recent U.S. History since 1930. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

254A-254B. Seminars: U.S. Social and/or Intellectual History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

255A-255B. Seminars: History of Business and Government in the American Economy. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

256A-256B. Seminars: American Diplomatic History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

257A-257B. Seminars: U.S. Urban History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

258A-258B. Seminars: Working Class History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

259A-259B. Seminars: Social History of Women in the U.S. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

260A-260B. Seminars: Native American History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

M260C. 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.

M260D. Native American Historical Demography. (4) (Same as Anthropology M287Q.) Lecture, two hours; discussion, one hour. Examination of population history of Native Americans north of Mexico prior to and following contacts with Europeans, Africans, and others, circa 1492. Emphasis on number of American Indians and other Native Americans, their decline following European contact, and their recent resurgence.

261A-261B. Seminars: Afro-American History. (4-4) Seminar, three hours. Social and political history of the Afro-American, including emphasis on development and structure of race relations in America; racial concepts and dilemmas, black and white. In Progress and S/U or letter grading.

262A-262B. Seminars: Chicano History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

263A-263B. Seminars: History of the American West. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

M264. History of American Education. (4-4) (Same as Education M201C.) History of educational thought and of social forces impinging on American education from the 1880s to the present. Analysis of relation between these ideas and forces, and aims and practices of American education today.

M265. Latin American Research Resources. (4-4) (Same as Latin American Studies M200 and Library and Information Science M225.) Seminar, three hours. General and specialized materials in fields concerned with Latin American studies. Library research techniques provide experience and competency required for future bibliographic and research sophistication as basis for enhanced research results.

266A-266B. Seminars: Colonial Latin American History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

267A-267B. Seminars: Latin American History, 19th and 20th Centuries. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

M268A-M268B. Seminars: Recent Latin American History. (4-4) (Same as Latin American Studies M268A-M268B.) Seminar, three hours. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature. In Progress and S/U or letter grading.

275A-275B-275C. First-Year Colloquia: African History. (4-4-4) (Formerly numbered 275.) Seminar, three hours. Required of all entering graduate students in African history. Source identification, research methodologies, historiographical traditions, historical interpretation, approaches to teaching, and research design. Each course may be taken independently for credit. S/U or letter grading.

278A-278B-278C. Research Seminars and Dissertation: African History. (4-4-4) (Formerly numbered 278A-278B.) Seminar, three hours. Multiple-term seminars/workshops designed to bring together pre-dissertation candidates and dissertation writers for regular presentations and critical assessment of their work in progress. Each course may be taken independently for credit. S/U or letter grading.

M281. 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.

282A-282B. Seminars: Chinese History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

285A-285B. Seminars: Japanese History. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

288A-288B. Seminars: South Asia. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

289A-289B. Seminars: Southeast Asia. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

291A-291B. Seminars: Jewish History. (4-4) Seminar, three hours. Studies in intellectual and social history of Jewish people from ancient times to the modern period. In Progress and S/U or letter grading.

293A-293B. Seminars: History of Religions. (4-4) Seminar, three hours. In Progress and 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-297B. Seminars: History of Science. (4-4) Seminar, three hours. In Progress and S/U or letter grading.

M298. Interdisciplinary Studies in the 17th and 18th Centuries. (4) (Same as English M298.) Topics vary according to participating faculty. May be repeated for credit.

M299. Interdisciplinary American Studies. (6) (Same as English M299.) Discussion, four hours. Readings, discussion, and papers on a common theme, team-taught by faculty from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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) 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 M.A. 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. M.A. candidates may take this course only once. Number of times Ph.D. 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 M.A. comprehensive examination or Ph.D. qualifying examinations. S/U grading.

599. Ph.D. Research and Writing. (1 to 8) Preparation: advancement to Ph.D. candidacy. S/U grading.

HISTORY/ART HISTORY

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Professors

Robert L. Brown, Ph.D. (*Art History*)
Donald A. Preziosi, Ph.D. (*Art History*)
Ronald J. Mellor, Ph.D. (*History*)
Debora L. Silverman, Ph.D. (*History*)

Associate Professor

Irene A. Bierman, Ph.D. (*Art History*)

Scope and Objectives

The interdisciplinary major in History/Art History allows students to study the relationship between art history and the history of society, politics, and culture.

Undergraduate Study

History/Art History B.A.

Lower division history and art history courses may be applied toward the general education requirements; a course taken to satisfy the American History and Institutions requirement may be applied toward the history section of the interdepartmental major.

No course for the major may be taken on a P/NP grading basis.

Students wanting to confer with a counselor regarding program planning and major requirements should contact the history/art history counselor at (310) 825-3480.

Preparation for the Major

Required: History 1A-1B-1C; two courses from Art History 50, 51, 54, 57; one course from Art History 55A, 55B, 56A, 56B.

The Major

Required: History 99, 100A, or 100B; 197 or 199; and courses as indicated in the following groups:

Group A: Two non-Western history courses from History M104A, M104B, M105, 106A, 106B, 106C, 107A, 107B, 108A, 108B, 109A, 109B, 110A, 110B, 111A, 111B, 111C, 112A through C112D, 115A, M122, 123A, 123B, 165A, 165C, 166, 167A through 167D, 168, 169, 170A, 170B, 171, 172, 173, 174, M175A, 175B, 175C, 175E, 176A, 176B, 176C, 177, 178A, 178B, 179A, 179B, 182A, 182B, 183A, 183B, 184, 185, 186, 187A, 187B, 187C, 188A, 188B, 188C, 190A, 190B, 193C, 193D.

Group B: Two U.S. history courses from History 145A, 145B, 146, 147A, 147B, 147C, 148A, 148B, 148C, 149A, 149B, 150A, 150B, 150C, 151A, 151B, 152A, 152B, M153, 154A through 154D, 155A, 155B, 156A through 156H, 157A, 157B, M158A through M158E, M159A, M159B, 160A, 160B, 161, 162, 163, 164.

Group C: Two European history courses from History 116A, 116B, 117A, 117B, 121A through 121D, 125A through 125F, 126A through 126F, 127A, 127B, 128A, 128B, 128C, 129A, 129B, 129C, 130, 131A through 131D, 132A, 132B, 133A, 133B, 134A, 134B, 135A, 135B, 137A, 137B, 138A, 138B, 141A, 141B, 141C, 142A, 142B, 143, 144.

Group D: Three Western art history courses from Art History 101A, 101B, M102A through M102K, 106A through 106D, 108A, 108B, 109A through 109D, 110A, 110B, 110C, 110E, 110F, C112A, C112B, C112C.

Group E: Three non-Western art history courses from Art History 104A, 104B, C104C, 110G, 114A, 114C through 114F, C115A through C115F, C117A, C117B, C117C, 118A, 118C, 118D, C119A, C119B.

Group F: Two art history elective courses selected from the above lists. Students may also take Art History 127, 197, 199 to meet this requirement.

Honors Program

The honors program is designed for History/Art History majors who are interested in carrying out an independent research project that culminates in an honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior History/Art History majors who have completed a minimum of four upper division art history courses with a grade-point average of 3.5 or better and an overall GPA of 3.0 or better are eligible to apply. Consult the art history undergraduate counselor one term prior to beginning the honors program.

To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average

of 3.5 or better in upper division courses in the major and an overall GPA of 3.0 or better, and (3) complete Art History 195A-195B with a grade of A– or better.

To qualify for graduation with highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.85 or better in upper division courses in the major and an overall GPA of 3.65 or better, and (3) complete Art History 195A-195B with a grade of A.

HONORS COLLEGIUM

College of Letters and Science

UCLA
A311 Murphy Hall
Box 951414
Los Angeles, CA 90095-1414

(310) 825-1553
<http://www.college.ucla.edu/up/whoweare/honors>

Faculty Advisory Committee

Joyce Appleby, Ph.D. (*History*)
Rogers Brubaker, Ph.D. (*Sociology*)
Christine A. Dunkel-Schetter, Ph.D. (*Psychology*)
Teshome H. Gabriel (*Film, and Television*)
Sara Melzer, Ph.D. (*French*)
Jeffery H. Miller, Ph.D. (*Microbiology and Molecular Genetics*)
Claudio Pellegrini, Ph.D. (*Physics and Astronomy*)
Theodore Porter, Ph.D. (*History*)
David C. Rapoport, Ph.D. (*Political Science*), Emeritus
Anna Simons, Ph.D. (*Anthropology*)
Min Zhou, Ph.D. (*Sociology*)

Scope and Objectives

The Honors Collegium is an unusual educational alternative, with an interdisciplinary emphasis, designed primarily for students in their freshman and sophomore years. Some upper division courses are also offered. The collegium encourages animated discussion among students, as well as between students and professors. It seeks to promote scholarly exchange across the major disciplines in the University. And it offers small classes and individual attention.

Undergraduate Study

Each Honors Collegium course is staffed by a director who is distinguished in teaching and scholarship and may include a variable number of guest lecturers and additional specialists in their fields. Many courses satisfy general education requirements and serve as preparation for numerous majors in the College of Letters and Science. Counselors are available in the Honors Programs Office, A311 Murphy Hall, to advise and help students plan an integrated academic program.

Courses in the Honors Collegium are mainly interdisciplinary seminars, and the courses vary each year. Refer to the *Schedule of*

Classes for current course listings. An Honors Collegium brochure, which gives detailed course descriptions, is available from the program office or see <http://www.college.ucla.edu/up/whoweare/honors>.

Honors Collegium

Lower Division Courses

1. Transformations of the West in the 20th Century. (4) Seminar, three hours; outside study, nine hours. Critical examination of Jackson Turner's claim that the U.S. frontier closed in 1890, ending a period of Western migration, conquest, and settlement. Particularly, assessment of how 20th-century writers confirm or deny Turner's claim in their literature. 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. Historical and Sociological Perspectives on Women and Work. (6) Lecture, three hours; writing seminar, two hours. Exploration of paradox of postwar increase in women's employment and comparative stasis in their range of occupations through investigation of historical development of women's work in the U.S. P/NP or letter grading.

4. Surrealist Challenge. (4) Examination of revolutionary cultural movement of surrealism in France and Spain in the 1920s and 1930s, including films of Buñuel and Dalí, paintings of Ernst and Magritte, and writings of Breton, Crevel, and Péret. P/NP or letter grading.

5. Science and the Human Condition. (4) (Not the same as course 5 prior to Winter Quarter 1999.) Seminar, three hours; outside study, nine hours. Examination of impact that scientific method has on the human condition and on our concept of humankind through two case studies: processes by which Darwin formulated theory of evolution by natural selection and replacement of Newtonian physics by quantum theory. P/NP or letter grading.

6. Historical Construction of Reality. (4) (Not the same as course 6 prior to Fall Quarter 1999.) Seminar, three hours; outside study, nine hours. Examination, through comparative analysis of various societies at various times, of phenomena that are taken for granted as natural but which are actually historically constructed, including perception (time and space) and hierarchy (race and gender). P/NP or letter grading.

7A. Urban Poverty and Public Policy in the U.S. (4) Lecture, four hours; discussion, one hour. Focus on social welfare in the U.S., providing historical overview of poverty and the social programs that have attempted to deal with it and addressing current debate on the subject. P/NP or letter grading.

7B. Urban Poverty and Public Policy in the U.S. (4) Optional fieldwork and tutorial. Enforced corequisite: course 7A. Field studies in social policy. P/NP or letter grading.

8. Communication among Organisms. (4) Lecture, three hours; discussion, two hours. Study of communication among a variety of taxonomic groups ranging from single-celled organisms to plants, whales, and nonhuman primates. P/NP or letter grading.

9. Greeks and Barbarians: Multiculturalism in the Ancient World. (4) Seminar, three hours; outside study, nine hours. Through examination of art and literature from prehistoric period (Homer and Bronze Age) through the Hellenistic Age (4th through 2nd century B.C.), exploration of why and how diverse groups and cultures of classical antiquity defined themselves as different and what these expressions of difference have to do with modern perceptions of race and ethnicity. P/NP or letter grading.

10. Social Classification and Categorization. (4) Seminar, three hours; outside study, nine hours. Examination of way in which schemes of classification powerfully shape systems of social counting and accounting. Use of recent works from many disciplines to examine how classification constitutes both principles of vision and principles of division. P/NP or letter grading.

11. Galileo and the Scientific Revolution from the 17th to 21st Century. (4) Lecture, three hours; discussion, one hour; outside study, nine hours. Assuming the thesis that it is science and technology which have effected social and economic structures of modern life, examination of development of scientific and industrial revolutions from time of Galileo to modernity. P/NP or letter grading.

12. Thinking about Rights. (4) Seminar, three hours; outside study, nine hours. Examination of character of rights, who is capable of exercising or should exercise rights, and scope and content of rights as they have been debated and fought over in theoretical writings and political arenas for three centuries. P/NP or letter grading.

13. Realism in Times of Crisis: French and Italian Cinema of the 1930s and 1940s. (4) (Not the same as course 13 prior to Fall Quarter 1997.) Lecture, four hours; discussion, one hour; outside study, seven hours. Examination of French and Italian cinema in period around World War II, time marked by social tensions and political unrest. Investigation of French realism, Italian neorealism, and French abstract cinema as they reveal two different European cultures during a critical historical era. P/NP or letter grading.

14. History, Science, and Society. (4) (Not the same as course 14 prior to Winter Quarter 1998.) Seminar, three hours; outside study, nine 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. America, 1963 to 1973: Culture and Counter-culture. (4) Seminar, three hours; outside study, nine hours. Through literature, film, and documentary, examination of period between assassination of President Kennedy to resignation of President Nixon, with aim of defining both the visionary appeal and costly illusions of the 1960's revolution and of suggesting connections with contemporary culture. P/NP or letter grading.

16. Contemporary Fiction and Psychology of the Self. (4) Seminar, three hours. Examination of relationship between personal and interpersonal dynamics in literature as they are illuminated by Heinz Kohut's theories of self-psychology. P/NP or letter grading.

17. Archetypal Heroines. (4) Seminar, three hours. Examination of archetypal women in classical/traditional literature of several cultures and their revised reincarnations in contemporary ones. P/NP or letter grading.

18. Culture, Conquest, and Communication: Fatal Attractions. (4) Seminar, three hours; outside study, nine hours. Examination of cross-cultural implications of manifest destiny as it pertains to four "American" entanglements — Cortes and Montezuma, Cook and Hawaii, Custer and the Sioux, and the U.S. and Vietnam, concluding with discussion of current issues of "development" and cultural assumptions of "the other." P/NP or letter grading.

19. Interdisciplinary Perspectives on Production and Consumption of Popular Music. (4) (Not the same as course 19 prior to Fall Quarter 1997.) Seminar, four hours; discussion, one hour; outside study, seven hours. Examination of popular music as a major cultural space for personal, social, and political expression. Production of popular music, including its relationship to economics, politics, and technology, and its consumption in relationship to society and the self. P/NP or letter grading.

- 20. Artificial Intelligence: Machines as People, People as Machines. (4)** (Not the same as course 20 prior to Fall Quarter 1999.) Seminar, three hours; laboratory, one hour; outside study, eight hours. Programming knowledge not required. Examination of human cognitive abilities and study of different historical approaches to programming human cognitive abilities and behaviors into computers, with focus on problem solving. P/NP or letter grading.
- 21. Rise and Fall of Modernism. (6)** Seminar, three hours; writing seminar, two hours. 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. P/NP or letter grading.
- 22. Work, Inequality, and Changing American Political Economy. (4)** Seminar, three hours. Contemporary debate about changing character of work and social inequality in the U.S. P/NP or letter grading.
- 23. Globalization. (4)** Seminar, three hours; outside study, nine hours. The making of one world from the 15th century on through exploration, trade, and colonization; revolutions in transportation and communication; regional and global networks of migration; transnational business and finance organizations; and (qualified) emergence of a global culture. P/NP or letter grading.
- 24. 21st Century: Technology, Society, and Ethics. (4)** (Not the same as course 24 prior to Fall Quarter 1997.) Lecture, two hours; discussion, one hour; outside study, nine hours. Technology, society, and ethics in three major areas: environment and environmental engineering, or large-scale changes in biosphere; effects of technology on people; and effects of technology on nonhuman creatures. P/NP or letter grading.
- 25. Human Genome: Prospects for a Super Race? (4)** Lecture, four hours; discussion, one hour. Influence of genetics on human biology, addressing the controversial issue of using genetic engineering to alter genes on human chromosomes. P/NP or letter grading.
- 26. The Bible as Political Theory. (4)** (Not the same as course 26 prior to Fall Quarter 1997.) Seminar, four hours; outside study, eight hours. The Bible treated as a political text, addressing the prepolitical condition, formation of a political community, the state, survival without a state, and messianism, with focus both on institutions and on intellectual history. P/NP or letter grading.
- 27. Theories of Exchange: Social Life of Gifts and Commodities. (4)** (Not the same as course 27 prior to Fall Quarter 1999.) Seminar, three hours; outside study, nine hours. Study of how creation, maintenance, and dissolution of social and political relations are modulated through exchange of gifts and/or commodities in different contexts and different societies. P/NP or letter grading.
- 28. Misleading Mirror: Self-Portraits in Word and Image. (4)** Self-portraiture as it is represented in the novel, poetry, painting, essay, and film, both from point of view of the artist/representor and from perspective of the reader/viewer. P/NP or letter grading.
- 29. Critical Vision: History of Art as a Social and Political Commentary. (4)** Seminar, three and one-half hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.
- 30. Vietnam War and American Culture. (4)** Seminar, three hours; outside study, nine 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. Making Citizens/Making Societies: Political Cultivation in Cross-Cultural Perspective. (4)** (Not the same as course 31 prior to Fall Quarter 1999.) Seminar, three hours; outside study, nine hours. Examination of how a society takes active concern in making sure that certain politically relevant dispositions, sensitivities, capacities, and skills are nourished in population at large, including models of both aristocratic and democratic cultivation and their political implications. P/NP or letter grading.
- 32. Creativity and Culture: Making Things New in the Arts, Humanities, Social Sciences, and Sciences. (6)** Seminar, three hours; writing laboratory, two hours. Study of creative acts of artists, writers, social scientists, and scientists in relation to their societies, cultures, disciplines, conventions, and art forms. P/NP or letter grading.
- 33. Art of Engagement. (6)** Seminar, three hours; writing laboratory, two hours; outside study, 12 hours. Cross-curricular, cross-cultural examination of literature, art, and film as a way of discovering how writers and artists treat conflict between art as something inward and psychological and personal, and art as a vehicle of social and political import. P/NP or letter grading.
- 34. Film and Society: The Hollywood Myth of Ancient Rome. (4)** Exploration of popular influence of ancient Rome on filmmakers of the 20th century, with eye to separating objective examination of Roman political and social institutions and the myth they have become. P/NP or letter grading.
- 35. Scientific Method: Critical Inquiry into Question of Extraterrestrial Life. (4)** Lecture, three hours; discussion, one hour; outside study, nine hours. 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. Ethnicity and Social Class in America. (4)** Introduction to data analysis, quantitative method, and use of statistics in social sciences, using General Social Survey (GSS) and concentrating particularly on ethnicity and social class. Students conduct statistical research of their own. P/NP or letter grading.
- 37A. Ethnicity, Social Class, and Social Mobility in the U.S. and Other Societies. (4)** Seminar, three hours; outside study, nine hours. Study of the U.S. and other nations in terms of social class, social mobility, ethnicity, and absorption of immigrants, with emphasis on manipulation and analysis of data sets from census and survey data provided through instructional software. P/NP or letter grading.
- 37B. Ethnicity, Social Class, and Social Mobility in Los Angeles. (4)** Seminar, three hours; outside study, nine hours. Course 37A is not requisite to 37B. Study of Los Angeles in terms of social class, social mobility, ethnicity, and absorption of immigrants, with emphasis on manipulation and analysis of data sets from census and survey data provided through instructional software. P/NP or letter grading.
- 38. Frida Khalo: Multidisciplinary Construction of an Artist's Life. (4)** (Not the same as course 38 prior to Fall Quarter 1999.) Seminar, four hours; outside study, eight hours. Comprehensive contextual and interpretive study of artist Frida Khalo's life, art, and character as a way of examining seminal political/historical events and cultural movements. P/NP or letter grading.
- 39. Cross-Cultural Currents in Theater. (4)** (Not the same as course 39 prior to Fall Quarter 1999.) Seminar, four hours; outside study, eight hours. With primary focus on response of 20th-century Western theater artists to Asia, examination of complex world of ethical concepts raised by artistic creation, including postcoloniality, representation, and ethnicity. P/NP or letter grading.
- 40. Transformations of Cultural Stories across Disciplines and Texts. (5)** (Not the same as course 40 prior to Fall Quarter 1999.) Seminar, four hours; outside study, 11 hours. Preparation: satisfaction of English Composition Writing I requirement. Tracing of writing and rewriting of traditional story types, specifically the adventure story as represented by Defoe's *Robinson Crusoe* and its remanifestations in Coatzee's *Foe* and the fairy tale as represented by *Cinderella* and its various cross-cultural remanifestations. P/NP or letter grading.
- 41. Mathematical Concepts: Origins and Development. (4)** (Not the same as course 41 prior to Fall Quarter 1999.) Seminar, three hours; outside study, nine hours. Exploration of various concepts in mathematics, especially in algebra, from historical point of view from ancient Babylonian quadratic triples to contemporary game theory and including study of some of the more remarkable applications. P/NP or letter grading.
- 42. European Expansion in Age of Columbus. (4)** Seminar, three hours. Examination of European (mainly Iberian) exploration and colonization during the period from circa 1400 to 1650. P/NP or letter grading.
- 43. Male Identity and Sexuality in Ancient Rome. (4)** Seminar, three hours; outside study, nine hours. Investigation of Roman cultural constructions of male identity and sexuality in context of political and social change in an emergent imperial ideology in the 1st century C.E.; examination of male "virtus," sexual stereotypes, and dynamics of sex and power in imperial politics. P/NP or letter grading.
- 44. Trail of Light. (4)** (Not the same as course 44 prior to Fall Quarter 1997.) Lecture, three hours; discussion, two hours; outside study, seven hours. Study of our understanding of light, colors, and vision; physics of light from Newton to Einstein; physics, chemistry, and biology of vision in relation to color; and appearance of light in art. P/NP or letter grading.
- 45. State, Nation, and Nationalism in Modern and Contemporary Europe. (4)** (Formerly numbered M115.) Seminar, four hours; outside study, eight hours. Examination of state, nation, and nationalism in Europe in theoretical, comparative, and historical perspective. P/NP or letter grading.
- 46. Masculinity, Sexuality, and Patriarchy. (4)** Seminar, three hours. Examination of patriarchal aspects of male gender role in American society, including perspectives of biological determinism and social constructionism, cultural icons of masculinity, heritage of traditional and nontraditional male roles in Western culture, and alternative notions of masculinity in non-Western societies. P/NP or letter grading.
- 47. Literature of Colonization and Colonization of Literature. (4)** Seminar, three hours; outside study, nine hours. Examination of various facets of interaction between Western and non-Western cultures since period of high imperialism beginning in the mid-19th century, with focus on the novel as prism through which to observe cultural meeting and interchange and their consequences. P/NP or letter grading.
- 48. Politics of Reproduction. (4)** Seminar, three hours; outside study, nine 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; outside study, eight 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.
- 50A. Greek Views of Humanity. (4)** Lecture, three hours; discussion, one hour. Greek views of human experience as expressed in literary forms invented or developed by the Greeks: epic, history, tragedy, comedy, and philosophy; study of way in which Greek texts provide foundation for subsequent Western literature and thought. P/NP or letter grading.

50B. Gender and Race: Constructions of Greek Political Thought. (4) Lecture, three hours; discussion, one hour. Course 50A is not requisite to 50B. Comprehensive introduction to Greek views of humanity with concentration on gender and race, especially as these issues are manifested in Plato and Aristotle. P/NP or letter grading.

51. Childhood in Historical and Sociological Perspective. (4) Seminar, three hours; outside study, nine hours. Examination of ways in which experience and social expectations of childhood have been transformed over time and of ways in which these experiences and expectations vary according to class, race, and gender. P/NP or letter grading.

52. Good, Better, Best Western: Approaches to the 19th-Century American Frontier. (4) Seminar, three hours. Study of the 19th-century American West as a geographical, economic, historical, and cultural region, expanding traditional discourse to include histories and stories of Mexicans, Native Americans, Mormons, and black Westerners. P/NP or letter grading.

53. Sociology of Food and Eating. (4) Seminar, three hours; outside study, nine hours. Exploration of social forces that have shaped the human diet; significance of food and manners of consumption in personal experience and social relationships; role of food as a cultural emblem and ideological symbol. P/NP or letter grading.

54. Human Lives: Psychocultural Perspective. (4) Seminar, three hours; outside study, nine hours. Examination of human life course in psychocultural perspective, following observations of Kluckhohn and Murray, including investigations of (1) psychobiological underpinnings of human life, (2) human life as shaped by social and cultural processes, and (3) humanistic perspective defining uniqueness. P/NP or letter grading.

55. Culture and History of Utopias. (4) (Not the same as course 55 prior to Fall Quarter 1999.) Seminar, three hours; outside study, nine 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.

56. Language as a Window to the Mind. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Study of topics in language and the mind, including language acquisition in the child, language representation in the brain, relationship between language and other mental abilities, and autonomous nature of language as a system of knowledge. P/NP or letter grading.

57. Life and Sciences of Complexity. (4) (Not the same as course 57 prior to Fall Quarter 1997.) Seminar, four hours; outside study, eight hours. Study of motion and change in systems, including general systems theory, cybernetics, catastrophe theory, and dissipative structure theory, moving toward a view of senselessness of complex systems, or an answer to question of why we grow old and die. P/NP or letter grading.

58. Apartheid and Social Stratification in South Africa: Theory and Data. (4) Seminar, three hours. Examination as an empirical question of structure and consequences of apartheid in South Africa, including analyses both of history and of social stratification. P/NP or letter grading.

59. Literature and Culture of the American South. (6) Lecture/discussion, four hours; writing seminar, two hours. 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. P/NP or letter grading.

60. Immigration and New Second Generation. (4) (Not the same as course 60 prior to Fall Quarter 1998.) Seminar, three hours; outside study, nine hours. Immigrant children and children of immigrants have become fastest growing and most ethnically diverse segment of the U.S. child population, raising issues of migration processes, contexts of reception, biculturalism, adaptation, and assimilation and impact of these on socioeconomic circumstances and future success. P/NP or letter grading.

61. Social Theory in the 20th Century. (6) Lecture, four hours; discussion, one hour; writing seminar, two hours. Examination of strikingly subjective thrust of 20th-century social thought which has emphasized cultural and emotional structures rather than the material, objective world. Focus on psychoanalysis, structuralism, functionalism, existentialism, and phenomenology in readings from Durkheim to Jean-Paul Sartre. P/NP or letter grading.

62. Community and Self-Interest in History of American Culture. (6) Lecture, four hours; discussion, one hour. Exploration of historical origins of the frequently contradictory values which inform American thought and culture: hierarchy and equality, institutional constraints and voluntarism, collective sense of mission and belief in the autonomous individual. P/NP or letter grading.

63. Emerging Infections and Their Effects on Society: Past, Present, and Future. (4) Seminar, four hours; outside study, eight hours. Examination of how people have responded to plagues and infections through early history and "golden age of microbiology" of last 200 years; study of contemporary responses, including genetic engineering, and prophecies regarding what future may hold regarding infectious diseases. P/NP or letter grading.

64. Encounters with the Other: European Colonialism and Representation. (4) Seminar, three hours. Exploration of broad range of representations — drama, fiction, film, paintings, ethnography, and cultural anthropology — to understand role played by such cultural products in encounter between European sensibility and colonized "other." P/NP or letter grading.

65. Carnival and Festivity. (4) Seminar, four hours; outside study, eight hours. Examination of Carnival and related customs occurring from Christmas to Ash Wednesday in Europe and the Americas. Exploration of perspectives from ethnography, folklore, theories of dance, history, religion, anthropology, and literary studies. P/NP or letter grading.

66. Substance Abuse and the Brain. (4) Seminar, three hours; outside study, nine hours. Study of a broad range of information about substance abuse, including molecular mechanisms of addiction, brain reinforcement for drug use, genetic predisposition, and mechanisms of tolerance and withdrawal, as well as study of associated clinical, psychosocial, and political issues. P/NP or letter grading.

67. Structure of Physical Reality. (4) (Not the same as course 67 prior to Fall Quarter 1998.) Lecture, three hours; discussion, one hour; outside study, eight hours. No special mathematical knowledge required. Course in modern physics, including videos and practical demonstrations, Zen stories, and discussions of what Eastern and Western religions and philosophy in general have to say about forces of nature. Topics include quantum mechanics, microcosm of atoms, and elementary particle physics and philosophical implications. P/NP or letter grading.

68. History of Social Thought. (4) Lecture, three hours; discussion, one hour. Study of significant forms of social theory and social change from the English Revolution to beginning of the 20th century, including readings from Hobbes, Rousseau, Smith, Tocqueville, Marx, and Freud. P/NP or letter grading.

69. American Writing, American Photography. (4) Seminar, three hours. Exploration of interrelationship of American writing and American photography, including social documentary, American naturalism, war, and contemporary social conflict and change. P/NP or letter grading.

70. Genetic Engineering in Medicine and Agriculture. (4) Overview of principles of cell and molecular biology and of technical details of genetic engineering. Discussion of benefits and detriments of new biotechnology in relation to medicine, agriculture, and general social issues. P/NP or letter grading.

71. History through Clothes. (4) (Not the same as course 71 prior to Fall Quarter 1998.) Seminar, three hours; outside study, nine hours. Exploration of what clothes mean and what they tell us about life in the past, including historical constructions of sexual, social, and political identity. Focus on clothes of Western Europe, especially those of France, with study of clothes in other parts of the world included. 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.

74. Life Crises in Literature. (4) Seminar, three hours. Examination of typical life upheavals (child abuse, coming of age, death, etc.) as they are portrayed in modern literature and, by comparative analyses of diverse literatures, focus on ways in which universal events are filtered through the prism of distinct cultural perspectives. P/NP or letter grading.

75. On Nature of Things: Comparative Reading of Poem by Lucretius and Modern Science. (4) Seminar, three hours; outside study, nine hours. Most important and influential concepts of modern science, including atoms, their movements and nature, origin of the world, evolution of life; comparison with theories of Lucretius as defined in *De Rerum Naturae*. P/NP or letter grading.

76. Race, Class, and Gender. (4) Seminar, three hours; outside study, nine hours. Analysis of interrelationship of race, class, and gender and of ways in which these social means of classification shape experience in American society. Research project on this topic into a hobby, sport, or occupation required. P/NP or letter grading.

77. Intellectual Life in Japan: Classics, Moderns, and Postmoderns. (6) Lecture, two hours; discussion, two hours; writing seminar, two hours. Examination of current modernity/postmodernity debate about contemporary Japanese art and culture in context of Japan's intellectual tradition since the 16th century. Comparison of modern Western and Eastern cultural assumptions and beliefs. P/NP or letter grading.

78. Writing in Age of Revolution. (4) Lecture, four hours; discussion, one hour. Part of UCLA French Revolution Bicentennial Program. Examination of major debates of 1780 to 1820 in America and Europe through historical, rhetorical, and literary study. P/NP or letter grading.

79. Rhetoric of Rule: Spectacle and Image Making in Reign of the Sun King and Presidents Reagan and Clinton. (4) Lecture/discussion, four hours; outside study, eight hours. Use of Louis XIV and Presidents Clinton and Reagan as case studies to explore why and how political power is symbolically constructed and to understand power as rhetoric mediated through symbolic forms. P/NP or letter grading.

80. Literature of Diversity: Cultural Experience in America. (4) Seminar, three hours. Examination of richness and variety of American culture as revealed in literary works generally neglected in traditional surveys. Theories of ethnicity and nationalism presented in such works as *Black Elk Speaks*, *Their Eyes Were Watching God*, Mexican Corridos on immigration, and *China Men*. P/NP or letter grading.

82. Community and Labor Development from Ground Up. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. 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.

83. Politics and Rhetoric of Literature. (6) Seminar, four hours; writing laboratory, two hours. 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. P/NP or letter grading.

84. Los Angeles, 1900 to 2000: History of a 20th-Century City. (4) Seminar, three hours; outside study, nine hours. Interdisciplinary approach to study of Los Angeles, with attention to political and economic issues and emphasis on social and cultural history as reflected in literature, art, film, and architecture. P/NP or letter grading.

85. Science and Art: Concepts and Connections. (4) Seminar, four hours; outside study, eight hours. Study of relationships between intellectual problem solving in science and aesthetics, with particular attention to holographs and liquid light displays. P/NP or letter grading.

86. Federico Garcia Lorca and Literature of New York. (4) Lecture/discussion, three hours. Designed to place Lorca in the international current of urban literature. Examination of Lorca's poems (in translation) and drawings as representations of New York in art, cinema, and literature. P/NP or letter grading.

87. Humans and Other Animals. (4) (Not the same as course 87 prior to Fall Quarter 1998.) Seminar, three hours; outside study, nine hours. Examination of ongoing and historic relations between human beings and animals cross-culturally, including animals perceived as predators, renewable and nonrenewable resources, pets, trophies, collectibles, and objects of study. P/NP or letter grading.

89. Freud, Fairy Tales, and Feminism. (4) Lecture/discussion. Demonstration of both the power of Freud's ideas and vision and vitality of criticisms of Freud that emanate from self-psychology and feminist thinking in contemporary social science. P/NP or letter grading.

90. French Revolution: Ideologies and Images. (6) Lecture, two and one-half hours; discussion, one hour; writing seminar, two hours. Examination of history of French Revolution as series of world historical events and as source of dominant ideologies and images that have influenced culture of France, Western Europe, and North and South America. P/NP or letter grading.

92. Genes, Genomics, and Internet. (4) (Not the same as course 92 prior to Fall Quarter 1998.) Lecture, two hours; computer laboratory, three hours; outside study, seven hours. New science of genomics (computer analysis of genetic information), dealing with issues related to basic genetics, medicine, biotechnology, evolution, information technology, and their societal impact. P/NP or letter grading.

94. Historic Roots of Healing Arts. (4) (Not the same as course 94 prior to Fall Quarter 1998.) Not open to students with credit for Psychiatry 98H. Introduction to traditions, practices, goals, and myths of healing professions in Western medicine. P/NP or letter grading.

95. Art, Politics, and Social Change in 19th-Century England and France. (4) Seminar, three hours. Exploration, through analysis of artists and intellectuals in 19th-century England and France, of social factors in cultural expression and way that national traditions and political and social conditions shape each set of literary and artistic innovations. P/NP or letter grading.

96. Cultural Dimensions of Apartheid and Post-Apartheid South Africa. (4) Exploration of culture and society of contemporary South Africa through literature of both black and white South African authors and popular cultural forms such as people's theater and workers' poetry. P/NP or letter grading.

97. Issues in American Foreign Policy: Methodology of Assessment. (4) Lecture/debate, three hours; discussion, one hour. Exploration in debate format of wide range of views on contemporary foreign policy issues to train students how to discern the ideological origins of policy arguments. Examination of material in major foreign policy journals. P/NP or letter grading.

99. Case-Based Astrophysics with Computer Visualization. (4) Seminar, three hours; outside study, nine hours. Not open for credit to students with credit for Astronomy 2A, 2B, 3, or 3H. Use of images, especially animations showing temporal development of three-dimensional phenomena, to convey scientific principles behind the phenomena. Exploration of topics in astrophysics such as stellar evolution, binaries, cepheids, and redshifts, centered around astronomy software. P/NP or letter grading.

Upper Division Courses

M102. Culture, Media, and Los Angeles. (6) (Same as Afro-American Studies M102 and Asian American Studies M197H.) 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.

104. Eurocentrism Debate: Viability of Western Tradition. (4) Seminar, three hours. Designed for juniors/seniors. Assessment, both historically and critically, of "Western tradition" as a cultural, social, and ideological construct and delineation for discussion of current debates over Eurocentrism, particularism, and multiculturalism. P/NP or letter grading.

105. Chinese and Greek Heroes, Past and Present. (4) Seminar, three hours. Designed for juniors/seniors. Comparison of Greek and Chinese notions of the heroic in ancient epics and redefinitions of the heroic in their modern permutations, allowing students to interrogate cultural constructions of manhood. P/NP or letter grading.

M106. Imaginary Women. (4) (Same as Women's Studies M106.) 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.

107. Painful Birth: Rise of Modern Capitalism in Late Medieval Italy. (4) Seminar, three hours; outside study, nine hours. Through medieval texts and representations of the human figure in art, examination of rise of merchant and banking class in late medieval Italy, focusing on ideological and economic issues rooted in contempt for commerce, prohibition of usury, ideal of the nobility, and choice between Earth and sky. P/NP or letter grading.

108. History of the Devil in Scripture and Literature. (4) Seminar, three hours; outside study, nine hours. Following study of supernatural figure "Satan" in Old Testament and its correspondent figure in New Testament, course looks at historical research, literary analysis, and theological thinking to trace evolution of concept of "the devil" in the Bible, 15th-century drama, and poetry of John Milton. P/NP or letter grading.

109. Language, Meaning, and the Making of Poetry. (4) Seminar, three hours; workshop, one hour; outside study, eight hours. In words of the august professor, "Semiological warfare against the purveyors of semantic entropy." In context of and comparison with contemporary speech, study of history of philosophic and poetic discourse on language and its potentials, including social and political implications. P/NP or letter grading.

110. Marxist and Post-Marxist Approaches to Cultural Studies. (4) Seminar, four hours; outside study, eight 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) (Formerly numbered 93.) Seminar, four hours; outside study, eight 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. Inner and Outer Worlds of Children: Perspectives on Social Policies toward Children and Schooling. (4) Seminar, three hours; outside study, nine hours. Study of two important components of schooling and parenting: (1) preparation of students for outer world of work, academic attainment, and placement in society and (2) their preparation for relationship they have with themselves. Critique of social policies in light of these observations. P/NP or letter grading.

113. Geographical Encounter and Exploration. (4) Seminar, four hours; outside study, eight hours. Examination of coming together of various societies, whether preliterate or literate: the encounter. Exploration of both European and non-European travels, with emphasis on new thinking in fields of history and geography. P/NP or letter grading.

114. Darwin and *The Origin of Species*. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Reading of Darwin's *The Origin of Species* in original text, then using it as springboard to investigate history of his period, what influenced him, and how future scientists have used him. P/NP or letter grading.

M116. Art Alive: Art and Performance in the Museum. (4) (Same as Theater M193.) Offered in collaboration with the Los Angeles County Museum of Art (LACMA). Interpretation of art in the collection through acting, dialogues, movement, and music. Research into history and art history and production of a creative performance piece required. P/NP or letter grading.

117. Resistance to Evil: Organized Resistance to Nazis in Occupied Europe. (4) Seminar, three hours; outside study, nine hours. Resistance is not a moral or philosophical issue, but a sociohistorical one. What makes resistance possible are specific historical circumstances and social relations that enable ordinary men and women to oppose their oppressors. Examination of this premise through analysis of organized resistance to Nazi occupation in Europe. P/NP or letter grading.

M118. Roots of Patriarchy: Ancient Goddesses and Heroines. (4) (Same as Women's Studies M128.) Lecture, three hours; outside study, nine 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.

M119. Nuclear Weapons: Critical Decisions. (4) (Same as Policy Studies M116.) Lecture, three hours; outside study, nine hours. Examination of critical decisions regarding nuclear weapons, starting with President Roosevelt's decision to build atomic bomb and ending with current policies on containing nuclear proliferation and on avoiding nuclear catastrophe. Letter grading.

122. Violence against Women in Cross-Cultural Perspectives. (4) Seminar, three hours; outside study, nine hours. Exploration of sources of violent acts against women in different societies. Topics include wife beating, female sexual slavery, female infanticide, dowry deaths, female genital "circumcision," rape, and emerging global human rights responses to these issues. P/NP or letter grading.

123. War and Peace in Africa. (4) Seminar, four hours; outside study, eight hours. Investigation into main causes and forms of warfare on African continent, including relationship between internal war and transborder conflict, historic ethnic antagonism, competition for control of natural resources, and hostilities precipitated by militarism. P/NP or letter grading.

124. Midwives, Mothers, and Medicine: Perspectives on History of Childbirth. (4) Seminar, three hours; outside study, nine 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.

M135. Narrative in Mass Communication. (6) (Same as Communication Studies M135.) Seminar, four hours; outside study, 10 hours. Examination of narrative as a primary function of mass media, beginning with social, psychological, cultural, and rhetorical functions of storytelling and basic elements of narrative, then applying these to study of film, television, and print media. P/NP or letter grading.

191. Writing and Editing of Books. (4) Preparation: submission of approved manuscript. Theory and method in design, organization, writing, and editing of books.

199. Directed Honors Studies. (4) Preparation: minimum of four units completed in Honors Collegium with a grade of B or better, overall UCLA grade-point average of 3.0 or better. Special research/writing tutorial with a director of one of the Honors Collegium courses in order to pursue in greater depth a significant topic from one of the collegium courses. May not be repeated for credit.

HUMAN GENETICS

School of Medicine

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N. Carolyn Schanen, M.D., Ph.D.
Lisa Schimmenti, Ph.D.
Eric Vilain, M.D., Ph.D.

Adjunct Assistant Professor

Linda McCabe, Ph.D.

Scope and Objectives

The graduate Human Genetics Program prepares students for careers as independent laboratory researchers with a firm grasp of the developments in biological and medical research. The rapidly evolving field of human genetics now incorporates genetic, biochemical, cell biological, and developmental studies of both humans and model organisms to tackle biomedical problems important for human health and disease. Areas of study include both Mendelian and non-Mendelian hereditary diseases, genomics and mapping, bioinformatics, developmental biology, neurogenetics, sex determination, cytogenetics, human malformation, and chromatin structure and function. Laboratory research is emphasized. Conceptual ap-

proaches to medically related biological problems are employed, frequently with the aid of automation and advanced imaging techniques, toward the goal of disease prevention, control, and eradication methods such as gene therapies. Coursework acquaints students with the most current literature and trains students in critical thinking, experimental design, and the ability to anticipate future developments.

Graduate study leading to a doctoral degree is emphasized. Under special circumstances, master's candidates are considered after consultation with faculty members and the chair.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Human Genetics offers the Master of Science (M.S.) degree in Human Genetics.

Admission

The department accepts students into the M.S. program only rarely and under special circumstances.

Areas of Study

Human genetics plus related areas (for example, molecular genetics, mathematical modeling). Consult the department for more information.

Course Requirements

Master's students take the same core courses in the first year as doctoral students (see below). In addition, they must take one course in human genetics (Microbiology and Molecular Genetics CM256) or the more advanced course (in planning stage). Elective courses must be taken to complete the requirement of 36 units for the master's degree. No more than two courses (eight units) in the 500 series may be applied toward the minimum course requirement, and only one of these (four units) may be applied toward the minimum graduate course requirement for the degree (20 units).

Comprehensive Examination Plan

Candidates must pass a comprehensive written examination to be administered by a committee of three faculty members appointed by the chair.

Thesis Plan

A new thesis plan is under consideration.

Doctoral Degree

Admission

Undergraduate requirements for the Ph.D. program are similar to those of UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, the more common route of admission to the Ph.D. program in Human Genetics. The requirements include a bachelor's degree, with preparation in physics, biology, and chemistry, and exposure through upper division courses in specific areas that may include genetics, biochemistry, molecular biology, cell biology, developmental biology, microbiology, virology, physiology, and immunology. Because of the high mathematical content of some areas of human genetics, advanced courses in mathematics may be substituted for biologically oriented courses. More advanced degrees (M.S., M.D., or equivalent) are also acceptable. Scores on the Graduate Record Examination (GRE) General Test and three letters of recommendation are required.

Major Fields or Subdisciplines

The field of human genetics is a well-defined discipline which includes subfields such as genomics, cytogenetics, biochemical and molecular genetics, medical genetics, immunogenetics, cancer genetics, and population genetics. The closely related field of mammalian genetics is also under the purview of this program.

Course Requirements

Students recruited through UCLA ACCESS follow ACCESS requirements in the first year. In the fall, students take Biological Chemistry CM253, which provides grounding in the chemical and biological properties of nucleic acids and proteins. In the Winter Quarter, they have the choice of several courses that emphasize cellular function and organization (e.g., Biological Chemistry CM267 or Neurobiology M209A). Knowledge of nucleic acid and protein structure and function as well as of cell biology is essential for genetics. In the Spring Quarter, students may take any of several specialty courses, but the one recommended for students who have already decided to specialize in human genetics is Biological Chemistry CM248. As part of the ACCESS program during the first year, the students also take three two-unit seminar courses on current research topics, a course on ethics in research, and a course on computers in biology (students may test out of the computer course if they have adequate preparation). The faculty offers at least one seminar course in the field of human genetics.

A six-unit course on advanced human genetics is required of predoctoral students in the second year. Six additional units of coursework are required for the doctoral degree, preferably in seminar format.

Similar requirements apply to students that enter the department directly; however, a biomathematics course may be substituted for a biological course in the Winter or Spring Quarters.

Written and Oral Qualifying Examinations

Students are allowed to nominate a doctoral committee after satisfactory performance in courses and laboratory rotations, as judged by faculty or a designated faculty committee. They are required to take the examinations for advancement to candidacy at the end of their second year or the beginning of the third. The written qualifying examination consists of the preparation of two short research proposals in the field of human genetics. One of these addresses the student's proposed dissertation research and the second addresses a research problem unrelated to the dissertation research. The proposals must include the scientific rationale, experimental methods, anticipated results and interpretations, and bibliography. Students are evaluated on their understanding of the research that they are undertaking for their doctoral dissertation, their ability to identify an important scientific problem independently of their mentor, their ability to devise appropriate and original experimental strategies, and their ability to write clearly and concisely. The oral examination, taken a week or two after submission of the written proposals, consists of a discussion of the proposals and of additional questions to probe the student's general knowledge and understanding of human genetics.

Human Genetics

Upper Division Courses

CM153G. Macromolecular Structure. (6) (Same as Biological Chemistry CM153G and Chemistry CM153G.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM253. Letter grading.

CM156. Human Genetics. (4) (Same as Microbiology CM156 and Molecular, Cell, and Developmental Biology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

CM169. Cell Structure, Signaling, and Differentiation. (6) (Same as Biological Chemistry CM169 and Molecular, Cell, and Developmental Biology CM169.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM267. Letter grading.

CM178. Molecular Genetics. (6) (Same as Biological Chemistry CM178 and Molecular, Cell, and Developmental Biology CM178.) Lecture, five hours. Requisites: Chemistry 153A, 153B, Life Sciences 3, 4, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM248. Letter grading.

Graduate Courses

M201. Use of the Computer in Biology. (2) (Same as Microbiology and Immunology M241 and Molecular, Cell, and Developmental Biology M201.) Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

M203. Stochastic Models in Biology. (4) (Same as Biomathematics M203.) Lecture, four hours. Requisite: Mathematics M170A 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 a variety of other biological and medical disciplines. S/U or letter grading.

M207A. Theoretical Genetic Modeling. (4) (Same as Biomathematics M207A and Biostatistics M237A.) Lecture, three hours; discussion, one hour. Preparation: coursework equivalent to Mathematics 115A, 131A. 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.

M207B. Applied Genetic Modeling. (4) (Same as Biomathematics M207B and Biostatistics M237B.) Lecture, two hours; laboratory, two hours. Preparation: coursework equivalent to Biostatistics 110A, 110B. Methods of computer-oriented genetic analysis. Topics may include segregation analysis, parametric and nonparametric linkage analysis, quantitative methods, and phylogenetics. 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.

236. Advanced Human Genetics. (6) Lecture, five hours. In-depth overview of human genetics that forms basis for firm grasp of linkage mapping, genomics, development of animal models to study human disease, and current status of gene therapy. S/U grading.

CM248. Molecular Genetics. (6) (Same as Biological Chemistry CM248, Microbiology M248, and Molecular, Cell, and Developmental Biology CM248.) Lecture, five hours. Requisite: course CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM178. Letter grading.

CM253. Macromolecular Structure. (6) (Same as Biological Chemistry CM253 and Chemistry CM253.) Lecture, five hours. Requisites: Chemistry 110A, 153A, 153B, 153C, 156. Chemical and physical properties of proteins and nucleic acids. Structure, cloning, and analysis of DNA; biosynthesis and processing of RNA; biosynthesis, purification, structure, and analysis of proteins; correlation of structure and biological properties. Concurrently scheduled with course CM153G. Letter grading.

CM256. Human Genetics. (4) (Same as Microbiology CM256 and Molecular, Cell, and Developmental Biology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the 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.

CM267. Cell Structure, Signaling, and Differentiation. (6) (Same as Biological Chemistry CM267, Chemistry M267, and Molecular, Cell, and Developmental Biology CM223.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: course CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM169. Letter grading.

HUMANITIES

See Comparative Literature

INDO-EUROPEAN STUDIES

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Raimo A. Anttila, Ph.D. (*Linguistics*)

Jesse L. Byock, Ph.D. (*Germanic Languages*)

Vyacheslav Ivanov, Ph.D. (*Slavic Languages and Literatures*)

Joseph F. Nagy, Ph.D. (*English*)

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Professors Emeriti

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Bengt T.M. Löfstedt, Ph.D. (*Classics*)

Jaan Puhvel, Ph.D. (*Classics*)

Hartmut E.F. Scharfe, Ph.D. (*East Asian Languages and Cultures*)

Hanns-Peter Schmidt, Ph.D. (*Near Eastern Languages and Cultures*)

Terence H. Wilbur, Ph.D. (*Germanic Languages*)

Assistant Professor

Christopher M. Stevens, Ph.D. (*Germanic Languages*)

Scope and Objectives

The prime aim of the interdisciplinary Indo-European Studies Program is the integral study of Indo-European culture, based on comparative linguistics, archaeology, social structure, and religion. The Ph.D. in Indo-European Studies is offered with two alternative major emphases: Indo-European linguistics and Indo-Iranian or other specialized language area studies.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Doctoral Degree

Admission

To be admitted to the program leading to the Ph.D. degree in Indo-European Studies, applicants must have a B.A. degree with a major in an Indo-European language field (for example, German, Slavic, Celtic, Romance languages, Latin, Greek), linguistics (with concentration in historical and comparative linguistics), anthropology, or archaeology. Letters of recommendation (at least two, preferably three or four) are required; Graduate Record Examination (GRE) scores are not required. Applicants should also submit a writing sample, normally consisting of a recent term paper (preferably on a linguistic topic). Potential applicants may request a brochure by writing to the Indo-European Studies Program.

Admission to the program itself constitutes admission to the doctoral program; there is no master's degree offered. Should deficiencies exist in requisites to specific work at the graduate level, applicants may be granted provisional admission and directed to remove those deficiencies in the initial period of enrollment.

Major Fields or Subdisciplines

The Ph.D. in Indo-European Studies is offered with three alternative major emphases: (1) Indo-European linguistics; (2) Indo-Iranian or other specialized language area studies; (3) European and related archaeology. At present, the archaeology specialization is not available.

Course Requirements

The course requirements vary among the three major fields of specialization. General requirements for all students regardless of specialization include knowledge of Vedic Sanskrit and Homeric Greek, basic competence in Indo-European linguistics (including Indo-European Studies M150 and 210), mythology (for example, Classics 168), and archaeology (in-

cluding Indo-European Studies 131, 132). Additional requirements by field are as follows:

Linguistics. An advanced seminar in comparative grammar, a minimum of four ancient Indo-European languages from different sub-branches, and additional units in courses offered by the Linguistics Department (for example, phonetics, structural linguistics) and related departments. These additional units should be chosen in consultation with the adviser.

Indo-Iranian or Other Specialized Language Area. An advanced seminar in comparative grammar, a minimum of two ancient Indo-European languages from different sub-branches, and additional units in the area of specialization, to be chosen in consultation with the adviser.

European and Related Archaeology. A minimum of one ancient Indo-European language, an advanced seminar in European archaeology, a course in analytical methods in archaeology, and additional units in archaeology, anthropology, and related fields, to be chosen in consultation with your adviser.

Written and Oral Qualifying Examinations

When the required coursework is completed and prior to advancement to candidacy, a series of written examinations covering the major and minor fields are administered. These consist of translation and analysis of set texts from the ancient Indo-European languages and diagnostic examinations in the other fields. Following successful completion of the written examinations, the University Oral Qualifying Examination, based on the written examinations and the dissertation prospectus, is administered by the doctoral committee. It is intended to probe the student's grasp of the entire field. Should students fail either the written or oral examinations, the interdepartmental degree committee may allow reexamination.

Indo-European Studies

Upper Division Courses

131. European Archaeology: Proto-Civilizations of Europe. (4) Survey of European cultures from beginning of the food-producing economy in the 7th millennium B.C. to beginning of the Bronze Age in the 3rd millennium B.C.

132. European Archaeology: Bronze Age. (4) Requisite: course 131. Survey of European cultures from around 3000 B.C. to the period of destruction of the Mycenaean culture about 1200 B.C. Aegean area and rest of Europe.

M150. Introduction to Indo-European Linguistics. (4) (Same as Linguistics M150.) Preparation: one year of college-level study (course 3 or better, eight units minimum) of either Greek or Latin and either German or Russian. Survey of Indo-European languages from ancient to modern times; their relationships and chief characteristics.

199. Special Studies. (2 to 8) Tutorial, to be arranged.

Graduate Courses

210. Indo-European Linguistics: Advanced Course. (4) Requisite: course M150. Comparative study of phonology, morphology, syntax, and lexicon. Problems in analysis and reconstruction.

250A-250B. European Archaeology. (4-4) Studies in ancient European archaeological materials and their relationship to the Near East, Western Siberia, and Central Asia. May be repeated for credit. In Progress grading.

280A-280B. Seminars: Indo-European Linguistics. (4-4) Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. S/U or letter grading.

596. Directed Individual Studies. (2 to 8) Tutorial, to be arranged.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged.

Related Courses

Ancient Near East (Near Eastern Languages)

160A-160B. Introduction to Near Eastern Archaeology

161A-161B-161C. Archaeology of Mesopotamia

260. Seminar: Ancient Near Eastern Archaeology

261. Practical Field Archaeology

Anthropology

110. World Archaeology

112. Old Stone Age Archaeology

C115R. Strategy of Archaeology

M116Q. Dating Techniques in Environmental Sciences and Archaeology

183. History of Archaeology

Archaeology

259. Fieldwork in Archaeology

Armenian (Near Eastern Languages)

230A-230B-230C. Elementary Classical Armenian

231A-231B-231C. Intermediate Classical Armenian

232A-232B-232C. Advanced Classical Armenian

Classics

166A. Greek Religion

166B. Roman Religion

168. Comparative Mythology

180. Introduction to Classical Linguistics

230A-230B. Language in Ancient Asia Minor

251A. Seminar: Classical Archaeology — Aegean Bronze Age

260. Topics in Ancient Religion

268. Seminar: Comparative Mythology

English

M111D. Celtic Mythology

M111E. Survey of Medieval Celtic Literature

M111F. Celtic Folklore

211. Old English

216A-216B. Old Irish

217A-217B. Medieval Welsh

218. Celtic Linguistics

263. Celtic Literature

Folklore and Mythology

M112. Survey of Medieval Celtic Literature

M122. Celtic Mythology

M126. Baltic and Slavic Folklore and Mythology

M127. Celtic Folklore

228. Seminar: Topics in Celtic Folklore and Mythology

German (Germanic Languages)

230. Survey of Germanic Philology

231. Gothic

232. Old High German

233. Old Saxon
252. Seminar: Historical and Comparative Germanic Linguistics

Greek (Classics)

240A-240B. History of the Greek Language
242. Greek Dialects and Historical Grammar
243. Mycenaean Greek

Indic (East Asian Languages)

110A. Elementary Sanskrit
110B. Intermediate Sanskrit
110C. Advanced Sanskrit
115. Readings in Sanskrit
M222A-M222B. Vedic
230. Selected Readings in Sanskrit Texts
234A-234B. Introduction to Panini's Grammar
236A-236B. Pali and Prakrits

Iranian (Near Eastern Languages)

169. Civilization of Pre-Islamic Iran
170. Religion in Ancient Iran
190A-190B. Introduction to Modern Iranian Studies
M222A-M222B. Vedic
230A-230B. Old Iranian
231A-231B. Middle Iranian

Latin (Classics)

240. History of the Latin Language
242. Italic Dialects and Latin Historical Grammar

Linguistics

103. Introduction to General Phonetics
110. Introduction to Historical Linguistics
120A. Phonology I
120B. Syntax I

Old Norse Studies (Germanic Languages)

C140. Viking Civilization and Literature
151. Elementary Old Norse
152. Intermediate Old Norse
245A. Germanic and Scandinavian Mythology

Semitics (Near Eastern Languages)

140A-140B. Elementary Akkadian
141. Advanced Akkadian
220A-220B. Ugaritic

Slavic (Slavic Languages)

M179. Baltic and Slavic Folklore and Mythology
201. Introduction to Old Church Slavic
202. Introduction to Comparative Slavic Linguistics
241A-241B. Advanced Old Church Slavic
242. Comparative Slavic Linguistics
251. Introduction to Baltic Linguistics

INFORMATION STUDIES

Graduate School of Education and Information Studies

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Adjunct Professor

Anthony Maddox, Ph.D.

Scope and Objectives

The Department of Information Studies has one of the top-ranked programs of its kind in the country and has developed an international reputation in the areas of information policy, information-seeking behavior, user interface development, and cataloging. Whether students choose to pursue a master's degree or a Ph.D., they graduate with a broad understanding of both theory and practice.

Applicants may write to the Department of Information Studies, 1009 Moore Hall, UCLA, Box 951521, Los Angeles, CA 90095-1521, for the department's announcement and application materials.

Note: Information Studies 110 may not be applied toward the M.L.I.S. degree; courses in the 111 series may be applied toward the M.L.I.S. degree with approval of faculty advisers.

Upper division undergraduate students must obtain consent of instructor to enroll in 200-series courses and consent of the chair to enroll in 400-series courses.

Graduate students from other schools or departments who wish to take courses in the De-

partment of Information Studies must obtain consent of instructor prior to enrolling.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Information Studies offers the Master of Library and Information Science (M.L.I.S.) degree and participates in concurrent or articulated degree programs with the Department of History, the Latin American Studies Program, and the John E. Anderson School of Management.

Admission

Students are admitted to the M.L.I.S. program in Fall Quarter only. In addition to Graduate Division requirements and application procedures, the department requires

- (1) A statement of purpose.
- (2) An official report of a score on the Graduate Record Examination (GRE) taken within the past five years. Applicants to the M.L.I.S. degree program who hold graduate degrees from accredited institutions in the U.S. may request a waiver of the GRE. Waivers are considered only after the committee on M.L.I.S. and certificate admissions has reviewed applicants' official transcripts. An official report of a score on the Test of Written English (TWE) and the Test of English as a Foreign Language (TOEFL) is required for students whose native language is not English.
- (3) Three letters of recommendation.
- (4) Satisfaction of the following entrance requirements: (a) a college-level course in statistics (three semester units or four quarter units) within the last five years with a minimum grade of C. The course must have covered descriptive and inferential statistics. In exceptional circumstances it is possible to meet this requirement by passing a competency examination in statistics administered by the department; (b) a college-level course in computer programming (three semester units or four quarter units) within the last five years with a minimum grade of C. Most standard languages such as BASIC, C, COBOL, FORTRAN, or PASCAL are acceptable, as is a college-level course in the use of data management systems such as INMAGIC, dBASE, or PARADOX. At least one third of the course grade should be based on programming assignments. In exceptional circumstances it is possible to meet this requirement by passing a competency examination in

computer programming administered by the department.

Entrance requirements should be completed before beginning the M.L.I.S. program. However, one requirement may be satisfied in the Fall Quarter of the student's first year.

While work experience is not a requirement for admission, consideration is given to such experience in reviewing the total application.

The admissions committee may request a report of an interview by the chair of the department or by a person designated by the chair as qualified to conduct an interview. Interviews are rarely conducted, and only for the purpose of clarifying a candidate's academic background and career objectives.

To participate in a concurrent or articulated degree program, students must make application to and be admitted by both the department and the other UCLA school or department. Fulfilling the combined set of program requirements normally takes three years.

M.A. History/M.L.I.S.

The M.A. History/M.L.I.S. is a concurrent degree program within the Department of Information Studies and the Department of History. Students can obtain two degrees: the M.L.I.S. and the M.A. in History. The best sequence of coursework should be discussed with the advisers from both this department and the History Department.

M.A. Latin American Studies/M.L.I.S.

The M.A. Latin American Studies/M.L.I.S. is an articulated degree program within the Department of Information Studies and the Latin American Studies Program. Students can obtain two degrees: the M.L.I.S. and the M.A. in Latin American Studies.

M.B.A./M.L.I.S.

The M.B.A./M.L.I.S. is a concurrent degree program jointly sponsored by the Department of Information Studies and the John E. Anderson Graduate School of Management. The program is designed to provide an integrated set of courses for students who seek careers that draw on general and specialized skills in the two professional fields.

Areas of Study

Consult the department.

Course Requirements

Full-time students are normally required to enroll in three courses per quarter in order to complete the program in six quarters. Part-time enrollment may be permitted.

Eighteen courses (72 units) are required for graduation from the M.L.I.S. program. Students take 20 units of core courses, four units of coursework in research methods, and 48 units of electives. Coursework must provide evidence both of basic professional competencies and of knowledge in a field of specialized competence.

Basic Professional Competence. The requirement is met by completing five core courses (Information Studies 200, 201, 203, 220, 441) and at least one graduate-level research methodology course (such as Information Studies 205, 240, 241, 260, 261, or 290). Only in unusual cases does librarianship coursework taken elsewhere satisfy the basic competency requirements.

Specialized Competence. Completion of a course of study is required as evidence of knowledge of a field of specialization in information policy and management, information access, information systems, or information organization. The field of specialization and the specialized course program must be approved by a faculty adviser. The requirement is ordinarily met by the completion of 12 additional courses, which may include internships. Relevant coursework in other departments or schools is encouraged. Students may petition to have prior coursework applied to their specializations.

During the second year, students may apply for an internship of one to three quarters either on campus or off campus at an approved library or information center. The internship is a regularly scheduled course and may be applied toward the 18 required courses.

No more than eight units of course 596 may be applied toward the total course requirement for students under the comprehensive examination plan; only four units may be applied toward the minimum graduate course requirements. In order to enroll in any S/U graded course, including 500-series courses, students must be in good academic standing.

Students who choose the thesis option are allowed to apply 12 units of 500-series coursework series course work toward the requirements for the degree.

Comprehensive Examination Plan

The comprehensive examination consists of two components: a basic component and a specialization component.

Basic Component. A formal written examination covering basic professional competencies is required. The purpose of the comprehensive examination is to demonstrate understanding of library and information science as a totality. The examination does not cover the basic professional competencies individually but deals with the field in a unified form. Students may sit for the written examination after completion of three quarters of academic residency provided that (1) all outstanding entrance requirements are satisfied, (2) they have completed the five core courses and the required research methods course at the end of the quarter in which the examination is taken, (3) nine courses toward the degree (not including entrance requirements) have been completed by the end of the quarter in which the examination is taken, and (4) they are in good academic standing.

Specialization Component. A major paper produced in an elective course, normally in the area of specialization, is required. A grade of B or better must be earned in the course. The same course may not be used to satisfy both the paper and the research methods requirement.

Thesis Plan

Students under the thesis plan must submit a thesis reporting on results of their original investigation of a problem. While the problem may be one of only limited scope, the thesis must show a significant style, organization, and depth of understanding of the subject.

Students indicate their interest in this plan by the end of Spring Quarter of the first year. If the thesis option (Plan I) is approved, a thesis committee of at least three faculty members is established. Most students complete 12 units of related coursework under the direction of the committee. The committee approves the subject and plan of the thesis, provides guidance in research, and approves the completed manuscript. Approval must be unanimous among committee members. After acceptance of the thesis, there is an oral examination on the thesis.

There is no written examination under the thesis plan.

Post-M.L.I.S. Certificate of Specialization

Admission

The Post-M.L.I.S. Certificate of Specialization is designed for holders of the M.L.S. or M.L.I.S. degree who either (1) want to redirect their careers and need the structure of a nine-course program and specialization paper to accomplish that, (2) want to update knowledge and skills across the discipline and require the structure of a nine-course program and specialization paper to accomplish those goals, or (3) recently graduated from a less comprehensive M.L.I.S. or M.L.S. degree program than that offered by UCLA and did not have the opportunity to specialize.

Applicants should hold a master's degree from a program accredited by the American Library Association. The committee may offer admission to (1) applicants holding the master's degree in library and information science from foreign countries when the degree has been evaluated by the Graduate Division as a bona fide master's degree and (2) applicants who attended unaccredited programs if documentation supports admission despite the lack of a degree from an accredited program.

Meeting the specified requirements for a field of specialization does not automatically assure admission to the program. Part-time enrollment is encouraged to provide flexibility for the working information professional. Opportunities for relevant coursework outside the department and internships, both on and off campus, are available.

Areas of Study

The program meets the need for specialized training in various areas of information policy, information access, information systems, libraries and other information institutions, and information organization, as well as research competence. Further specialization within these fields is possible.

Course Requirements

The course program may begin in any quarter of the academic year. If students are admitted for a preliminary quarter to complete prerequisite courses, that quarter is not counted in the minimum residence requirements.

A minimum of nine courses (100, 200, 400, and 500 series) must be completed in the Department of Information Studies and other departments of the University. A research paper, bibliographical study, or literature survey appropriate for publication in a professional or scholarly journal or as a separate paper must be completed by the final quarter of study, usually in connection with enrollment in Information Studies 596. The specialization paper or project is required even if students have an advanced academic degree in which a thesis or dissertation was required, and the paper or project must be approved by the faculty adviser.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

None.

Doctoral Degree

Admission

Students are admitted to the program leading to the Ph.D. degree in Library and Information Studies in Fall Quarter only. They may enter with the M.L.S. or M.L.I.S. degree, other advanced degree, or directly from the bachelor's degree. If the prior graduate degree does not include coursework equivalent to the core identified for the M.L.I.S. program, applicants must complete the core after admission.

In addition to Graduate Division requirements and application procedures, the department requires satisfaction of the following entrance requirements:

- (1) A statistics requirement, satisfied by completing a college-level course with a minimum grade of C.
- (2) A computer programming requirement, met either by completing a college-level course with a minimum grade of C or by passing a proficiency examination administered by the department (most standard languages such as BASIC, C, COBOL, FORTRAN, or PASCAL are acceptable, as is a college-level course in the use of data management systems such as dBASE, INMAGIC, or PARADOX).
- (3) A statement of purpose which identifies the applicant's proposed area of specialization,

accompanied by appropriate evidence of qualifications for pursuing a doctoral program.

(4) Graduate Record Examination (GRE) scores taken within the last five years. There is no minimum score for the GRE, but high scores are regarded favorably. Admitted students typically score over 1,100.

(5) In cases where the Test of English as a Foreign Language (TOEFL) and the Test of Written English (TWE) are required, the department expects a minimum score of 550 on the TOEFL and 4.0 on the TWE. Only in exceptional cases are applicants recommended for provisional admission who do not meet the minimum scores; in such cases, strong evidence of competency in English (such as a high verbal GRE score) must be provided.

(6) Evidence of research and writing such as published work, master's thesis, or two research papers written in English.

(7) Three letters of recommendation.

(8) Favorable consideration may be given to applicants who have made distinguished contributions to the profession while working as a practicing professional, for instance in publications and/or work with professional societies.

(9) A personal interview is required. The committee seeks evidence of an appreciation of research and knowledge of potential research topics. The committee is particularly interested in the applicant's commitment to a career in library and information science education and research, signs of originality and inquisitiveness, and good communication skills.

Major Fields or Subdisciplines

Students are expected to specialize in a subfield in one of three major areas of the curriculum: information storage and retrieval systems; information seeking and use; policies and issues in library and information science.

Course Requirements

A minimum of 18 to 21 courses, depending on the student's previous experience and coursework, is required in the Ph.D. program.

Core Courses. The four required core courses are Information Studies 213, 214, 215, 291.

Specialization Courses. Students are required to take at least three courses in their chosen area of specialization. Courses should be chosen with theoretical/research content appropriate to the doctoral level.

Methods Courses. Three graduate-level methods courses are required beyond Information Studies 291. Courses should be chosen that are coherent and fit the student's research interests (e.g., a series of quantitative, qualitative/ethnographic, or historical methods courses). Methods courses may be taken within the Graduate School of Education and Information Studies or in another department or unit as appropriate.

Doctoral Seminars. Three advanced doctoral seminars are required, one in each area of the

curriculum as listed above under Major Fields (Information Studies 273, 274, and 275).

Cognate Courses. Three graduate-level courses are required to be taken as a cognate outside the department. Not all courses must be taken in a single discipline; however, together the courses should directly address the student's area of research. The student must prepare a proposal for the cognate early in the program, to be approved by the adviser and the Department Doctoral Program Committee.

Additional Requirements. In addition to the course requirements listed above, doctoral students are required to participate in the doctoral research colloquium and a research apprenticeship, and to be reviewed annually by the Doctoral Program committee, each quarter, until advancement to candidacy.

Written and Oral Qualifying Examinations

Students are required to pass written qualifying examinations in each of the three areas of study listed above. One of the areas is designated by the student as the major examination area or specialization, for which an examination is prepared for the individual student; the other two are minor areas for which students take standardized examinations. The standardized (minor) written qualifying examinations are scheduled twice a year, in January and April; students must take the major examination in the same quarter as the minor examinations. Students who fail one of the three area examinations may repeat that area examination; if two area examinations are failed, students must repeat the entire examination. Students may not take the examinations more than twice.

After passing the written qualifying examinations, students are required to pass the University Oral Qualifying Examination, which is based on the oral defense of the dissertation proposal. The dissertation proposal and oral defense should be completed within one year after passing the written examinations.

The oral examination covers the significance of the chosen topic of research, the methodology and feasibility of the research, and the depth of the student's knowledge in the specific field of the dissertation research.

Information Studies

Upper Division Courses

100. Perspectives on Literacy. (4) Lecture, two hours; discussion, two hours. Designed for sophomores/juniors/seniors. Open to M.L.I.S. students and to graduate students from other schools/departments. Interdisciplinary introduction to literacy as a historical, social, and political issue. Topics include culture and literacy, historical development of literate societies, social definitions of illiteracy, literacy campaigns, literacy as a national and local policy issue. Letter grading.

110. Information Resources and Libraries. (4) Lecture, one hour; discussion, two hours; laboratory, one hour. Designed for sophomores/juniors/seniors. Not open for credit to M.L.I.S. students. Introduction to bibliographic and information resources and relevant research methodology, covering both general and specialized materials. Designed to facilitate knowledgeable use of libraries and efficient retrieval of information. Some sections focus on specific subject areas (such as science and technology). P/NP or letter grading.

111A-M111E. Ethnic Groups and Their Bibliographies. (4 each) Lecture, four hours. Introduction to bibliographical and research tools and methods for students with interests in ethnic groups. Sections on other ethnic groups may be added. Offered in collaboration with the several centers for ethnic studies. May not be repeated for credit. P/NP or letter grading. **111A.** American Indian History and Culture; **111B.** African American History and Culture; **111C.** Latino History and Culture; **111D.** Asian American History and Culture; **M111E.** Jewish History and Culture. (Same as Jewish Studies M111E.)

182. 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.

Graduate Courses

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. Information Structures. (4) Lecture, three hours; discussion, one hour. Required core course. Introduction to various systems and tools used to organize materials and provide access to them, with emphasis on generic concepts of organization, classification, hierarchy, arrangement, and display of records. Provides background for further studies in cataloging, reference, information retrieval, and database management. Letter grading.

203. Design of Library and Information Services. (4) Lecture, two hours; discussion, two hours. Principles and methods for planning and designing user-driven library and information services. Principles and methods for assessing information needs of designated populations and for designing services that meet those needs. Letter grading.

204. Introduction to Information Technology. (4) Lecture, four hours. Requisite: course 201. Introduction to theories and principles of information technologies. Topics include social issues of information technologies and design and development of information systems. Background for further studies in information retrieval and design and maintenance of information systems. S/U or letter grading.

205. Historical Methodology of Library and Information Science. (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 the field. Critical analysis of selected histories of various areas in the profession. Problem-oriented approach. Letter grading.

207. International Issues and Comparative Research in Library and Information Science. (4) Lecture, four hours. History and development of international organizations and programs in library and information science. Identification of key issues in international exchange of information. Introduction to comparative method as procedure for study and research. Letter grading.

208. Development of Cultural Information Sources Using Digital Multimedia. (4) Lecture, two hours; laboratory, two hours. Overview of technologies, techniques, and principles underlying development and packaging of cultural information resources into digital multimedia such as digital libraries, World Wide Web homepages, and CD-ROMs, as well as user, policy, presentation, motivation, and evaluation considerations. Letter grading.

210. Seminar: Descriptive and Bibliographical Cataloging. (4) Seminar, four hours. Requisites: courses 410, 411. Specialized studies in selected areas of descriptive and bibliographical cataloging (e.g., purposes, principles, instructional development, potentialities of automation). May be repeated once. S/U or letter grading.

211. Seminar: Subject Control of Library Materials. (4) Seminar, four hours. Requisites: courses 410, 411. Study of selected problems in design and use of verbal subject headings and classification systems. Manual and mechanized systems. May be repeated once. S/U or letter grading.

213. Proseminar: Information Storage and Retrieval. (4) Seminar, three hours. Designed for Ph.D. students. Introduction to principles of information organization, theoretical models for organization and retrieval, and current research in information system design and evaluation, including experimental systems. Letter grading.

214. Proseminar: Information Policy and Issues. (4) Seminar, three hours. Designed for Ph.D. students. Introduction to political, economic, legal, and social issues affecting information and institutions, including relevant social theory, historical scholarship, and analytical methods. Introduction to policy-making and players/stakes involved in information creation and use. Letter grading.

215. Proseminar: Information Seeking and Use. (4) Seminar, three hours. Designed for Ph.D. students. Introduction to cognitive, affective, and behavioral factors affecting information seeking at individual and social levels; current theory and research on searching, navigation, and information system use; research literature on information seeking and use. Letter grading.

220. Information Access. (4) Lecture, four hours. Requisites: courses 200, 201. 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.

221. Bibliography of Science and Engineering. (4) Lecture, four hours. Requisite: course 220. Patterns of communication and flow of information among scientists and engineers. Scientific and technical literature, with emphasis on on-line sources, special types of publications, research material, reference and bibliographical aids to the natural sciences and engineering. Letter grading.

222. Bibliography of the Health and Life Sciences. (4) Lecture, four hours. Requisite: course 220. Literature of the medical and life sciences. Information needs of health professionals. Emphasis on on-line sources, special types of publications, reference and bibliographic aids to the health sciences. Letter grading.

223. Literature of the Social Sciences. (4) Seminar, four hours. Requisite: course 220. Seminar on literature of the social sciences, including review of classics in the various fields, monumental source collections, periodicals, bibliographies, catalogs, indexes, abstracts, bibliographic and nonbibliographic databases, etc. Trends in scholarly and popular writing. Interdisciplinary nature of the literature. Letter grading.

224. Literature of the Humanities and Fine Arts. (4) Seminar, four hours. Requisite: course 220. Seminar on literature of the humanities and fine arts, including review of classics in the various fields, comparisons of editions, periodicals, bibliographical apparatus, and reviewing media. Trends in scholarly and popular writing. Letter grading.

M225. Latin American Research Resources. (4) (Same as History M265 and Latin American Studies M200.) Discussion, three hours. General and specialized materials in fields concerned with Latin American studies. Library research techniques provide experience and competency required for future bibliographic and research sophistication as basis for enhanced research results. S/U or letter grading.

226. General Reference Work. (4) Lecture, four hours. Requisite: course 220. 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.

M229B. African Bibliography and Research Methods. (4) (Same as African Area Studies M229B.) Discussion, four hours. Problems and techniques of research methodologies related to African studies. Emphasis on relevant basic and specialized reference materials, using full range of available information resources, including library collections of books, serials, and computerized databases. S/U or letter grading.

M229C. 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 on-line databases; compilation of bibliographies. S/U grading.

230. History of Publishing and the Book Trade. (4) Lecture, four hours. Requisite: course 200. Publishing and book trade history, with particular reference to libraries and book collecting, changing aspects of book production and distribution within the setting of cultural history. Letter grading.

240. Principles of Information Systems Analysis and Design. (4) Discussion, four hours. Theories and principles of special systems development, including determination of requirements, technical design and evaluation, and internal organization. S/U or letter grading.

241. Measurement and Evaluation of Information Systems and Services. (4) Lecture, two hours; discussion, two hours. Preparation: one research methods course. Recommended: one library automation course. Information systems and services from points of view of their cost and effectiveness in meeting desired objectives. Review of principles of costing. Study of literature in which measures have been developed to evaluate effectiveness of document collections, reference and information retrieval services, document delivery systems, networking, and technical services, including circulation, acquisitions, and document description. S/U or letter grading.

242. Information Retrieval Systems. (4) Lecture, four hours. Requisites: courses 201, 220. Survey of methods of file organization, retrieval techniques, and search strategies in control of information in computerized form. Letter grading.

243. Human/Computer Interaction. (4) Lecture, four hours. Preparation: one programming course, one inferential statistics course. 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.

245. 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.

- 246. Social Aspects of Information-Oriented Society. (4)** Lecture, four hours. Analysis of social evolution of information-oriented societies. Historical factors and current trends explored through discussion of selected international and domestic issues. Implications for information policy. S/U or letter grading.
- 247. User-Centered Design of Information Retrieval Systems. (4)** Lecture, two hours; discussion, two hours. Requisites: courses 201, 220. Design implications of interaction between users and the features of automated information systems and interfaces that are specific to the information-seeking process. Emphasis on search strategy and subject access through use of thesauri and other vocabularies. Letter grading.
- 249. Seminar: Special Topics in Information Science. (4)** Seminar, four hours. Preparation: at least one course from 242, 243, 247, 280, 405. Requisites: courses 200, 201. 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.
- 253. 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 the librarian in responding to needs and abilities of children through individualized reading guidance. S/U or letter grading.
- 260. Historical Bibliography. (4)** Lecture, four hours. Requisites: courses 200, 402. History of letterpress formats (books, broadsides, magazines, newspapers, some music, etc.) as well as materials and methods of production, distribution, and readership in their social, political, and economic context. Emphasis varies but is usually on developments prior to 1800. Attention to historiography of the field, including antiquarian, Anglo-American, and *histoire du livre* approaches. Letter grading.
- 261. Analytical Bibliography. (4)** Lecture, four hours. The book as a physical object and its relationship to transmission of the text. History and methods of analytical bibliography, with particular emphasis on hand-press books. Printing processes as related to bibliography and librarianship. Discussions, demonstrations, and experiments in design, composition, and press-work. Letter grading.
- 271. 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.
- 272. Research Seminar: Library and Information Science. (1 to 2)** Seminar, one to two hours. Designed for Ph.D. students. Emphasis on recent contributions to theory, research, and methodology. May be repeated for credit. S/U grading.
- 273. Doctoral Seminar: Information Storage and Retrieval Systems. (4)** Seminar, four hours. Designed for Ph.D. students. Intellectual principles for organization of information, including principles for design of systems for acquiring, organizing, and retrieving information. Also includes system-specific user studies to extent that design of information systems is predicated on their evaluation and use. S/U or letter grading.
- 274. Doctoral Seminar: Policies and Issues in Library and Information Science. (4)** Seminar, four hours. Designed for Ph.D. students. Examination of social, political, and economic influences in development of library and information science and management of information organizations and resources. S/U or letter grading.
- 275. Doctoral Seminar: Information Seeking and Use. (4)** Seminar, four hours. Designed for Ph.D. students. Examination of behavioral and cognitive aspects of inquirer's information needs and uses, including inquirer's characteristics, information problems, psychological needs, and uses of information and information technologies, and aspects of question negotiation. S/U or letter grading.
- 280. 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. S/U or letter grading.
- 281. Information Resources for Business. (4)** Lecture, four hours. Requisite: course 220. Introduction to information needs of the business world. Business guides, encyclopedias, directories, yearbooks, indexes, loose-leaf services, government publications, databases, and other sources of business literature. Letter grading.
- 282. 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.
- 283. Legal Research and Bibliography. (4)** Lecture, four hours. Introduction to source materials of the law, with emphasis on primary authority, but covering as well secondary authority, and indexes and finding aids used to gain access to legal information. Letter grading.
- 284. Seminar: Legal Informatics. (4)** Seminar, four hours. Information problems of legal profession, including history of legal information systems, relationship between cognitive authority and legal authority, bibliometrics of law, value-added processes for legal information, and techniques and impact of new legal research technology. Letter grading.
- 285. 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.
- 286. Seminar: Information Access. (4)** Seminar, four hours. Preparation: one course from 221, 223, 224, 226, 281, 283, 425, 473. Requisite: course 220. Discussion of policies and issues related to basic and advanced reference materials, reference process, and psychological aspects of inquirers and expert reference librarians. Letter grading.
- 287. Seminar: Special Issues in Library and Information Science. (2 to 4)** Seminar, two to four 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.
- 288. Cyberspace Law and Policy. (4)** Lecture, four hours. Legal and policy concerns of networked technologies from international perspective. Emphasis on jurisdictional issues, freedom of expression, intellectual property, privacy, security, equity, and electronic commerce in online environment. S/U or letter grading.
- 289. Information Services in Culturally Diverse Communities. (4)** Lecture, four hours. Issues in provision of information services in a multiethnic and multilingual society. Understanding role of information institutions in promoting cultural diversity and preserving ethnic heritage. Letter grading.
- 290. Research Methodology. (4)** Lecture, four hours. Role of research in bibliography, librarianship, and information science. Identification and design of research problems. Historical, statistical, analytical, and descriptive techniques. S/U or letter grading.
- 291. Introduction to Research Design and Methodology. (4)** Seminar, three hours. Designed for Ph.D. students. Introduction to research traditions in library and information science: quantitative/qualitative social science methods, ethnographic/field approaches, and historiography/critical approaches. Epistemological foundations of research, formulating research questions, and designing appropriate research studies. Letter grading.
- 375. Teaching Apprentice Practicum. (1 to 4)** Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.
- 400. Professional Development and Portfolio Design. (2 to 4)** Lecture, two hours; discussion, two hours. Preparation: completion of library and information science 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 M.L.I.S. degree. S/U grading.
- 402. Fundamentals of Bibliography. (4)** Lecture, four hours. Requisite: course 200. Organization, control, and elements of bibliographical apparatus, new techniques and tools, theory, methods, and trends in bibliographical research in relationship to librarianship. Development and fundamentals of several branches of bibliography: enumerative (or systematic), physical (analytical or critical, descriptive). Letter grading.
- 405. Automation of Library Processes. (4)** Lecture, four hours. Overview of major components of library automation: circulation control, acquisitions and serials, public access information systems, and data conversion. Relationships among various automation entities, including internal library automation, networks and vendors (such as bibliographic utilities, regional networks, and on-line services), and automation of parent organizations (universities, municipalities, corporations, and government agencies). Developments in standards for information processing and new information technologies. Letter grading.
- 410. Descriptive Cataloging. (4)** Lecture, four hours. Entry and description of library materials. Constitution, structure, and form of the library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application. S/U or letter grading.
- 411. Introduction to Subject Access: Alphabetic-Subject and Systematic Indexing. (4)** Lecture/discussion, four hours. Requisite: course 410. Overview of major alphabetic-subject and systematic indexing languages and their use in manual and on-line 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.
- 412. Cataloging and Classification of Nonbook Materials. (4)** Lecture, four hours. Requisites: courses 410, 411. Problems in cataloging and classification of selected nonbook materials (e.g., films, maps, pictorial works, sound recordings) as separate collections and integrated collections. S/U or letter grading.
- 414. 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 on-line environments. Basic professional techniques for indexing a variety of types of materials and for preparing informative and indicative abstracts. Letter grading.

425. Computer-Based Information Resources (On-Line Searching). (4) Lecture, four hours. Requisite: course 220. Emphasis on use of reference and resource databases and different vendor systems. File structure and hardware requirements. Analyses of information needs and investigation of databases addressing those needs. Letter grading.

426. User Education/Bibliographic Instruction: Theory and Technique. (4) Lecture, four hours. History, theory, methods, and materials of user education/bibliographic instruction in libraries and other information retrieval environments. Examination of a variety of user education/bibliographic instruction theories and methodologies, including overview of planning and administration. Identification of problems in user education/bibliographic instruction. Applications of methods of teaching use of libraries and information resources. S/U or letter grading.

430. Collection Development and Acquisition of Library Materials. (4) Lecture, four hours. Background of publishing and the book trade (new and antiquarian) pertinent to collection development in public, school, academic, and special libraries. Theory and practice of collection development and management. Organization and administration of acquisitions departments. S/U or letter grading.

441. 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.

442. Library Personnel Administration. (4) Lecture, four hours. Basic principles of personnel management. Survey of current personnel practices in libraries; how basic principles apply or need to be modified to fit the library setting. S/U or letter grading.

446. Library Services and Literature for Youth. (4) Lecture, four hours. Overview of literature and programs which are of interest to young adults (seventh grade and above). Discussion of special problems in working with young people and psychology of the teenager. S/U or letter grading.

461. 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 a part. Functions of research libraries and work of their staffs in serving scholars. S/U or letter grading.

463. 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.

465. 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.

466. 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 or letter grading.

470. Special Libraries and Information Centers. (4) Lecture, four hours. Organization, administration, collections, facilities, finances, and problems of special libraries and of special collections within general libraries. Methods of handling nonbook materials. Current trends in documentation and mechanization. S/U or letter grading.

471. Health and Life Sciences Libraries. (4) Lecture, four hours. Requisite or corequisite: course 441. Organization, administration, services, and problems of health and life sciences libraries; relationships with institutions of which they are a part and with the community. Letter grading.

473. Government Information. (4) Lecture, four hours. Introduction to nature and scope of government information promulgated by the federal government, as well as by state, municipal, international, and foreign governments. Problem-oriented approach. S/U or letter grading.

485. American Archives and Manuscripts. (4) Lecture, four hours. Identification, description, subject analysis, and organization of records contained in archives and manuscript collections. Administration. User requirements. Problems of acquisition, legal title, literary property, preservation, accessibility, and use. S/U or letter grading.

486. Issues and Problems in Preservation of Library Materials. (4) Lecture, four hours. Introduction to fields of library conservation and preservation, with emphasis on preservation administration. Letter grading.

488. Seminar: Advanced Issues in Archival Science. (4) Seminar, three hours. Requisite: course 485. In-depth examination of theoretical issues and contemporary problems facing the archival profession. Topics revolve each term and include development and role of archival appraisal, management of audiovisual materials, and management of medical, scientific, and technological documentation. Letter grading.

491. Interpersonal Communication Issues in Library Systems. (4) Lecture, four hours. Examination of interpersonal communication patterns in library management and staff relations, in resource sharing, and in providing information services. Emphasis on relationships within an organizational environment and on effective communication styles in decision making, managing conflict, and implementing change. S/U or letter grading.

497. Fieldwork in Libraries or Information Organizations (4 or 8 units). Fieldwork, to be arranged. Supervised field experience in approved library or information organization. Concentration must be on managerial or other professional problems of the site. Students spend full time in the field for most of the period. S/U or letter 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 or letter grading.

596. Directed Individual Study or Research. (2 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. S/U or letter grading.

597. Directed Studies for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U or letter grading.

598. M.L.I.S. 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 M.L.I.S. thesis option. S/U or letter grading.

599. Ph.D. Research and Writing. (2 to 12) Tutorial, to be arranged. S/U or letter grading.

Richard P. Turco, Ph.D., *Director*
Michael K. Stenstrom, Ph.D., *Acting Director*

Professors

Jeanne E. Arnold, Ph.D. (*Archaeology*)
Mario E. Baur, Ph.D. (*Chemistry and Biochemistry*)
Richard A. Berk, Ph.D. (*Statistics*)
Trudy A. Cameron, Ph.D. (*Economics*)
Yoram Cohen, Ph.D. (*Chemical Engineering*)
John A. Dracup, Ph.D. (*Civil and Environmental Engineering*)
Nicholas J. Entrikin, Ph.D. (*Geography*)
Jody Freeman, LL.B., LL.M., S.J.D. (*Law*)
Sheldon K. Friedlander, Ph.D. (*Chemical Engineering*)
Michael, Ghil, Ph.D. (*Atmospheric Sciences*)
Malcolm S. Gordon, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
William M. Hamner, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Glen M. MacDonald, Ph.D. (*Geography*)
James C. McWilliams, Ph.D. (*Atmospheric Sciences*)
Park S. Nobel, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Jeannie L. Oakes, Ph.D. (*Education*)
Paul M. Ong, Ph.D. (*Urban Planning*)
Antony R. Orme, Ph.D. (*Geography*)
Theodore Porter, Ph.D. (*History*)
Philip W. Rundel, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Selim M. Senkan, Ph.D. (*Chemical Engineering*)
Michael K. Stenstrom, Ph.D. (*Civil and Environmental Engineering*)
Keith D. Stolzenbach, Ph.D. (*Civil and Environmental Engineering*)
Irwin Suffet, Ph.D. (*Environmental Health Sciences*)
Stanley W. Trimble, Ph.D. (*Geography*)
Richard P. Turco, Ph.D. (*Atmospheric Sciences*)
Hartmut S. Walter, Ph.D. (*Geography*)
Arthur M. Winer, Ph.D. (*Environmental Health Sciences*)
Benjamin Zuckerman, Ph.D. (*Physics and Astronomy*)

Professors Emeriti

Samuel Aroni, Ph.D. (*Architecture and Urban Design*)
Murray A. Milne, M.Arch. (*Architecture and Urban Design*)
Richard Schoen, M.Arch. (*Architecture and Urban Design*)

Associate Professors

Richard F. Ambrose, Ph.D. (*Environmental Health Sciences*)
Robert Fovell, Ph.D. (*Atmospheric Sciences*)
David A. Paige, Ph.D. (*Earth and Space Science*)
Mary R. Reid, Ph.D. (*Earth and Space Science*)
Richard Vance, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Robert E. Weiss, Ph.D. (*Biostatistics*)

Assistant Professors

Charles J. Corbett, Ph.D. (*Management*)
Rebecca Emigh, Ph.D. (*Sociology*)
Peggy M. Fong, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Graham Forrester, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
David K. Jacobs, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Suzanne E. Paulson, Ph.D. (*Atmospheric Sciences*)
Marilyn N. Raphael, Ph.D. (*Geography*)
Hilary Sigman, Ph.D. (*Economics*)
Laurence C. Smith, Ph.D. (*Geography*)

Scope and Objectives

The UCLA Institute of the Environment (IoE) offers multidisciplinary academic programs that address the full complexity of today's environmental problems. The IoE seeks to enhance the educational experience of students by introducing them to virtually every aspect of the environment. The mission is to explore the full complexity of today's environmental problems on a local, regional, and global scale

INSTITUTE OF THE ENVIRONMENT

College of Letters and Science

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through innovative, integrative, multidisciplinary research and outreach programs.

Los Angeles is often described as “the world in microcosm.” As such, it provides an unparalleled laboratory in which to carry out detailed investigations of a host of complex socioenvironmental issues. UCLA is ideally situated to develop and implement new solutions to vexing problems related to the quality of life. To this end, the Institute of the Environment has been established as a new and unique academic unit devoted to interdisciplinary research and teaching related to environmental issues. The IoE is composed of faculty from a broad range of disciplines — the sciences, public policy, engineering, law, business, public health — working together to provide answers to complex environmental problems. As one of the world’s foremost research universities, UCLA is already participating in a wide range of research focusing on the environment. The Institute of the Environment seeks to coordinate and expand these studies by bringing new knowledge to the classroom and by reaching out to the community.

Students are able to augment their classroom experience with participation in the institute’s diverse research programs, including fieldwork at facilities such as the UCLA Stunt Ranch Santa Monica Mountains Reserve and the UCLA Marine Science Center. These opportunities offer students valuable hands-on experience in land, air, and water research.

General Education Cluster

The Institute of the Environment sponsors Environment/General Education Clusters M1A-M1B-M1C on the global environment. The cluster format is a series of three integrated courses taught over the Fall, Winter, and Spring Quarters. The Fall and Winter Quarter courses consist of lectures and discussions. The Spring Quarter consists of seminars and field trips in which students explore specialized environmental topics such as the history of environmental thought, environmental policy, and feeding the Earth’s human population. Each course carries five units of academic credit and satisfies general education credit for four courses.

Environment

Lower Division Courses

M1A-M1B-M1C. Global Environment. (5-5-5) (Formerly numbered 1A-1B-1C.) (Same as GE Clusters M1A-M1B-M1C.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1C. Letter grading. **M1A-M1B.** Multidisciplinary Perspective I, II. Lecture, three hours; discussion, two hours. Human effects on Earth’s ecosystem and social and technological solutions to environmental pollution and overpopulation. History and ecology in lectures; laboratory exercises included in discussions. **M1C.** Special Topics. Seminar, three hours. Small groups address environmental topics like smog, deforestation, and recycling. Exercises include field trips and oceanographic cruise.

Upper Division Course

M127. Soils and Environment. (5) (Same as Geography M127 and Organismic Biology M127.) Lecture, five hours; discussion, one hour; field trips. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L. 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. Letter grading.

Related Courses

Atmospheric Sciences

- 102. Climate Change and Climate Modeling
- 103. Physical Oceanography
- 104. Fundamentals of Air and Water Pollution
- 130. Circulation of Santa Monica Basin
- M140. Environmental Chemistry Laboratory
- C145. Microphysics of Clouds, Precipitation, and Aerosols
- 160. Remote Sensing of the Environment
- C185. Statistics in Atmospheric Sciences

Economics

- 134. Environmental Economics

Environmental Health Sciences

- 200A-200B. Foundations of Environmental Health Sciences
- 203. Seminar: Ecotoxicology
- 212. Applied Ecology
- 225. Atmospheric Transport and Transformations of Airborne Chemicals
- 235. Quantitative Methods for Environmental Assessment
- 264. Fate and Transport of Organic Chemicals in the Aquatic Environment

Geography

- 100. Principles of Geomorphology
- 100A. Principles of Geomorphology: Field and Laboratory
- 101. Coastal Geomorphology
- 101A. Coastal Geomorphology: Field and Laboratory
- 103. Paleoclimatology and Ice-Age Environments
- 105. Hydrology
- 105A. Hydrology: Field and Laboratory
- 123. Bioresource Management
- 137. Historical Geography of American Environment
- 201. Coastal Geomorphology Seminar
- 215. Quaternary Studies: Physical Aspects

Honors Collegium

- 24. 21st Century: Technology, Society, and Ethics

Law

- M290. Environmental Law

Life Sciences

- 1. Evolution, Ecology, and Biodiversity

Organismic Biology, Ecology, and Evolution

- 10. Plants and Civilization
- 12. Biodiversity and Extinction: Crisis and Conservation
- 13. Evolution of Life
- 21. Field Biology
- 50. Desert Life
- 101A. Biology of Lower Plants
- 101B. Biology of Vascular Plants
- 103. Plant Evolution and Systematics
- 105. Biology of Invertebrates
- 107. Entomology
- C109. Introduction to Marine Science
- 111. Biology of Vertebrates
- 112. Ichthyology

- 113A. Herpetology
- 114. Ornithology
- C115. Mammalogy
- 116. Conservation Biology
- 117. Evolution of Vertebrates
- 118. Plant Adaptations
- C119. Mathematical Ecology
- 120. Evolution
- 122. Ecology
- 128. Plant Physiological Ecology
- 129. Animal Behavior
- 130. Principles of Systematic Biology
- 133. Vegetation and Ecosystem Dynamics
- C134A. Physiological Ecology of Desert Animals
- C135. Population Genetics
- 136. Ecology, Behavior, and Evolution Laboratory
- 137. Chemical Communication
- C151A. Tropical Ecology
- 181. Parasitology
- 188. Seminar: Biology and Society

INTEGRATED MANUFACTURING ENGINEERING

*Interdepartmental Program
School of Engineering and Applied
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H. Thomas Hahn, Ph.D., *Director*

Professors

Nasr M. Ghoniem, Ph.D. (*Mechanical and Aerospace Engineering*)
H. Thomas Hahn, Ph.D. (*Mechanical and Aerospace Engineering*)
Stephen E. Jacobsen, Ph.D. (*Electrical Engineering*)
Aly H. Shabaik, Ph.D. (*Materials Science and Engineering*)
Daniel C.H. Yang, Ph.D. (*Mechanical and Aerospace Engineering*)
Jenn-Ming Yang, Ph.D. (*Materials Science and Engineering*)

Assistant Professors

Chang-Jin (C-J) Kim, Ph.D. (*Mechanical and Aerospace Engineering*)
Zvi Shiller, Ph.D. (*Mechanical and Aerospace Engineering*)

Scope and Objectives

The Integrated Manufacturing Engineering (IME) Program is an interdepartmental program based in the Mechanical and Aerospace Engineering Department. The main purpose is to educate future manufacturing engineers.

The curriculum is centered around an integrated approach to product development, while clean environment, agility, and cost-effective-

ness are emphasized. Instruction is computer-aided, and teaching/learning laboratories are used to provide students with hands-on experience in advanced manufacturing technologies such as rapid prototyping, robotics, automated material handling, new manufacturing processes, and production planning and scheduling. Team teaching is employed to offer a balanced understanding of principles and methods required.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Integrated Manufacturing and Engineering Program offers the Master of Engineering (M.Engr.) degree in Integrated Manufacturing Engineering.

Admission

The M.Engr. degree program is an interdepartmental program within the Departments of Electrical Engineering, Materials Science and Engineering, and Mechanical and Aerospace Engineering.

In addition to meeting the requirements of the Graduate Division, applicants to the M.Engr. program are required to take the General Test of the Graduate Record Examination (GRE). Applicants may be admitted to the program through any one of the three departments listed above.

More information may be obtained at <http://ime.ucla.edu> or by contacting the program coordinator, Integrated Manufacturing and Engineering, UCLA, 48-121 Engineering IV, BOX 951597, Los Angeles, 90095-1597.

Areas of Study

Consult the department.

Course Requirements

A total of 12 courses is required, including six 400-level core courses (Electrical Engineering 475C, Materials Science and Engineering 474A, 475A, Mechanical and Aerospace Engineering 474B, 474C, 475B), three electives (to be chosen in consultation with the faculty adviser), and three seminar courses (three quarters of Mechanical and Aerospace Engineering 476), which total 39 units.

Comprehensive Examination Plan

Group Project. Students must participate in a group project through enrollment in Mechanical and Aerospace Engineering 478 for a total

of 11 units. The group size is approximately three students.

Thesis Plan

None.

INTERNATIONAL DEVELOPMENT STUDIES

*Interdepartmental Program
College of Letters and Science*

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Deepak K. Lal, D.Phil., *Cochair*
Joshua S.S. Muldavin, Ph.D., *Cochair*

Professors

Edward A. Alpers, Ph.D. (*History*)
Robert P. Brenner, Ph.D. (*History*)
Carole H. Browner, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
Lucie C. Cheng, Ph.D. (*Sociology*)
Sebastian Edwards, Ph.D. (*Economics*)
Peter B. Hammond, Ph.D. (*Anthropology*)
John N. Hawkins, Ph.D. (*Education*)
Susanna B. Hecht, Ph.D. (*Urban Planning*)
Philip C. Huang, Ph.D. (*History*)
Dean T. Jamison, Ph.D. (*Education*)
Edmond Keller, Ph.D. (*Political Science*)
Deepak K. Lal, D.Phil. (*Economics*)
Michael F. Lofchie, Ph.D. (*Political Science*)
Glen M. MacDonald, Ph.D. (*Geography*)
Michael Storper, Ph.D. (*Urban Planning*)
Hartmut Walter, Ph.D. (*Geography*)
James W. Wilkie, Ph.D. (*History*)
Maurice Zeitlin, Ph.D. (*Sociology*)

Professors Emeriti

Robert N. Burr, Ph.D. (*History*)
Gerry A. Hale, Ph.D., (*Geography*)
Nikki Keddie, Ph.D. (*History*)
Afaf Marsot, D.Phil. (*History*)
Merrick Posnansky, Ph.D. (*Anthropology, History*)
Georges Sabagh, Ph.D., (*Sociology*)
Richard L. Sklar, Ph.D. (*Political Science*)

Associate Professors

Richard D. Anderson, Jr., Ph.D. (*Political Science*)
Judith A. Carney, Ph.D. (*Geography*)
Barbara Geddes, Ph.D. (*Political Science*)
Nancy E. Levine, Ph.D. (*Anthropology*)
David E. López, Ph.D. (*Sociology*)
Michael G. Morony, Ph.D. (*History*)
José Moya, Ph.D. (*History*)
Gi-Wook Shin, Ph.D. (*Sociology*)
Edward E. Telles, Ph.D. (*Sociology*)
James Tong, Ph.D., (*Political Science*)
Mary A. Yeager, Ph.D. (*History*)

Assistant Professors

Joshua S.S. Muldavin, Ph.D. (*Geography*)
Anna Simons, Ph.D. (*Anthropology*)

Lecturers

George Leddy, Ph.D. (*Geography*)
Joseph Nevins, Ph.D. (*Geography*)
Linda Rodriguez, Ph.D. (*History*)

Scope and Objectives

The undergraduate International Development Studies major aims to provide a liberal education in relation to the critical issues, experiences, and problems common to developing countries from a global or theme-oriented perspective. It is designed for students who are interested in careers related to international development in academia, public or private agencies, or nonprofit organizations.

Undergraduate Study

International Development Studies B.A.

Preparation for the Major

No specific courses are required as preparation for the major, but students should have some beginning experience in the social sciences at the college level and be in good academic standing.

The Major

Required: Fifty-six units of upper division courses (including International Development Studies 100A-M100B and Economics 110 or 111 or 112), taken for a letter grade, and the foreign language requirement. (For the social statistics and methodology requirement, some lower division courses are accepted in place of upper division courses.) Courses applied toward the major may be selected from the list in item 5 below. Substitutions may be made only with consent of the faculty adviser.

The major consists of six parts (courses marked with an asterisk have requisites):

- (1) International Development Studies 100A-M100B.
- (2) Economics *110 or *111 or *112.
- (3) Four core courses (two must be from the same discipline) from Anthropology *130, *150, *161, Economics *112, *191, Geography *M128, 133, Political Science *124, *167A, Sociology 173, *183, 184.
- (4) One course in social statistics and methodology from Anthropology 139, *180, 186, Biostatistics *100A, Economics M40, Geography M40, *171, Political Science 6, *102, Sociology *M18, 104, *112, *113, 211A, *211B, Statistics 10.
- (5) Twenty-four units of elective courses, including at least 16 units to be divided equally between two of the world's developing areas (e.g., sub-Saharan Africa, Middle East/North Africa, East Asia/East-Central Asia, South and Southeast Asia/Pacific Islands, Eastern Europe/West-Central Asia, Latin America/Caribbean Basin), selected from Anthropology *130, *150, *151, 152, 153, *153P, *M154Q, M155Q, *161, *165, 167, M168, 171, 173Q, 174P, 175R, 175T, *175U, 175V, *175W, 176, 177, Berber 130, Community Health Sciences 132, 200, M236, *280, *434A, Economics *103A through *103Z, *110, *111, *112, *120, *130, *150, *151, *M158, *171, *180, *191,

*192, *286A, *286B, 287A, 287B, Education *M108, C191E, 204B through 204F, 234, 238, *252B, M252C, 253B, 253C, 253D, Epidemiology *415, Film and Television 106C, 112, Geography 110, 121, *122, *124, *M128, 133, 135, 140, 142, *148, *155, 181, 182A, 182B, 184, 185, 186, 187, 190, 230, 234, Health Services *240, History 106A, 106B, 106C, 107A, 107B, 109A, 109B, 110A, 110B, 111A, 111B, 111C, 112A, 112B, 112C, 113, 124A, 124B, 124C, 131A through 131D, 134A, 134B, 144, 165A, 165C, 166, 167A through 167D, 168, *169, 170A, 170C, 171, 172, 173, 174, *175B, *175C, *175E, 176A, 176B, 176C, 177, 178A, 178B, 179A, 179B, 182A, 182B, 183A, 183B, 183C, 184, 188A, 188B, 188C, 189A, 189C, 190A, 190B, 190C, 197 (with counselor approval), International Development Studies *195A, *197, Iranian 169, Jewish Studies 142, Korean *180A, *180B, *180C, Latin American Studies 197, *199, Political Science *124, 130, 151A, 151B, 151C, 154A, 154B, 156A through 156D, 157, 159A, 159B, *167A, *168, *C197A through *C197D, 197W, Sociology 101, *105, 116, 156, 157, 160, *M175, 184, 186, 187, 188, 190, 191, 192, 193, Turkic Languages 170, Urban Planning *CM128, M232A, 232B, *235A, *235B, M236A, 246, 266, M267A, *267B, 269, Women's Studies *M123, *M154Q. Consult the program counselor regarding other possible electives that may be applied toward the major.

(6) Twenty-four quarter units in one modern foreign language or the equivalent in transfer units. Students may also take a proficiency examination administered and evaluated by members of the program faculty (or by outside faculty for languages not familiar to program faculty).

Honors Program

Majors who have completed International Development Studies 100A-M100B and who have a 3.5 grade-point average in all courses offered for the major are eligible to formally apply for the honors program. In addition to completing all courses required for the major, students must take courses 195A-195B-195C, in which they research, write, and present an honors thesis. To receive honors at graduation, students must have at least a 3.5 GPA in courses applied toward the major (including 195A-195B-195C) and an overall GPA of 3.0.

Highest honors are awarded to students who complete the major (including courses 195A-195B-195C) with a 3.75 GPA and who produce an exceptional thesis.

International Development Studies

Upper Division Courses

100A-M100B. Introduction to Development Studies. (4-4) (Formerly numbered Development Studies 100A-M100B.) Seminar, three hours. Two-term seminar for undergraduates designed to examine concepts and issues arising from economic, social, and political change in the Third World. **100A.** Economic Development and Culture Change. Preparation: some beginning experience in social sciences at college level. Requisite: Anthropology 9. **M100B.** Political Economy of Development. (Same as Political Science M197G and Sociology M180.) Designed for juniors/seniors. Analysis of determinants of underdevelopment, with focus on impact of colonialism, foreign investment, and trade, and on political economy.

195A-195B-195C. Directed Studies for Honors. (4-4-4) (Formerly numbered Development Studies 195A-195B-195C.) Preparation: 3.5 grade-point average in courses offered for the major, formal application to honors program. Requisites: courses 100A-M100B. **195A.** Research, discussion, and planning of honors thesis. **195B-195C.** Research, preliminary drafting, and final writing of honors thesis. In Progress grading for course 195B (credit to be given only on completion of course 195C).

197. Special Topics in International Development. (4) Seminar, three hours. Preparation: some beginning experience in social sciences at college level. Lecture/seminar format on selected topics in international development. Course either features visiting instructors in field of development studies or allows program's affiliated faculty to engage specific contemporary issues. May be repeated for credit with topic change.

INTERNATIONAL RELATIONS

College of Letters and Science

UCLA
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Box 951472
Los Angeles, CA 90095-1472
(310) 825-3862
<http://www.sscnet.ucla.edu/polisci/>

Scope and Objectives

The undergraduate specialization in International Relations can only be taken jointly with a major in Political Science, and all requirements for the Political Science major must be met by or in addition to meeting the requirements of this program. Students completing the program receive a degree with a major in Political Science and specialization in International Relations. The program is designed to serve the needs of (1) students desiring a general education focused on international affairs and (2) students preparing for graduate work in international affairs, whether in a social science or area study.

The program is also beneficial for (1) students planning careers (in business, law, journalism, or library service) with an international empha-

sis and (2) those preparing to teach social sciences in the secondary schools. These students should structure their programs primarily to meet the preparation requirements of the professional school or instructional credential of their choice.

Courses in management and administration, and in oral and written communications, ordinarily increase the career options of students in this program.

Undergraduate Study

International Relations Specialization

Preparation for the Specialization

Required: Political Science 20, 50, and two courses from 10, 30, 40; Anthropology 9 or 60; Economics 1 and 2, 5, or 100; Geography 3 or 5; History 1A-1B-1C or any three courses from 8A, 8B, 8C, 9A, 9C, 9D, 10A, 10B, 11A, 11B; Sociology 1 or 31.

Upper Division Requirements

The Political Science major should be completed as follows: any four upper division political science courses in each of Fields II and IV and two additional courses both in Field I or III.

Other required social sciences courses include one course from Anthropology 161, 165, 167, 171, 173Q, 174P, 175R, 175T, 175U, 177, Sociology 182, 183, 186, 187, 188, 189, 190; two courses from Economics 110, 111, 112, 180, 181A, 181B, 182, 190, 191, 192; one course from Geography 110, 121, 125, M128, 133, 140, 181, 182A, 182B, 183, 184, 185, 186, 187, 190; two courses from History 116A, 116B, 117A, 127A, 127B, 142A, 142B, 148C, 152A, 152B, 168.

Completion of the sixth quarter course (or equivalent as prescribed by the language department), with a grade of C or better, of any modern foreign language is also required. French 6, German 6, Spanish 25, and Russian 6 are most frequently offered in fulfillment of this requirement, but also refer to the offerings listed under African Languages, East Asian Languages and Cultures, Germanic Languages, Italian, Near Eastern Languages and Cultures, and Portuguese. Arabic, Chinese, French, German, Japanese, Russian, and Spanish are the languages of widest career utility in international affairs.

All courses must be taken for a letter grade.

Area Focus

Students are advised but not required to concentrate their political science, geography, history, and language courses so as to achieve broad familiarity with one area, such as Africa, East Asia, Europe, Latin America, the Middle East, South Asia, or Southeast Asia.

For further information, contact the political science undergraduate counselor in the program office.

ISLAMIC STUDIES

*Interdepartmental Program
College of Letters and Science*

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<http://www.isop.ucla.edu/cnes/academics>

Irene A. Bierman, Ph.D., *Chair*

Professors

Leonard Binder, Ph.D. (*Political Science*)
Andras Bodrogligeti, Ph.D. (*Near Eastern Languages and Cultures*)
Benjamin A. Elman, Ph.D. (*History*)
Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)
Gail G. Harrison, Ph.D. (*Community Health Sciences*)
Ismail Poonawala, Ph.D. (*Near Eastern Languages and Cultures*)
A. Jihad Racy, Ph.D. (*Ethnomusicology*)
Teofilo F. Ruiz, Ph.D. (*History*)
Steven L. Spiegel, Ph.D. (*Political Science*)

Professors Emeriti

Amin Banani, Ph.D. (*Near Eastern Languages and Cultures, History*)
Seeger A. Bonebakker, Ph.D. (*Near Eastern Languages and Cultures*)
Robert I. Burns, S.J., Ph.D. (*History*)
Herbert A. Davidson, Ph.D. (*Near Eastern Languages and Cultures*)
Gerry A. Hale, Ph.D. (*Geography*)
Richard Hovannisian, Ph.D. (*History*)
Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology*)
Nikki Keddie, Ph.D. (*History*)
Afaf Marsot, D.Phil. (*History*)
Georges Sabagh, Ph.D. (*Sociology*)
Damodar R. SarDesai, Ph.D. (*History*)
Stanford J. Shaw, Ph.D. (*History*)
Stanley A. Wolpert, Ph.D. (*History*)

Associate Professors

Ali Behdad, Ph.D. (*English*)
Irene A. Bierman, Ph.D. (*Art History*)
Michael G. Morony, Ph.D. (*History*)
Hossein Ziai, Ph.D. (*Near Eastern Languages and Cultures*)

Assistant Professors

Michael D. Cooperson, Ph.D. (*Near Eastern Languages and Cultures*)
James L. Gelvin, Ph.D. (*History*)

Scope and Objectives

The undergraduate major in this discipline is called Near Eastern Studies. For details, see the program by that name later in this section.

The designation of the interdepartmental degree program in Islamic Studies is meant to convey the broadest cultural concern with peoples and places influenced by Islam, rather than a narrow approach to Islam as religion alone. Islam as a culture-forming force in history may be studied and understood through the literate sources of Islamic civilization and/

or through systematic observation and examination of behavioral patterns and social relations of Muslim peoples. The commonality of an "idealized" and a "functional" or "practical" Islam does not preclude a multiple number of valid and varied approaches to Islamic studies. The program, with its core emphasis on the major languages of the Islamic Middle East, is intended to provide an internal view of the dynamics of Islamic culture.

The interdepartmental program for the Master of Arts and Ph.D. degrees in Islamic Studies is designed primarily for students desiring to prepare for an academic career. It may, however, be found useful for students seeking a general education and desiring a special emphasis in this particular area or for those who plan to live and work in this area, whose career will be aided by a knowledge of the people, languages, and institutions. (Such a career might be centered on teaching, research, business, engineering, journalism, librarianship, or government service.) Subject to the limitations of the program, the special course of studies is formulated for candidates according to their experience and requirements.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Islamic Studies Program offers the Master of Arts (M.A.) degree in Islamic Studies and participates in a concurrent degree program with the School of Public Health.

Admission

In addition to the general University requirements, a B.A. degree in Near Eastern Studies or in a related field with an emphasis on the Near East is required for admission to the M.A. program. The application deadline is March 1. Applicants are normally expected to have completed the equivalent of Arabic 102A-102B-102C, Iranian 102A-102B-102C, or Turkic Languages 101A-101B-101C at the time of application. In addition, applicants should have completed the equivalent of two years of Near Eastern history (classical and modern); some coursework in Islamic culture and institutions may be applied toward the history requirement. Should there be any deficiencies in these requisites, the requirements must be satisfied by taking the appropriate courses without credit toward the advanced degree.

The Graduate Record Examination (GRE) is required of graduates of American universities

and recommended for overseas applicants. No screening examination is necessary.

A score of 560 on the Test of English as a Foreign Language (TOEFL) is required of all applicants whose native language is not English and who have not attended English-speaking universities.

No special application form is required in addition to the UCLA *Application for Graduate Admission*.

M.P.H./M.A. Islamic Studies

The School of Public Health and the Islamic Studies Program have a concurrent degree program whereby students can work for the M.A. in Islamic Studies and the Master of Public Health. Applicants interested in this concurrent program should write to the Islamic Studies Program and the Student Affairs Office, UCLA School of Public Health.

Areas of Study

Anthropology, Arabic, economics, geography, history, Islamic art history and architecture, music, Persian, political science, sociology, and Turkish.

Course Requirements

A minimum of nine courses is required, five of which must be at the graduate level. Students must take no fewer than four courses on the appropriate level in one Near Eastern language of their choice. Additionally, students must take no fewer than five relevant upper division and graduate-level courses selected from two of the major fields and subdisciplines listed above. The omission of history as one of the fields is approved only in exceptional cases. Eight units of 500-series courses may be applied toward the minimum graduate course requirement and toward the total course requirement, provided the courses are not in the same discipline.

Comprehensive Examination Plan

Four written examinations in the following areas must be passed: (1) any Near Eastern language; (2) the literature of the chosen language; (3) the history of the Near East; and (4) one of the other nonlanguage major fields or subdisciplines listed above. The examinations are constructed by the instructor responsible for each discipline. Reexamination in exceptional cases is determined by the interdepartmental degree committee. The examiner or examiners are appointed by the chair of the interdepartmental degree program.

Thesis Plan

None.

Doctoral Degree

Admission

Students intending to work for the Ph.D. degree in Islamic Studies are normally expected first to fulfill all requirements for the M.A. degree. Students entering the program with an M.A. from another university should have attained a level of preparation in languages, his-

tory, and social sciences equivalent to that required for the M.A. at UCLA. In addition, students are expected to show proficiency in a second Near Eastern language, one of which must be Arabic. Students who have not done so should make up any deficiencies by taking the appropriate courses without credit toward the degree.

The Graduate Record Examination (GRE) is required of graduates of American universities and recommended for overseas applications.

No special application form is required in addition to the *UCLA Application for Graduate Admission*.

Major Fields or Subdisciplines

Anthropology, Arabic, art history, economics, geography, history, music, Persian, political science, Turkish.

Course Requirements

For students entering directly into the Ph.D. program, course requirements are the same for the M.A. Beyond this, advanced courses in two Near Eastern languages, in Near Eastern history, and in one of the social sciences, on specific advisement of the interdepartmental degree program, are taken.

Written and Oral Qualifying Examinations

Written qualifying examinations in four fields are required: two Near Eastern languages and literatures as approved by the advisory committee, the whole range of Near Eastern history, and one of the other nonlanguage major fields or subdisciplines listed above. Reexamination in any field is at the discretion of the doctoral committee in consultation with the chair of the program.

Research proposals, dossiers, research papers, and propositions are not permitted as alternatives to the written qualifying examinations.

Islamic Studies

Course List

Anthropology

- 130. Study of Culture
- 150. Study of Social Systems
- M154P. Gender Systems: North American
- M154Q. Gender Systems: Global
- 156. Comparative Religion
- 161. Development Anthropology
- 167. Urban Anthropology
- 215. Field Training in Archaeology
- 230Q. Theories of Culture
- 273. Cultures of the Middle East

Arabic (Near Eastern Languages)

- 102A-102B-102C. Intermediate Literary Arabic
- 111A-111B-111C. Elementary Spoken Egyptian Arabic
- 112A-112B-112C. Advanced Spoken Egyptian Arabic
- 113A-113B-113C. Elementary Spoken Levantine Arabic
- 114A-114B-114C. Spoken Moroccan Arabic
- 120. Islamic Texts

- 130. Classical Arabic Texts
- 132. Philosophical and Kalam Texts
- 141. Modern Arabic Literature
- 150. Introduction to Arabic Literature and Culture
- 199. Special Studies in Arabic
- 220. Seminar: Islamic Texts
- 230. Medieval Literary Texts
- 240. Seminar: Arab Historians and Geographers
- 250. Seminar: Arabic Literature
- 596. Directed Individual Study
- 597. Examination Preparation
- 599. Ph.D. Dissertation Research and Preparation

Archaeology

- 259. Fieldwork in Archaeology
- 596. Individual Studies for Graduate Students
- 597. Preparation for Ph.D. Qualifying Examinations

Armenian (Near Eastern Languages)

- 210. History of the Armenian Language
- 220. Armenian Literature of the Golden Age (A.D. 5th Century)
- 230A-230B-230C. Elementary Classical Armenian
- 231A-231B-231C. Intermediate Classical Armenian
- 232A-232B-232C. Advanced Classical Armenian

Art History

- 104A. Western Islamic Art
- 104B. Eastern Islamic Art
- C104C. Problems in Islamic Art
- 105E. Byzantine Art
- 213. Advanced Studies in Islamic Art
- C214. Problems in Islamic Art

Berber (Near Eastern Languages)

- 101A-101B-101C. Elementary Berber
- 102A-102B-102C. Advanced Berber
- 130. The Berbers
- 199. Special Studies in Berber Languages

Classics

- M170. Power and Imagination in Byzantium

Ethnomusicology

- 147. Survey of Classical Music in India
- 240. Music of Arabic-Speaking Near East
- 241. Music of Iran and Other Non-Arabic-Speaking Communities
- 248A-248B. Classical Music of India

French

- 121A. Contemporary Francophone Literature: French-African Literature
- 221A. French-African Literature: Introduction to Study of French-African Literatures
- 221C. French-African Literature: French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa
- 257A-257B. Studies in French-African Literature

Geography

- 187. Middle East

Greek (Classics)

- 231A-231B-231C. Seminars: Later Greek and Byzantine Literature

Hebrew (Near Eastern Languages)

- 230. Seminar: Medieval Hebrew Literature
- 231. Texts in Judeo-Arabic

History

- 106A-106B-106C. Survey of the Middle East from 500 to the Present
- 107A-107B. Islamic Civilization
- 108A-108B. History of the Arabs
- 109A-109B. History of North Africa from the Moslem Conquest
- 110A-110B. Iranian History
- 111A-111B. History of the Turks
- 114. Topics in Middle Eastern History

- 123A-123B. Byzantine History
- 188B-188C. History of British India I, II
- 190A-190B. History of Southeast Asia
- 204A-204B. Seminars: Near and Middle Eastern History
- 205A-205B. Seminars: Medieval Middle Eastern History
- 206A-206B. Seminars: Social History of the Middle East
- 209A-209B. Seminars: Ottoman and Modern Turkish History
- 216A-216B. Seminars: Byzantine History
- 596. Directed Studies
- 597. Directed Studies for Graduate Examinations
- 599. Ph.D. Research and Writing

Iranian (Near Eastern Languages)

- 102A-102B-102C. Intermediate Persian
- 103A-103B-103C. Advanced Persian
- 140. Persian Belles Lettres (Adabiyât)
- 141. Persian Analytical Prose
- 150A-150B. Survey of Persian Literature in English
- 169. Civilization of Pre-Islamic Iran
- 170. Religion in Ancient Iran
- 190A-190B. Introduction to Modern Iranian Studies
- 199. Special Studies in Iranian
- 220A-220B. Classical Persian Texts
- 221. Rumi, Mystic Poet of Islam
- 250. Seminar: Classical Persian Literature
- 251. Seminar: Contemporary Persian Literature
- 596. Directed Individual Study
- 597. Examination Preparation
- 599. Ph.D. Dissertation Research and Preparation

Islamic (Near Eastern Languages)

- 110. Introduction to Islam
- 596. Directed Individual Study
- 597. Examination Preparation
- 599. Ph.D. Dissertation Research and Preparation

Linguistics

- 220. Linguistic Areas
- 225. Linguistic Structures

Near Eastern Languages

- 200. Bibliography and Method of Near Eastern Languages and Literatures
- 210. Survey of Afro-Asiatic Languages
- M241. Folklore and Mythology of the Near East
- 290. Seminar: Paleography
- 596. Directed Individual Study
- 597. Examination Preparation
- 599. Ph.D. Dissertation Research and Preparation

Philosophy

- 104. Topics in Islamic Philosophy

Political Science

- 132A-132B. International Relations of the Middle East
- 157. Government and Politics in the Middle East
- C245. Middle Eastern Politics

Semitics (Near Eastern Languages)

- 215B. Syriac

Sociology

- 134. Culture and Personality
- 187. Population and Society in the Middle East

Turkic Languages (Near Eastern Languages)

- 101A-101B-101C. Elementary Turkish
- 102A-102B-102C. Advanced Turkish
- 111A-111B-111C. Elementary Uzbek
- 112A-112B-112C. Advanced Uzbek
- 114A-114B-114C. Bashkir
- 160. Turkish Tradition
- 180. Modern Turkic Languages and Peoples
- 199. Special Studies in Turkic Languages

210A-210B-210C. Introduction to Ottoman
 211. Ottoman Diplomacy
 220A-220B-220C. Classical Uzbek (Chagatay)
 230A-230B-230C. Historical and Comparative Survey
 of Turkic Languages
 235A-235B. Middle Turkic
 240A-240B-240C. Advanced Ottoman
 250A-250B-250C. Islamic Texts in Chagatay
 280A-280B. Seminars: Modern Turkish Literature
 290A-290B. Seminars: Classical Turkic Literature
 596. Directed Individual Study
 597. Examination Preparation
 599. Ph.D. Dissertation Research and Preparation

ITALIAN

College of Letters and Science

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Massimo Ciavolella, Ph.D., *Chair*

Professors

Michael J.B. Allen, Ph.D., D.Litt.
 Luigi Ballerini, Dottore in Lettere
 Franco Betti, Ph.D.
 Massimo Ciavolella, Ph.D.
 Marga Cottino-Jones, Ph.D., Dottore in Lettere
 Edward F. Tuttle, Ph.D.

Professor Emeritus

Pier-Maria Pasinetti, Ph.D., Dottore in Lettere

Associate Professor

Lucia Re, Ph.D., Dottore in Lettere

Assistant Professor

Thomas J. Harrison, Ph.D.

Lecturers

Mirella Cheeseman, Dottore in Legge, *Emerita*
 Maria Grazia Pellegrini, Dottore in Lettere
 Elissa Tognozzi, Ph.D.

Scope and Objectives

Italian art and letters provide an invaluable key to understanding many facets of European civilization. Examined in its own right or studied comparatively, Italian culture offers unmatched rewards. The UCLA faculty views transmitting the Italian language as inseparable from transmission of the culture, so students consider in depth virtually all aspects of Italian civilization. After their linguistic initiation, ideally including a year abroad, students may pursue advanced studies in the department exclusively and through a wide range of interdisciplinary programs.

Bachelor of Arts degrees are offered in Italian and in Italian and Special Fields. Graduate study leads to the Master of Arts degree in Italian (with specializations in literature and language) and to the Ph.D. (literature specializa-

tion). In addition, the department participates extensively in the interdepartmental graduate programs in Romance Linguistics and Literature, Comparative Literature, and Folklore and Mythology.

Undergraduate Study

Italian B.A.

The program of studies leading to the Bachelor of Arts in Italian consists of two distinct phases: preparation in the language and study of the literature and culture. While literature courses constitute the bulk of the program, good knowledge of the language is requisite to all upper division literature courses credited toward the major in Italian. The use of Italian is stressed at all levels of study. Detailed information on programs and specific degree requirements is available from the department.

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46.

The Major

Required: Thirteen upper division Italian courses, including 100, 103A-103B, 113, 114A or 114B, 116A or 116B; one course from 118 or 119; one course from 120 or 121; four courses from 114A through 197; 190. One upper division elective course in a field relevant to Italian studies from outside the department may be substituted with consent of the undergraduate adviser.

Sixteen quarter units in Italian or equivalent are required for admission to any upper division course. Upper division courses for the majors are conducted in Italian.

Majors who select courses taught in English must do additional work from the original Italian texts in consultation with the course instructor, who will meet with them on a regular basis.

Study in Italy

Students are encouraged to spend up to one year in Italy either to (1) study with an education abroad program or (2) study in an Italian university. They are also urged to take advantage of summer language workshops and study programs, either at American campuses or in Italy. The Department of Italian offers an intensive, eight-week summer Italian studies program. For information on *Casa Italiana*, contact the department or the Summer Sessions Office, 1147 Murphy Hall.

Honors Program

Majors with an overall grade-point average of 3.25 and a 3.5 GPA or better in Italian are eligible to participate in the honors program. Requirements: Italian 102A-102B-102C.

Candidates select three upper division literature courses in which additional readings are required. In the last term of the senior year, they are required to write a thesis on a subject related to one of the three above-mentioned

courses. The average for the three courses should not fall below A-. Applications should be made during the last term of the junior year.

Italian and Special Fields B.A.

Students with particular interests or professional goals may select this major, with coursework divided between Italian and a collateral field. Study programs fulfilling requirements for the major have been developed with the departments and programs listed below.

Sixteen quarter units in Italian or equivalent are required for admission to any upper division course. Upper division courses for the majors are conducted in Italian.

Majors who select courses taught in English must do additional work from the original Italian texts in consultation with the course instructor, who will meet with them on a regular basis.

Anthropology Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Anthropology 8 or 9, and one elective from 33, 34.

The Major

Required: Italian 100, 103A or 103B, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; five courses from Anthropology 110, 111, 112, M115A, M115B, C115R, 118A, 118B, 130, 132, 133Q, 135A, 135B, 135C, 135S, 135T, 138, 139, M140, 141, 143, 150 through M154Q, 161, 182, 183 selected in consultation with the undergraduate adviser.

Art History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46; Art History 50 or 51, 54, 57.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 197 selected in consultation with the undergraduate adviser; six courses from Art History M102F, M102G, M102H, 105A through 105D, 105F, 106A through 106D, 109A, 109C, 110A, 110B, 110F, 127, 150D selected in consultation with the undergraduate adviser.

Classics Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Classics 10 or 20, 40 or 41, and Greek 1, 2, 3 or Latin 1, 2, 3, or equivalent.

The Major

Required: Italian 100, 103A or 103B, 190, 195, and two courses from 113 through 197 selected in consultation with the undergraduate adviser; Greek 100 or Latin 100, one course from Classics 141 through 197 (except 195),

and one course from Greek 101A through 133 or Latin 101 through 133 (graduate seminars may be substituted for upper division author courses) selected in consultation with the undergraduate adviser.

Design Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46; Design 21, 22, 23, 32B, and one course from 32C, 35A, 35B.

The Major

Required: Italian 100, 103A or 103B, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; three courses from Design 101 through 197 selected in consultation with the undergraduate adviser.

English Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; English Composition 3, English 4, 10A, 10B, 10C.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 197 selected in consultation with the undergraduate adviser; four courses from English 100, M101A through 119, 121, 140A through M197A selected in consultation with the undergraduate adviser.

Film and Television Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, 46.

The Major

Required: Italian 100, 103A or 103B, 121, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; six courses from Film and Television 106A, 106B, 106C, 107, 108, 110A, 110C, 112 through 116, 127, 193A selected in consultation with the undergraduate adviser.

French Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46; French 1, 2, 3, 4, 5, 6, 12 or 14.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 197 selected in consultation with the undergraduate adviser; one course from French 114A, 114B, 114C, and three courses from 115A through 142 selected in consultation with the undergraduate adviser.

History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46; one course from History 1A, 1B, 1C, 88B through 88E, 88Q, 88U.

The Major

Required: Italian 100, 103A or 103B, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; six courses from History 100, 102, 119M through 121D, 125A through 127B, 132A, 132B, 135A through 137B selected in consultation with the undergraduate adviser.

Linguistics Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, Linguistics 20, and six terms of a second Romance language or Latin or equivalent.

The Major

Required: Italian 100, 103A or 103B, 190 or 222A, 195, 222B, and two courses from 113 through 197 selected in consultation with the undergraduate adviser; Linguistics 103, 110, 120A, 120B, and one course from M146, M150, 165A, 165B, 170 selected in consultation with the undergraduate adviser.

Music History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, Music History 1A-1B or 2A-2B, 26A-26B-26C. *Recommended:* Music 20A, 20B, 20C.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 197 selected in consultation with the undergraduate adviser; five courses from Music History 126A through 127G, 135A, 135B, 135C, 156 selected in consultation with the undergraduate adviser.

Philosophy Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; one course from Philosophy 1 through 31.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 197 selected in consultation with the undergraduate adviser; Philosophy 100A, 100B, 100C, and three courses from M101A through 189 selected in consultation with the undergraduate adviser.

Political Science Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Political Science 10, 20.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 197 selected in consultation with the undergraduate adviser; six courses from Political Science 111A through 113, 116 through 119Z, 137A, 137B, 139A through 139Z, 153A, 155, 167A selected in consultation with the undergraduate adviser.

Portuguese Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Portuguese 1, 2, 3, 25, M42 or M44 or 46.

The Major

Required: Italian 100, 103A or 103B, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; three courses from Portuguese 120A through 197 selected in consultation with the undergraduate adviser.

Spanish Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Spanish 1, 2, 3, 4, 5, 25 (or equivalent as determined by placement test), M42 or M44.

The Major

Required: Italian 100, 103A or 103B, 190, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; one course from Spanish 120A, 120B and three courses from 122 through M161 selected in consultation with the undergraduate adviser.

Theater Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B.

The Major

Required: Italian 100, 103A or 103B, 122, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; one course from Theater 101A, 101B, 101C and five courses from 105, 111A, 111B, 111C, Classics 143, English 142A, 142B, 142C, 168 selected in consultation with the undergraduate adviser.

Women's Studies Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46; Women's Studies 10.

The Major

Required: Italian 100, 103A or 103B, M158, 195, and three courses from 113 through 197 selected in consultation with the undergraduate adviser; Women's Studies 110A or 110B, and five additional upper division courses from any of the women's studies course lists selected in consultation with the undergraduate adviser.

Italian Minor

To enter the Italian minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Italian 5, 25, and one course from 42A, 42B, 46, 50A, 50B.

Required Upper Division Courses (20 units): Italian 100 and four additional Italian courses.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Italian offers the Master of Arts (M.A.) degree in Italian.

Admission

Applicants to the M.A. program, should send three letters of recommendation to the Graduate Adviser, Department of Italian.

Files of prospective graduate students meeting the University minimum requirements are screened by the departmental committee on admissions. Admission on a provisional basis may be recommended in case of deficiencies in preparation.

Areas of Study

The M.A. degree is available with specializations in Italian literature and Italian language.

Course Requirements

Italian Literature Specialization. For both the comprehensive examination plan and the thesis plan, 12 courses are required, including Italian 205A-205B, and 222A. The other nine courses must be distributed in three main literary periods: Middle Ages, Renaissance, modern (at least two courses in each period). Three of these may be upper division undergraduate courses if approved by the graduate adviser. Related courses in other departments, such as History 205A-205B and Art History 230, are strongly recommended.

Italian Language Specialization. Requisites: a general grasp of linguistics equivalent to Linguistics 20 and 110, and a broad familiarity with Italian literary and cultural history. For both the comprehensive examination plan and the thesis plan, 12 courses are required, including Italian 222A-222B-222C and Linguistics 202 or equivalent. At least nine courses must be in the 200 series.

No 500-series courses may be applied toward the M.A. course requirements.

Comprehensive Examination Plan

In general, the department favors the comprehensive examination plan, which consists of a

minimum five-hour written examination to be given before the final examination period in the Fall and Spring Quarters. Alternatively, students may petition to substitute a master's thesis in lieu of the examination, although this option is not encouraged. The examination tests the student's general competency and does not have major and minor fields of emphasis. After the written examination, an oral examination must be taken. In case of failure, students may be reexamined once, subject to approval by the examination committee and the chair of the department.

Thesis Plan

This plan is recommended for research-oriented students of exceptional merit. Students who have completed the first year of graduate work with at least a 3.7 grade-point average may be nominated by one of the faculty members of the department for application to the thesis plan. If the nomination is accepted by the faculty, a three-member thesis committee is submitted to the Graduate Division for appointment.

At this point students must have completed Italian 205A-205B and at least two other graduate courses in Italian. On acceptance, the guidance committee helps students choose six more graduate courses in preparation for the thesis.

The thesis must be at least 50 pages long and follow the rules and style of the UCLA Ph.D. dissertation regulations. It must be submitted in the sixth quarter of graduate work. After completion of the thesis, an oral examination must be passed testing knowledge in the field of the thesis and general competence in Italian literature.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Italian should send three letters of recommendation from professionals in the field of Italian studies to the Graduate Adviser, Department of Italian.

Requisite for entering the department's doctoral program is an M.A. in Italian literature from UCLA or its equivalent from another university in the U.S. Students who have a master's degree in Italian literature or its equivalent from another institution are required to pass Part I of the Ph.D. qualifying examinations by the end of the third quarter in residence. Students should expect to take Part II of the examinations after approximately six quarters.

Students holding the M.A. from UCLA normally take Part II of the qualifying examinations at the end of the sixth quarter in residence.

Major Fields or Subdisciplines

Two centuries of Italian literature in the medieval, Renaissance and baroque, or modern areas comprise the major fields, while two centuries of Italian literature from any of the areas mentioned above make up the minor fields.

A major in a literary genre or a minor outside the department may be chosen, provided that it relates to the student's major field of specialization. This field must have the approval of the entire department.

Course Requirements

In addition to those required for the master's degree, at least 10 other quarter courses, of which no more than two 596 courses may apply, are required. Students also must take such courses as their guidance committee prescribes for the qualifying examinations (such as Italian 596 or 597). All courses from Italian 201 on, except for 205A and 205B, may be applied toward the Ph.D. degree.

Written and Oral Qualifying Examinations

The comprehensive examination for the M.A. in Italian at UCLA corresponds to Part I of the Ph.D. qualifying examinations.

The department also requires both written and oral qualifying examinations (Part II), which must be taken during the same academic year, although not necessarily during the same quarter. Normally taken six quarters after the M.A. degree, the written examination consists of two parts: an eight-hour examination in the student's major field and a six-hour examination in the minor field. Additionally, a two-hour University Oral Qualifying Examination is required. A summary of requirements entitled *Regulations for the Ph.D. Examination* is available in the department. In case of failure, students may be reexamined on unanimous approval of the guidance committee, after at least one academic quarter of additional residence.

Italian

Lower Division Courses

1. Elementary Italian — Beginning. (4) Lecture, five hours; live laboratory, one hour.

1A. Elementary Italian — Accelerated. (8) Lecture, 10 hours; laboratory, two hours. Designed for those students having capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 1 and 2.

1G. Special Reading Course. (4) Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement. S/U grading.

2. Elementary Italian — Continued. (4) Lecture, five hours; live laboratory, one hour. Enforced requisite: course 1.

2A. Elementary Italian — Accelerated (Continued). (8) Lecture, 10 hours; laboratory, two hours. Enforced requisite: course 1A or 2. Designed for those students having capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 3 and 4.

2G. Special Reading Course. (4) Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement.

3. Elementary Italian — Continued. (4) Lecture, five hours; live laboratory, one hour. Enforced requisite: course 2.

3A. Intermediate Italian — Accelerated. (8) Lecture, six hours; laboratory, two hours. Enforced requisite: course 2A or 3. Designed for those students having capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 4 and 5.

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) (Formerly numbered 25.) Lecture, five hours. Enforced requisite: course 5. Advanced grammar and composition course with readings from select literary works. P/NP or letter grading.

7. Elementary Italian Conversation. (4) Lecture, five hours (first six-week summer session). Encompasses conversational material included in course 1, with emphasis on traveler's vocabulary.

8A-8B-8C. Italian Conversation. (2-2-2) Discussion, three hours. Each course may be repeated once for credit. P/NP or letter grading.

42A-42B. Italy through the Ages, in English. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. P/NP or letter grading. **42A.** Holy Roman Empire to Sack of Rome. Survey of Italy's unique contribution to Western civilization in history, literature, painting, and politics from time of Charlemagne to High Renaissance. **42B.** Late Renaissance to Postmodern Period. Baroque sculpture and architecture, Galileo, Enlightenment, unification of Italy, Fascism, Communism, terrorism, neorealistic cinema, and "moral revolution" of the 1980s and 1990s.

46. Italian Cinema and Culture. (4) Lecture, two hours; discussion, one hour; film screenings, two to three hours. Survey of development of Italian cinema and culture from the 1900s to the present through analysis of principal aesthetic, literary, artistic, and philosophical movements in Italy as reflected in works of the nation's filmmakers and writers.

50A-50B. Masterpieces of Italian Literature in English. (4-4) Lecture, three hours; outside study, nine hours. P/NP or letter grading. **50A.** Middle Ages and Renaissance. Philosophical, religious, and sociopolitical issues examined in authors such as St. Francis, Guinizelli, Cavalcanti, Dante, Boccaccio, Petrarca, Poliziano, Lorenzo de' Medici, Machiavelli, Castiglione, and Ariosto. **50B.** Baroque Period to the Present. Close reading of major works selected from such writers as Tasso, Bruno, Campanella, Vico, Parini, Alfieri, Foscolo, Leopardi, Manzoni, Verga, and Pirandello.

Upper Division Courses

100. Composition and Style. (4) (Formerly numbered 130.) Lecture, three hours; outside study, nine hours. Requisite: course 25. Development of writing techniques and proficiency in composition and style, with emphasis on editing for grammar and style. P/NP or letter grading.

102A-102B-102C. Italian Cultural Experience, in English. (4-4-4) Lecture, three hours; outside study, nine hours. Study of cultural development of Italy. P/NP or letter grading. **102A.** Roots of Western civilization; social and artistic achievements of communal society; Marco Polo, Dante, Boccaccio, Giotto, rise of Italian merchant class. **102B.** Renaissance discovery of human genius; crucial period between Machiavelli and Galileo, leading Italy and Europe to scientific revolution. **102C.** Birth of Italian nation from wars of independence to foundation of modern republic, delineated through narrative and cinema in historical context.

103A-103B-103C. Introduction to Italian Literature and Literary Analysis. (4-4-4) (Formerly numbered 200A-200B-200C.) Lecture, three hours; outside study, nine hours. Requisite: course 100. Italian literature from 1150 to the present, with emphasis on methods of interpreting literary form and meaning in poetry, drama, epic, and novel. P/NP or letter grading:

103A. Knights, Saints, and Lovers. Beginning with generation dominated by St. Francis, love poets of court of Frederick II to three classic writers of Italian literature: Dante, Petrarca, and Boccaccio. Renaissance rediscovery of human individuality, dignity, and creativity in works of Pico della Mirandola and Castiglione.

103B. Power and Beauty. Classics of High Renaissance in theater, epic, and lyric poetry, followed by surprising developments of baroque period, Counter-Reformation, and Enlightenment. Artists and writers include Leonardo da Vinci, Michelangelo, Machiavelli, Ariosto, Tasso, Bruno, and Vico.

103C. Romanticism, Politics, and Disillusionment. Great poetry and dialogues of Giacomo Leopardi; patriotic literature accompanying rise of modern Italian state; futurism, surrealism, neorealism, and postmodernism. Authors may include Foscolo, Manzoni, Verga, Pirandello, Calvino, and Dario Fo.

110. Dante, in English. (4) (Formerly numbered 110A-110B.) Lecture, three hours; outside study, nine 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) (Formerly numbered 113A-113B.) Lecture, three hours; outside study, nine hours. Requisite: course 100. Study of medieval philosophy, religion, and politics in *La Divina Commedia*, greatest literary achievement of the age. P/NP or letter grading.

114A-114B. Middle Ages. (4-4) Lecture, three hours; outside study, nine hours. Requisite: course 100. P/NP or letter grading. **114A.** Tradition of Love from Sacred to Profane. Study of major love poets of all time (Dante, *Dolce Stil Novo* poets, and Petrarca) caught between courtly and religious codes. **114B.** Medieval Humor, Moralism, and Society. Novelty of Boccaccio's witty and comic masterpiece, *Decameron*, analyzed within context of moral and social codes of culture of the time.

116A-116B. Italian Renaissance. (4-4) Lecture, three hours; outside study, nine hours. Requisite: course 100. P/NP or letter grading. **116A.** Renewal of Art and Thought. Study of the *Quattrocento* and its representatives in the arts and humanistic thought (i.e., Mantegna, Botticelli, Pico, Valla, and Ficino). **116B.** Power and Imagination in the Renaissance. 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 the Roman Papacy and Medici, Gonzaga, and D'Este courts.

118. Age of Enlightenment. (4) Lecture, three hours; outside study, nine hours. Requisite: course 100. Study of philosophical and political prose, satiric poetry, and drama, unveiling birth of modern spirit through writings of Vico, Metastasio, Parini, and Alfieri. P/NP or letter grading.

119. Italian *Ottocento*. (4) Lecture, three hours; outside study, nine hours. Requisite: course 100. Study of the *Ottocento*, the rich period of Italian history and culture from Romanticism to decadentism when philosophical and political issues affected not only the mind but also the heart. Emergence of unique brand of individualism through poetry and prose writings of Foscolo, Leopardi, Manzoni, Nievo, and Verga. P/NP or letter grading.

120. Literature in the 20th Century. (4) Lecture, three hours; outside study, nine hours. Requisite: course 100. Analysis of novel, poetry, and drama of the 20th century in connection with modern thought and culture. Authors may include D'Annunzio, Pirandello, Montale, Pasolini, and Calvino. P/NP or letter grading.

121. Literature and Film. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Comparative study of specific literary works and their translation into film and of different techniques in the two 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; discussion, one hour; outside study, eight hours. Study of dramatic works from the Renaissance to the present and their theatrical presentation. P/NP or letter grading.

131. Reading and Reciting. (4) Lecture, three hours. Preparation: sufficient knowledge of Italian. Emphasis on diction, interpretation, and performance of one-act plays as vehicles for perfection of pronunciation, comprehension, and fluency. May be repeated twice for credit.

M140. Italian Novella from Boccaccio to Basile. (4) (Same as Folklore M140.) Lecture, three hours; outside study, nine hours. Analysis of development of the Italian novella in its structure, historical context, and folk material. Special emphasis on how the Italian novella influenced other European literatures. P/NP or letter grading.

150. Modern Fiction in Translation. (4) Lecture, three hours; outside study, nine 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.

M158. Women in Italian Culture. (4) (Same as Women's Studies M158.) Lecture, three hours; discussion, one hour; outside study, eight hours. Examination of role of women in Italian society through history, politics, literature, film, and art. Italian majors required to read texts in Italian. P/NP or letter grading.

190. History of the Italian Language. (4) Lecture, three hours. Main forces which have shaped literary or standard Italian and specific ways in which the language has evolved. Tracing of its changing relations with other European languages and survey of effects wrought by historical events, changes in taste, and altered social functions.

195. Special Fields Research. (4) Limited to senior Italian and Special Fields majors. Unscheduled tutorial in which paper (20 to 25 pages) is to be written in either Italian or English which requires students to unify and synthesize their experience of combining two disciplines of study. Paper graded by ad hoc committee of faculty from department, with the chair in charge. P/NP or letter grading.

197. Variable Topics in Italian Studies. (4) Discussion, three hours; outside study, nine hours. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental undergraduate courses.

199. Special Studies. (2 to 4) Course of independent studies for advanced undergraduates who wish to pursue a special research project under direction and close supervision of a faculty member.

Graduate Courses

201. Bibliography and Methods of Research. (4) Lecture, three hours.

205A-205B. Studies in Criticism. (4-4) Lecture, three hours; outside study, 18 hours. History, theory, and practice of criticism. S/U or letter grading. **205A.** Brief History of Literary Criticism. Presentation, discussion, and application of basic currents of criticism from stylistics to structuralism. **205B.** Discussion of Modern Critical Approaches. Presentation, discussion, and application of contemporary approaches from structuralism to deconstruction, new historicism, and feminist criticism.

210. Studies in Early Italian Literature. (4) Lecture, three hours; outside study, 18 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-214F. Studies in Medieval Literature. (4 each) Lecture, three hours; outside study, 18 hours. S/U or letter grading:

214A. *La Divina Commedia*.

214B. Dante's Other Works.

214C. Petrarca's *Canzoniere*.

214D. Boccaccio's *Decameron*.

214E. Boccaccio's Other Works.

214F. Variable Topics. Variable-content seminar on themes and issues of medieval literature, with coverage of authors such as St. Francis of Assisi or Jacopone de Todi.

215A-215B. Studies in 15th-Century Literature. (4-4) Lecture, three hours; outside study, 18 hours. S/U or letter grading. **215A.** Variable Topics. Variable-content seminar on themes and issues of 15th-century literature, with coverage of authors such as Pulci or Poliziano. **215B.** Age of Lorenzo de' Medici and Poliziano.

216A-216E. Studies in the Renaissance. (4 each) Lecture, three hours; outside study, 18 hours. S/U or letter grading:

216A. Machiavelli and Renaissance Political Thought.

216B. Ariosto and Renaissance Epic.

216C. Tasso.

216D. Renaissance Theater.

216E. Variable Topics. Variable-content seminar on themes and issues of Renaissance literature, with coverage of authors such as Vasari, Leonardo, or Benvenuto.

217. Studies in 17th-Century Literature. (4) Lecture, three hours; outside study, 18 hours. Topics include Galileo and birth of scientific prose, Giordano Bruno, Gian Battista Marino, and baroque poetry. S/U or letter grading.

218A-218D. Studies in 18th-Century Literature. (4 each) Lecture, three hours; outside study, 18 hours. S/U or letter grading:

218A. Vico.

218B. Alfieri.

218C. Goldoni.

218D. Variable Topics. Variable-content seminar on themes and issues of 18th-century literature, with coverage of authors such as Vico or Ludovico.

219A-219D. Studies in 19th-Century Literature. (4 each) Lecture, three hours; outside study, 18 hours. S/U or letter grading:

219A. Foscolo.

219B. Leopardi.

219C. Manzoni.

219D. Variable Topics. Variable-content seminar on themes and issues of 19th-century literature, with coverage of authors such as Carducci, Tommaseo, or Nievo.

220. Studies in Turn-of-the-Century Literature. (4) Lecture, three hours; outside study, 18 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-221E. Studies in 20th-Century Literature. (4 each) Lecture, three hours; outside study, 18 hours. S/U or letter grading:

221A. Variable Topics. Variable-content seminar on themes and issues of 20th-century literature, with coverage of authors such as D'Annunzio, Verga, Marinetti, and Pirandello.

221B. Contemporary Poetry. 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.

221C. 20th-Century Narrative to World War II. 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, Bernari, Marinetti, etc.

221D. 20th-Century Narrative since World War II. 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.

221E. Pirandello and Contemporary Theater. 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.

222A-222B-222C. Studies in History of Italian Language. (4-4-4) Lecture, three hours; outside study, 18 hours. Designed for graduate students. S/U or letter grading:

222A. History of the Italian Language. Historical survey of development of the language from medieval times to unification of the country (1861). *Questione della lingua*, general acceptance of Florentine speech, and its evolution into the national language.

222B. Structure of Modern Italian. Various tendencies in modern and contemporary Italian. Foreign influences in today's Italian language. Relationship between national language and the various dialects.

222C. Italian Dialectology. Historical differentiation of Italian dialects considered in its areal dimension. Specific geolinguistic problems and solutions illustrating growth of the discipline up to its present merging with sociolinguistics as Italian dialects become more vertically defined.

M230A-M230B. Folk Tradition in Italian Literature. (4-4) (Same as Folklore M230A-M230B.) Lecture, two hours.

250A-250D. Seminars: Dante. (4 each) Seminar, three hours.

251. Seminar: Petrarch. (4) Seminar, three hours.

252. Seminar: Boccaccio. (4) Seminar, three hours.

253A-253B-253C. Seminars: Chivalric Poetry in Italy. (4-4-4) Seminar, three hours. Relationship between the genre and its French medieval sources, with study of its evolution in Italy through Pulci, Boiardo, Ariosto, and Tasso.

254. Seminar: Machiavelli. (4) Seminar, three hours.

255A-255B. Seminars: Baroque. (4-4) Seminar, three hours.

256A-256B. Seminars: 18th Century. (4-4) Seminar, three hours.

257A-257B. Seminars: Romanticism. (4-4) Seminar, three hours.

258A-258B. Seminars: Contemporary Italian Literature. (4-4) Seminar, three hours.

M260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (4) (Same as Folklore M261.) Lecture, three hours; outside study, 18 hours. Open to undergraduates with consent of instructor. The conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across a range of texts, some selected from the literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama).

260B. Women in Italian Culture. (4) Lecture, three hours; outside study, 18 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; outside study, 18 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. Designed for graduate students. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental graduate courses.

370. Problems and Methods in Teaching Italian. (4) Lecture, two hours.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495A-495D. Teaching Italian at College Level (2 to 4 units each). Tutorial, to be arranged. **495A.** Techniques in Teaching Italian Literature; **495B.** Techniques in Teaching Italian Culture; **495C.** Techniques in Teaching Italian Conversation; **495D.** Techniques in Teaching Italian Film.

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 M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) S/U grading.

599. Ph.D. Research and Writing. (2 to 12) May be repeated. S/U grading.

LABOR AND WORKPLACE STUDIES

*Interdepartmental Program
College of Letters and Science*

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Daniel J.B. Mitchell, Ph.D., *Chair*

Professors

Samuel A. Culbert, Ph.D. (*Management*)
Janet Currie, Ph.D. (*Economics*)
Miriam A. Golden, Ph.D. (*Political Science*)
Jeffrey T. Grogger, Ph.D. (*Policy Studies*)
Nancy M. Henley, Ph.D. (*Psychology*)
V. Joseph Hotz, Ph.D. (*Economics, Policy Studies*)
Sanford M. Jacoby, Ph.D. (*Management*)
Archie Kleingartner, Ph.D. (*Management, Policy Studies*)
David Lewin, Ph.D. (*Management*)
John H.M. Laslett, D.Phil. (*History*)
Arleen Leibowitz, Ph.D. (*Policy Studies*)
Christine A. Littleton, J.D. (*Law*)
Ruth M. Milkman, Ph.D. (*Sociology*)
Daniel J.B. Mitchell, Ph.D. (*Management, Policy Studies*)
Karen J. Orren, Ph.D. (*Political Science*)
Karen B. Sacks, Ph.D. (*Anthropology*)
Kenneth L. Sokoloff, Ph.D. (*Economics*)
Roger Waldinger, Ph.D. (*Sociology*)
Maurice Zeitlin, Ph.D. (*Sociology*)

Associate Professor

Christopher Erickson, Ph.D. (*Management*)

Assistant Professor

Kathleen McGarry, Ph.D. (*Economics*)

Scope and Objectives

The Labor and Workplace Studies undergraduate specialization is intended to coordinate and enrich offerings on the workplace's connections to the social, political, and economic forces that surround it. Students become acquainted with institutions of the labor market such as public policies, employment practices, and unions. Faculty members from various disciplines are actively engaged in research on some aspect of employee relations, employee organizations, or workplace concerns in the U.S. or other countries. Administration of the program is coordinated through the Institute of Industrial Relations.

Undergraduate Study

Labor and Workplace Studies Specialization

The Labor and Workplace Studies specialization must be taken in conjunction with a major in the social sciences or in Psychology. Students with other majors may be admitted by petition.

Upper Division Requirements

Required: Management 150; Political Science 142C or History 155B; three other courses selected from Chicana and Chicano Studies 120, Economics 150, 151, 152, 181B, 183, Geography 155, History 155A, 155B, Political Science 142C, 169, Psychology M137E, Sociology M163, 171, 173, Women's Studies M163, 171. All students take a one-term specialization seminar designed for the exchange of disciplinary perspectives and directed research toward the end of the program.

Courses in the specialization may also be applied toward the requirements of the major where appropriate.

For further information, contact the Institute of Industrial Relations (310-794-5983) or Professor Daniel J.B. Mitchell (310-825-1504).

LATIN AMERICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
10347 Bunche Hall
Box 951447
Los Angeles, CA 90095-1447

(310) 206-6571
<http://www.isop.ucla.edu/lac/degree.htm>

Allen W. Johnson, Ph.D., *Administrative Head and Cochair*
James W. Wilkie, Ph.D., *Cochair*

Professors

Paul R. Abramson, Ph.D. (*Psychology*)

Rodolfo Alvarez, Ph.D. (*Sociology*)
Shirley L. Arora, Ph.D. (*Spanish*)
Rosina M. Becerra, Ph.D. (*Social Welfare*)
Carole H. Browner, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
Donald G. Buth, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Alfonso F. Cardenas, Ph.D. (*Computer Science*)
Martin L. Cody, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Edwin L. Cooper, Ph.D. (*Neurobiology*)
José de la Torre, D.B.A. (*Management*)
Roger Detels, M.D., M.S. (*Epidemiology*)
Christopher B. Donnan, Ph.D. (*Anthropology*)
John A. Dracup, Ph.D. (*Civil and Environmental Engineering*)
Timothy Earle, Ph.D. (*Anthropology*)
Sebastian Edwards, Ph.D. (*Economics, Management*)
Ralph R. Frerichs, D.V.M., Dr.P.H. (*Epidemiology*)
Teshome H. Gabriel, Ph.D. (*Film and Television*)
Linda C. Garro, Ph.D. (*Anthropology*)
Mario Gerla, Ph.D. (*Computer Science*)
Juan Gómez-Quiñones, Ph.D. (*History*)
Marjorie Goodwin, Ph.D. (*Anthropology*)
Malcolm S. Gordon, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Patricia M. Greenfield, Ph.D. (*Psychology*)
Dominique M. Hanssens, Ph.D. (*Management*)
Arnold C. Harberger, Ph.D. (*Economics*)
John N. Hawkins, Ph.D. (*Education*)
Susanna B. Hecht, Ph.D. (*Urban Planning*)
Henry A. Hespeneheide, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Allen W. Johnson, Ph.D. (*Anthropology*)
J. Randal Johnson, Ph.D. (*Portuguese*)
Marvin Karno, M.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
Cecelia F. Klein, Ph.D. (*Art History*)
Efrain Kristal, Ph.D. (*Spanish*)
David M. Kunzle, Ph.D. (*Art History*)
Edward E. Leamer, Ph.D. (*Management*)
Gerardo Luzuriaga, Ph.D. (*Spanish*)
Peter L. McLaren, Ph.D. (*Education*)
Pamela L. Munro, Ph.D. (*Linguistics*)
Park S. Nobel, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Antony R. Orme, Ph.D. (*Geography*)
C.P. Otero, Ph.D. (*Spanish, Romance Linguistics*)
Susan Plann, Ph.D. (*Spanish*)
A. Carlos Quicoli, Ph.D. (*Portuguese, Romance Linguistics*)
Dwight Read, Ph.D. (*Anthropology*)
Geoffrey B. Saxe, Ph.D. (*Education*)
Hans Schöllhammer, D.B.A. (*Management*)
Edward W. Soja, Ph.D. (*Urban Planning*)
Michael Storper, Ph.D. (*Urban Planning*)
Duncan Thomas, Ph.D. (*Economics*)
Carlos A. Torres, Ph.D. (*Education*)
Hartmut Walter, Ph.D. (*Geography*)
James Diego Vigil, Ph.D. (*Anthropology*)
James W. Wilkie, Ph.D. (*History*)
Maurice Zeitlin, Ph.D. (*Sociology*)

Professors Emeriti

Charles F. Bennett, Ph.D. (*Geography*)
C. Rainer Berger, Ph.D. (*Anthropology, Geography, Geophysics*)
Lester Breslow, M.D., M.P.H. (*Health Services*)
Henry J. Bruman, Ph.D. (*Geography*)
Leland S. Burns, Ph.D. (*Urban Planning*)
Robert N. Burr, Ph.D. (*History*)
Bertram Bussell, Ph.D. (*Computer Science*)
Charlotte A. Crabtree, Ph.D. (*Education*)
E. Mayone Dias, Ph.D. (*Spanish and Portuguese*)
Elsie Dunin, M.A. (*World Arts and Cultures*)
David K. Eiteman, Ph.D. (*Management*)
Walter A. Fogel, Ph.D. (*Management*)
John Friedmann, Ph.D. (*Urban Planning*)
Peter B. Hammond, Ph.D. (*Anthropology*)
Thomas R. Howell, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Claude L. Hulet, Ph.D. (*Portuguese*)
Norris C. Hundley, Ph.D. (*History*)
Isabelle F. Hunt, Dr.P.H. (*Community Health Sciences*)
Frederick C. Kintzer, Ed.D. (*Education*)
James Lockhart, Ph.D. (*History*)

O. Raynal Lunt, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Alfred K. Neumann, M.D. (*Community Health Sciences*)
Henry B. Nicholson, Ph.D. (*Anthropology*)
Russell R. O'Neill, Ph.D. (*Mechanical and Aerospace Engineering*)
David O'Shea, Ph.D. (*Education*)
Richard L. Perrine, Ph.D. (*Civil and Environmental Engineering*)
Jorge R. Preloran, B.A. (*Film and Television*)
Douglass R. Price-Williams, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)
Stanley L. Robe, Ph.D. (*Spanish and Portuguese*)
Jonathan D. Sauer, Ph.D. (*Geography*)
Charles A. Schroeder, Ph.D. (*Organismic Biology, Ecology, and Evolution*)
Carol Scothorn, M.A. (*World Arts and Cultures*)
Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)
Robert M. Stevenson, Ph.D. (*Musicology*)
Norman J.W. Thrower, Ph.D. (*Geography*)
Johannes Wilbert, Ph.D. (*Anthropology*)

Associate Professors

Theodore A. Andersen, Ph.D. (*Management*)
Adriana Bergero, Ph.D. (*Spanish*)
Judith A. Carney, Ph.D. (*Geography*)
Verónica Cortínez, Ph.D. (*Spanish*)
Leobardo Estrada, Ph.D. (*Urban Planning*)
Barbara Geddes, Ph.D. (*Political Science*)
Guillermo Hernández, Ph.D. (*Spanish*)
Robert A. Hill, M.Sc. (*History*)
Richard M. Leventhal, Ph.D. (*Anthropology*)
David E. López, Ph.D. (*Sociology*)
Steven J. Loza, Ph.D. (*Ethnomusicology*)
José Moya, Ph.D. (*History*)
Alfred E. Osborne, Jr., Ph.D. (*Management*)
Claudia Parodi-Lewin, Ph.D. (*Spanish*)
John V. Richardson, Ph.D. (*Library and Information Science*)
Raymond A. Rocco, Ph.D. (*Political Science*)
A. John Skirius, Ph.D. (*Spanish*)
Charles L. Stanish, Ph.D. (*Anthropology*)
Edward E. Telles, Ph.D. (*Sociology*)
Concepción Valadez, Ph.D. (*Education*)
Jane L. Valentine, Ph.D. (*Environmental Health Sciences*)
Carlos Vegh, Ph.D. (*Economics*)
Edit Villarreal, Ph.D. (*Theater*)

Assistant Professors

Alfredo J. Artiles, Ph.D. (*Education*)
Raul Hinojosa-Ojeda, Ph.D. (*Urban Planning*)
Richard Lesure, Ph.D. (*Anthropology*)
William Summerhill, Ph.D. (*History*)
Kevin B. Terraciano, Ph.D. (*History*)
C. Fabian Wagmister, M.F.A. (*Film and Television*)

Lecturers

José M. Cruz-Salvadores, M.A. (*Spanish*)
Berta Graciano, Ph.D. (*Spanish*)
Larry Lauerhass, Ph.D. (*History*), *Emeritus*
Linda Rodríguez, Ph.D. (*History*)
Susan Schaffer, Ph.D. (*Spanish*)

Adjunct Associate Professor

Ichak Adizes, Ph.D. (*Management*)

Scope and Objectives

UCLA has been in the forefront of U.S. universities with significant teaching and research interests in Latin American studies for more than 50 years. More than 100 faculty members from 22 departments and professional schools regularly offer a broad range of courses with an emphasis on Latin America. These courses offerings in the humanities, social sciences, fine arts, and professional fields provide students a unique opportunity to focus on Latin America, a region of growing importance.

The Latin American Studies Program, coordinated through UCLA's Latin American Center, offers the Bachelor of Arts and Master of Arts degrees. In the undergraduate major students develop a program combining language and methodological training with interdisciplinary studies in one of three areas: arts and humanities, social sciences, or ecology and environment. At the graduate level, students pursue more specialized coursework and interests, culminating in an interdisciplinary research study. Cooperative degree programs with the UCLA Schools of Education and Information Studies, Management, Public Health, and Public Policy and Social Research provide the opportunity to combine the M.A. in Latin American Studies with a master's degree in a professional field.

Undergraduate Study

Latin American Studies B.A.

Undergraduate studies of the Latin American region are designed to serve the needs of students (1) desiring a general education focused on the Latin American cultural region, (2) planning to enter business, government, or international agency service, (3) preparing to teach social sciences or language, and (4) preparing for advanced academic study of Latin America.

Students must complete all preparation courses with a C (2.0) in each course; the courses are applicable toward the Letters and Science lower division general education requirements.

Foreign Language Requirement

Language requirements are uniform for all students in the major regardless of core area. Proficiency in two languages equivalent to (1) Spanish 25 and Portuguese 3 or (2) Portuguese 25 and Spanish 5 is required. In lieu of Portuguese 1, 2, and 3, students may take Portuguese 102A-102B which are designed for those with a background in Spanish. An indigenous language of Latin America (i.e., Quechua) may be substituted for the minor language.

Course Limitations

Students may not take more than eight units of Latin American Studies 199 for letter-grade credit nor more than eight units in any single term. No course taken on a Passed/Not Passed basis may be applied toward the B.A. degree requirements. In order to register in a 199 course, students must have advanced junior standing and an overall grade-point average of 3.0, or senior standing.

Double Majors

Through judicious use of electives, students may find it possible to obtain the B.A. degree with two majors (e.g., Latin American Studies and History). Interested students who have achieved junior standing should consult the undergraduate advisers of both departments involved, initiating the appropriate petition with

the undergraduate adviser in Latin American Studies.

Study in Latin America

Students are encouraged to spend up to one year in Latin America either (1) to study with an education abroad program, (2) to study in Latin American universities, (3) to conduct research, or (4) to complete an internship in an international or development agency. Full credit is granted according to the individual programs arranged in consultation with the undergraduate adviser. For information on studying in Mexico, Costa Rica, Chile, or Brazil, contact the Education Abroad Program, 1105 Hershey Hall, (310) 794-9820.

Core Areas for the Major

Students select one of three core areas as the focus of their major: arts and humanities, social sciences, or ecology and environment. Requirements for each core area are listed below.

Core I: Arts and Humanities

Preparation

Required: Two courses from History 8A, 8B, 8C; Latin American Studies 99 (or 197 with department consent); Spanish and Portuguese M44; Art History 55A or 55B or Ethnomusicology 91K and World Arts and Cultures 73B.

Core Area

Required: Ten upper division courses from the approved list of Latin American courses distributed as follows:

(1) *Core Concentration:* Five courses as listed below in either the literature and folklore field or the linguistics field selected from Portuguese or Spanish, or in the fine arts field selected from art history or ethnomusicology. Only one course from the electives list may be applied toward the core concentration.

(2) *Theory and Methods:* One course from theory and methods.

(3) *Internal Breadth:* Four additional courses from the arts and humanities core area but outside the core concentration. No more than two of these may be electives.

External Breadth

Required: From the approved list, six upper division courses outside the arts and humanities core area distributed as follows: at least two courses in social sciences (e.g., history) and two courses in ecology and environment (e.g., geography). The two additional courses required may be from either social sciences or ecology and environment. No more than three external breadth courses may be electives.

Approved Undergraduate Courses

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

(1) Literature and Folklore

Folklore and Mythology

M149. Folk Literature of the Hispanic World

History

169. Latin American Elitology

Portuguese (Spanish and Portuguese)

130A-130B. Brazilian Literature and Identity: Introduction

C132. 19th-Century Brazilian Literature and Culture

C133. Machado de Assis

C134. Brazilian Modernism

C135. 20th-Century Brazilian Literature

141. Brazilian Film and Literature

Spanish (Spanish and Portuguese)

137. Literature of Colonial Spanish America

139. Romanticism and Realism in Spanish-American Literature

140. *Modernismo*

142. 20th-Century Spanish-American Literature: Fiction and the Essay

143. 20th-Century Spanish-American Literature: Poetry and Drama

144. Mexican Literature

M149. Folk Literature of the Hispanic World

151B. Women in Hispanic Literature: Spanish America

M161. Film and Literature of the Spanish-Speaking World

170. Senior Honors Tutorial

197A. Studies in Hispanic Culture and Civilization

Theory and Methods

Folklore and Mythology

101. Introduction to Folklore

190. Selected Topics in Folklore and Mythology Studies

199. Special Studies in Folklore

Portuguese (Spanish and Portuguese)

199. Special Studies

Spanish (Spanish and Portuguese)

119A. Introduction to Study of Literature: Prose

119B. Introduction to Study of Literature: Poetry and Drama

199. Special Studies

(2) Fine Arts

Art History

*110F. Selected Topics in Modern Art: Latin America

*110G. Art and Politics in the Contemporary Americas: Latin America

*C110H. Latin American Art of the 20th Century

C117A. Pre-Columbian Art of Mexico

C117B. Pre-Columbian Art of the Maya

C117C. Pre-Columbian Art of the Andes

C117D. Aztec Art

118A. Arts of Oceania

Ethnomusicology

M108A-108B. Music of Latin America

113. Music of Brazil

M115. Musical Aesthetics in Los Angeles

M131. Development of Latin Jazz

191K. Advanced Music of Mexico

Film and Television

106C. History of African, Asian, and Latin American Film

World Arts and Cultures

C173B. Dance of Mexico

C180B. Studies in Dance Ethnography: Field Research

183. Dance in Latino American Cultures

Theory and Methods**Art History**

*199. Special Studies in Art

Ethnomusicology

*M180. Analysis of Traditional Music
 *190. Study of Ethnomusicology
 *199E. Special Studies in Ethnomusicology

Film and Television

199. Special Studies in Film and Television

World Arts and Cultures

*199. Special Studies in World Arts and Cultures

(3) Linguistics**Portuguese (Spanish and Portuguese)**

100A. Phonology and Morphology
 *100B. Syntax
 *M118A. History of Portuguese and Spanish: Phonology
 *M118B. History of Portuguese and Spanish: Morphology and Syntax

Spanish (Spanish and Portuguese)

*100A. Introduction to Study of Spanish Grammar: Phonology and Morphology
 *100B. Introduction to Study of Spanish Grammar: Syntax
 *115. Applied Linguistics
 *M118A. History of Portuguese and Spanish: Phonology
 *M118B. History of Portuguese and Spanish: Morphology and Syntax
 *119A. Introduction to Study of Literature: Prose
 *119B. Introduction to Study of Literature: Poetry and Drama
 *170. Senior Honors Tutorial

Theory and Methods**Linguistics**

*103. Introduction to General Phonetics
 *110. Introduction to Historical Linguistics
 *120A. Phonology I
 *120B. Syntax I
 M146. Language in Culture
 *165A. Phonology II
 *165B. Syntax II
 *170. Language and Society: Introduction to Sociolinguistics
 *199. Special Studies in Linguistics

Portuguese (Spanish and Portuguese)

*199. Special Studies

Spanish (Spanish and Portuguese)

*199. Special Studies

(4) Electives**Ethnomusicology**

*M110A-M110B. African American Musical Heritage

Film and Television

112. Film and Social Change

Folklore and Mythology

*118. Folk Art, Folklife, and Material Culture
 *190. Selected Topics in Folklore and Mythology Studies

Latin American Studies

197. Interdisciplinary Topics in Latin American Studies
 199. Special Studies in Latin American Studies

Theater

M103C. Origins and Evolution of Chicano Theater

Core II: Social Sciences**Preparation**

Required: Two courses from History 8A, 8B, 8C; Latin American Studies 99 (or 197 with department consent); Economics 1 and 2, or 100; Economics M40 or Sociology M18 or Statistics 10.

Core Area

Required: Ten upper division courses from the approved list of Latin American courses distributed as follows:

(1) *Core Concentration:* Five courses as listed below in one of the five fields (anthropology and sociology or economics or geography or history or political science). Only one course from the electives list may be applied toward the core concentration.

(2) *Theory and Methods:* One course from theory and methods.

(3) *Internal Breadth:* Four additional courses from the social sciences core area but outside the core concentration. No more than two of these may be electives.

External Breadth

Required: From the approved list, six upper division courses outside the social sciences core area distributed as follows: at least two courses in arts and humanities (e.g., fine arts) and two courses in ecology and environment (e.g., geography). The two additional courses required may be from either arts and humanities or ecology and environment. No more than three external breadth courses may be electives.

Approved Undergraduate Courses

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

(1) Anthropology and Sociology**Anthropology**

114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere)
 114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)
 114R. Ancient Civilizations of Andean South America
 173Q. Latin American Communities
 174P. Ethnography of South American Indians

Sociology

186. Latin American Societies

Theory and Methods**Anthropology**

C114S. Comparative Study of Ancient States: Latin America
 *115P. Archaeological Field Training
 *C115R. Strategy of Archaeology
 *M116Q. Dating Techniques in Environmental Sciences and Archaeology
 *M136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques
 *138. Methods and Techniques of Ethnohistory
 *139. Field Methods in Cultural Anthropology
 M140. Language in Culture

*180. Quantitative Methods in Anthropology
 *186. Models and Modeling in Anthropology
 *199. Special Studies in Anthropology

Sociology

*104. Introduction to Sociological Research Methods
 *C112. Introduction to Mathematical Sociology
 *199. Special Studies

(2) Economics**Economics**

*110. Economic Problems of Underdeveloped Countries
 *111. Theories of Economic Growth and Development
 *112. Policies for Economic Development
 *190. International Economics
 *191. International Trade Theory
 *192. International Finance

Theory and Methods**Economics**

*103A-103Z. Upper Division Research Seminars: Applications of Economic Theory
 *M135. Economic Models of Public Choice
 *199. Special Studies in Economics

Management

*197. Special Topics in Management

(3) History**History**

165A. Early Latin America
 165C. Indians of Colonial Mexico
 166. Latin America in the 19th Century
 167A-167D. Latin America in the 20th Century
 168. History of Latin American International Relations
 169. Latin American Eliteloire
 170A. Latin American Cultural History
 170B. Classic Travel Accounts of Latin America since 1735
 170C. Issues in Latin American History
 171. Mexican Revolution since 1910
 172. History of Argentina
 173. Modern Brazil
 174. Brazilian Intellectual History
 197A-197Z. Undergraduate Seminars: Latin America

Theory and Methods**History**

197A-197Z. Undergraduate Seminars: Latin America
 *199. Special Studies in History

Information Studies

111C. Ethnic Groups and Their Bibliographies: Latino History and Culture

(4) Political Science**Political Science**

130. Politics of Latin American Economic Development
 131. Latin American International Relations
 *139A-139Z. Special Studies in International Relations: Latin America
 *149. Special Topics in American Government and Politics
 154A-154B. Government and Politics in Latin America
 *169. Special Studies in Comparative Politics: Latin America
 199. Readings in Political Science: Latin America

Theory and Methods**Political Science**

*102. Statistical Analysis of Political Data
 *104A-104B. Introduction to Survey Research
 *M105. Economic Models of Public Choice

- *113. Problems in 20th-Century Political Theory
- *119A-119Z. Special Studies in Political Theory
- *137A-137B. International Relations Theory
- *168. Comparative Political Analysis

(5) Geography

Geography

- 121. Conservation of Resources: Underdeveloped World
- *126. Geography of Extinction
- *M128. Global Environment and Development: Problems and Issues
- 133. Cultural Geography of the Modern World
- *142. Population Geography
- 181. Mexico, Central America, Caribbean
- 182A. Spanish South America
- 182B. Brazil
- *199. Special Studies

Theory and Methods

Geography

- *171. Quantitative Analysis

(6) Electives

Anthropology

- *153. Evolution of Human Societies
- *M154P. Gender Systems: North American
- *161. Development Anthropology
- *167. Urban Anthropology
- *M168. Culture, Illness, and Healing

Economics

- *120. Introduction to Urban and Regional Economics
- *180. Comparative Systems: Transformation of Socialist Economies

Geography

- *108. World Vegetation
- *111. Forest Ecosystems
- *M115. Environmentalism: Past, Present, and Future
- *129. Seminar: Environmental Studies
- *140. Political Geography

History

- M159A, M159B. History of the Chicano Peoples

Latin American Studies

- 197. Interdisciplinary Topics in Latin American Studies
- 199. Special Studies in Latin American Studies

Political Science

- *124. International Political Economy
- M144A. Ethnic Politics: Chicano/Latino Politics
- *167A. Ideology and Development in World Politics
- *167B. Comparative Development and Administration
- *168. Comparative Political Analysis
- *M197G. Introduction to Development Studies: Political Economy of Development

Sociology

- *116. Social Demography
- *154. Race and Ethnicity: International Perspectives
- *157. Social Stratification
- *182. Political Sociology
- 184. Social Change

Core III: Ecology and Environment

Preparation

Required: Two courses from History 8A, 8B, 8C; Latin American Studies 99; Geography 5; Statistics 10.

Core Area

Required: Ten upper division courses from the approved list of Latin American courses distributed as follows:

(1) *Core Concentration:* Five courses as listed below in geography. Only one course from the electives list may be applied toward the core concentration.

(2) *Theory and Methods:* One course from theory and methods.

(3) *Internal Breadth:* Four additional courses from the ecology and environment core area to be selected from theory and methods core courses or electives.

External Breadth

Required: From the approved list, six upper division courses outside the ecology and environment core area distributed as follows: at least two courses in arts and humanities (e.g., fine arts) and two courses in social sciences (e.g., history). The two additional courses required may be from either arts and humanities or social sciences. No more than three external breadth courses may be electives.

Approved Undergraduate Courses

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

Community Health Sciences

- 132. Health, Disease, and Health Services in Latin America

Geography

- 121. Conservation of Resources: Underdeveloped World
- *M128. Global Environment and Development: Problems and Issues
- 133. Cultural Geography of the Modern World
- *142. Population Geography
- 181. Mexico, Central America, Caribbean
- 182A. Spanish South America
- 182B. Brazil
- *199. Special Studies

Theory and Methods

Anthropology

- *180. Quantitative Methods in Anthropology
- *186. Models and Modeling in Anthropology

Geography

- *171. Quantitative Analysis

Electives

Anthropology

- *153. Evolution of Human Societies
- *167. Urban Anthropology
- M168. Culture, Illness, and Healing

Community Health Sciences

- *130. Nutrition and Health

Economics

- *120. Introduction to Urban and Regional Economics

Geography

- *108. World Vegetation
- *111. Forest Ecosystems
- *M115. Environmentalism: Past, Present, and Future
- *126. Geography of Extinction
- *M128. Global Environment and Development: Problems and Issues
- *129. Seminar: Environmental Studies
- *140. Political Geography

Latin American Studies

- 197. Interdisciplinary Topics in Latin American Studies
- 199. Special Studies in Latin American Studies

Sociology

- *116. Social Demography

Latin American Studies Minor

The interdisciplinary program leading to the Latin American Studies minor allows students to choose from a broad range of course offerings in various departments to develop professional and methodological skills with area expertise.

To enter the minor, students must have an overall grade-point average of 2.0 or better and have completed 45 units. For further information, contact Carolyn Ramirez-La Faso at (310) 206-6571.

Required Lower Division Courses (eight units): History 8A or 8B or 8C or Latin American Studies 99, Spanish 25 or Portuguese 25.

Required Upper Division Courses (20 units): Five courses selected from the approved list of Latin American studies courses in at least two of the following fields: (1) arts and humanities (art history, ethnomusicology, folklore, Spanish and Portuguese), (2) ecology and environment (geography, public health), (3) social sciences (anthropology, economics, history, political science, sociology). No more than four units of course 199 may be applied toward the minor, and at least three upper division courses (12 units) must be taken in residence at UCLA.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Latin American Studies Program offers the Master of Arts (M.A.) degree in Latin American Studies and participates in articulated or concurrent degree programs with the Department of Education, the Department of Information Studies, the School of Public Health, the Department of Urban Planning, and the John E. Anderson Graduate School of Management.

Admission

In addition to University minimum requirements, the B.A. degree in Latin American Studies

ies constitutes the normal basis for admission to the M.A. program. Applicants with a degree in another field can be admitted but must complete certain undergraduate requisites subsequent to admission. Applicants with Latin American field experience or special methodological studies are given special consideration. All applicants should meet minimum requirements in at least one language of Latin America. The following items are required:

- (1) Three academic letters of recommendation, unless the applicant has been away from school for some time, in which case one of the letters may be from an employer
- (2) A minimum of a 3.0 or B average in the junior/senior years of college
- (3) A statement of purpose discussing the applicant's background in Latin American studies, proposed program of study, and future career plans
- (4) A minimum score of 1,000 on the General Test (combined verbal and quantitative sections) of the Graduate Record Examination (GRE)

Optional: a résumé or curriculum vitae describing both academic and Latin American experience.

Students are admitted each quarter. Application deadlines are November 1 for Winter Quarter, December 31 for Spring Quarter, and December 15 (to be considered for financial assistance) or May 1 for Fall Quarter.

Several options are available to combine the M.A. in Latin American Studies with a professional degree. After acceptance by both the Latin American Studies Program and the respective professional school, students may pursue both degrees simultaneously.

Articulated Degree Programs

Articulated degree programs are currently available with the (1) Department of Education in the Graduate School of Education and Information Studies (Master of Education in Curriculum); (2) Department of Information Studies in the Graduate School of Education and Information Studies (Master of Library and Information Science); (3) School of Public Health (Master of Public Health).

Concurrent Degree Programs

Concurrent degree programs are available with the (1) Department of Urban Planning in the School of Public Policy and Social Research (Master of Arts in Urban Planning) and (2) John E. Anderson Graduate School of Management (Master of Business Administration).

Fellowship applications for the academic year are due on January 8 prior to the Fall Quarter for which application is made. Prospective students may write to the department for departmental brochures.

Areas of Study

Students are expected to develop and integrate two or three fields in Latin American studies, to be selected from the following: an-

thropology, art, economics, education, engineering, folklore, geography, history, law, library science, linguistics, management, music, political science, Portuguese, public health, sociology, Spanish, theater arts, and urban planning. At least one of the chosen fields must be a social science.

Course Requirements

Latin American Studies 205 is a core course required of all M.A. students, to be taken during the first Fall Quarter in residence.

All courses must be selected from the department-approved list of courses. Other courses must be petitioned in advance. Courses numbered in the 300- and 400-series are not applicable toward the M.A. degree. Graduate courses may be repeated unless they are of the lecture type.

No more than eight units of 500-series courses may be applied toward the total course requirement for the M.A. degree; no more than four units may be applied toward the minimum five graduate courses required for the M.A. degree.

Comprehensive Examination Plan

A minimum of nine courses is required, to be distributed among three fields or disciplines on a 3-3-2 basis or among two fields on a 4-4 basis. Of the nine courses, five must be at the graduate level, with at least one in each of the three fields.

The examination requirement is fulfilled by the submission of three research papers written for at least two of the three fields included as part of the program of study. At least two of these papers must have been submitted for graduate courses in the 200 series. The papers are evaluated by a three-member faculty committee representing the degree candidate's three fields or both fields if the candidate is doing only two fields. Two positive votes among the three-member faculty examination committee constitutes a pass on the results. The committee evaluates the papers in the following terms: honor pass (a unanimous vote), pass, pass subject to revision of one or more of the research papers, or fail (majority vote). If two of the three members of the committee so request, an oral examination based on the papers may be required. When papers are passed subject to revision, one member of the committee is assigned the responsibility of working with the student on the revision and determining when the paper has been satisfactorily revised. No reexaminations are permitted. The degree is awarded on recommendation of the faculty committee. Copies of the papers are filed in the Academic Programs Office of the Latin American Center.

Thesis Plan

Although students are generally expected to follow the M.A. comprehensive examination plan, in special cases they may be allowed to follow the M.A. thesis plan. Students must develop a carefully prepared proposal to be approved by the academic coordinator in consultation with the faculty committee chair. To be

approved, the proposal must provide sound justification for the thesis plan, including provisions for funding any field research.

A minimum of 10 courses is required, consisting of a one-term core course and nine additional courses to be distributed on a 4-3-2 basis among three fields. Three graduate-level courses are required in the first field, with one each in the two minor fields.

Once the thesis plan option has been approved, students choose a three-member faculty thesis committee consisting of one professor from each of three disciplines, one of whom has already agreed to serve as chair. The thesis committee works closely with students in the development, writing, and revision of the thesis and is responsible for reading, evaluating, and approving the drafts and final version of the thesis, ensuring thereby that it meets the University standards of scholarship. Once the final version is approved, the thesis committee recommends the award of the M.A. degree. By the end of the quarter before graduation, students must file for advancement to candidacy with the Graduate Division.

Latin American Studies

Lower Division Course

99. Introduction to Latin American Problems. (4) Limited to 15 students. Interdisciplinary seminar for lower division students. May be repeated for credit with topic change.

Upper Division Courses

197. Interdisciplinary Topics in Latin American Studies. (4) Advanced interdisciplinary course for juniors/seniors. May be repeated for credit with topic change:

M197A. Introduction to Caribbean Literature. (Same as Spanish M197A.) Lecture, two hours; discussion, two hours. Interdisciplinary introduction to literature of French, Spanish, and English Caribbean.

199. Special Studies in Latin American Studies (4 or 8). Limited to juniors/seniors. Intensive directed research program in which students conduct interdisciplinary research or complete internship with an international agency or program dealing with Latin America. Faculty sponsorship and written reports required.

Graduate Courses

M200. Latin American Research Resources. (4) (Same as History M265 and Library and Information Science M225.) Seminar, three hours. General and specialized materials in fields concerned with Latin American studies. Library research techniques provide experience and competency required for future bibliographic and research sophistication as basis for enhanced research results.

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.)

M250A. Indians of South America. (4) (Same as Anthropology M272.) Lecture, three hours. Survey of literature and research topics related to Indian cultures of South America. May be repeated for credit.

250B. Interdisciplinary Seminar: Latin American Studies. (4) Seminar, three hours. Problem-oriented seminar on critical areas stressed in University's cooperative 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.

M268A-M268B. Seminars: Recent Latin American History. (4) (Same as History M268A-M268B.) Seminar, three hours. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature. In Progress 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) May be repeated, but only four units may be applied toward the minimum graduate course requirement. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination. (4) Ordinarily taken only during term in which student is being examined. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4) Only four units may be applied toward the minimum graduate course requirement. S/U grading.

Course List

Approved Graduate Courses

Special courses which may be applied toward the M.A. degree requirements with advanced departmental approval are indicated with asterisks. These courses do not have any exclusive focus on Latin America but provide an opportunity for students to relate a particular perspective or phenomenon to Latin America.

Refer to the Latin American Studies undergraduate section for the lists of approved undergraduate courses.

Fine Arts

Art History

*201. Topics in Historiography of Art History

C218A. Pre-Columbian Art of Mexico

C218B. Pre-Columbian Art of the Maya

C218C. Pre-Columbian Art of the Andes

C218D. Aztec Art

219B. Pre-Columbian Art

220. Oceanic, Pre-Columbian, African, and Native North American Art

C254. Latin American Art of the 20th Century

596. Directed Individual Study or Research

Ethnomusicology

201A. Proseminar: Ethnomusicology

208. Seminar: Latin American Music

*290. Seminar: Ethnomusicology

596. Directed Individual Studies

Film and Television

276. Seminar: Non-Western Films — Mexican Cinema

*298A-298B. Special Studies in Film and Television

Theater

*210. Topics in World Theater and Drama

World Arts and Cultures

*280A-280B. Advanced Studies in Dance Ethnology

Languages

Indigenous Languages of the Americas (Linguistics)

*18A-18B-18C. Elementary Quechua

Portuguese (Spanish and Portuguese)

*1. Elementary Portuguese

2. Elementary Portuguese

3. Intermediate Portuguese

25. Advanced Portuguese

102A-102B. Intensive Portuguese

*105. Advanced Composition and Style

Spanish (Spanish and Portuguese)

*1. Elementary Spanish

*1G. Reading Course for Graduate Students

2. Elementary Spanish

2G. Reading Course for Graduate Students

3. Elementary Spanish

4. Intermediate Spanish

5. Intermediate Spanish

25. Advanced Spanish and Composition

*105. Spanish Composition

Linguistics

Anthropology

204. Core Seminar: Linguistic Anthropology

Linguistics

*210A. Field Methods I

*210B. Field Methods II

*220. Linguistic Areas

*225. Linguistic Structures

M246C. Topics in Linguistic Anthropology

Portuguese (Spanish and Portuguese)

*202. Synchronic Morphology and Phonology

*204A-204B. Generative Grammar

*M205A-M205B. Development of Portuguese and Spanish Languages

Spanish (Spanish and Portuguese)

*202A. Phonology

*202B. Morphology

*204A-204B. Generative Syntax and Semantics

*M205A-M205B. Development of Portuguese and Spanish Languages

*209. Dialectology

*256A-256B. Studies in Spanish Linguistics

*257. Studies in Dialectology

Literature

Portuguese (Spanish and Portuguese)

C231. Colonial Brazilian Literature and Culture

C232. 19th-Century Brazilian Literature and Culture

C233. Machado de Assis

C234. Brazilian Modernism

C235. 20th-Century Brazilian Literature

M249. Folk Literature of the Spanish and Portuguese Worlds

254. Studies in Early Brazilian Literature

255. Studies in Modern Brazilian Literature

Spanish (Spanish and Portuguese)

237. Literature of the Spanish Conquest

238. Baroque, Enlightenment, and Neoclassicism in Colonial Literature

239. Romanticism and Realism in Spanish-American Literature

240. Major Currents in Modern Spanish-American Literature

241A-241B. Contemporary Spanish-American Short Story

243A-243B. Contemporary Spanish-American Poetry

244A-244B. Contemporary Spanish-American Novel

245. Contemporary Spanish-American Essay

246. Contemporary Spanish-American Drama

M249. Folk Literature of the Spanish and Portuguese Worlds

277A-277B. Studies in Colonial Spanish-American Literature

278A-278B. Studies in 19th-Century Spanish-American Literature

280A-280B. Studies in Contemporary Spanish-American Literature

*M286A-M286B. Studies in Hispanic Folk Literature

290. Special Topics: Latin American Literature

Professional

Community Health Sciences

200. Global Health Problems

210. Community Health Sciences

M216. Qualitative Research Methodology

*231. Maternal and Child Nutrition

M232. Determinants of Health

M239. Race and Ethnicity as a Concept in Practice and Research

282. Communication in Health Promotion and Education

Education

*C203. Educational Anthropology

*204B. Introduction to Comparative Education

*204C. Education and National Development

204D. Minority Education in Cross-Cultural Perspective

204E. International Efforts in Education

204F. Nonformal Education in Comparative Perspective

*C207. Politics of Education

*238. Cross-National Analysis of Higher Education

*252B. Seminar: Education and Social Change

*253A. Seminar: Current Problems in Comparative Education

253D. Seminar: Latin American Education

*253F. Seminar: Education in Revolutionary Societies

*253H. Seminar: The Chicano/Hispanic and Education

262F. Seminar: Research Topics in Bilingual/Multicultural Education

*596. Directed Independent Study

Engineering

*596. Directed Individual or Tutorial Studies (selected from any of the engineering departments)

Epidemiology

220. Principles of Infectious Disease Epidemiology

227. AIDS: A Major Public Health Challenge

280. Parasitic Diseases and Global Health

290. Seminar: Epidemiology — Infectious and Tropical Disease

*291. Seminar: Epidemiology — Methodology

293. International HIV/AIDS Seminar

Health Services

*240. Health Care Issues in International Perspective

Information Studies

*207. International Issues and Comparative Research in Library and Information Science

*223. Literature of the Social Sciences

*224. Literature of the Humanities and Fine Arts

M225. Latin American Research Resources

*596. Directed Individual Study or Research

Law

*270. International Trade Law

*271. International Business Transactions

*290A. International Environmental Law

Management

*205A. International Business Economics

*205B. Comparative Market Structure and Competition

209. Selected Topics in Business Economics

*234A. International Financial Markets

*234B. Financial Management of Multinational Corporations

*261B. Global Marketing Management

*M293B. Morality of Capitalism

- *296A. International Business Management
- *297A. Comparative and International Management
- *297C. International Business Law
- *297D. International Business Negotiations
- *298B. Special Topics in International and Comparative Management
- *298C. Special Topics in Sociotechnical Systems
- *298D. Special Topics in Management
- 596. Research in Management

Public Health

- *596. Directed Individual Study or Research (selected from any of the public health departments)

Urban Planning

- *M232A. Introduction to Regional Planning: Evolution of Regional Planning Doctrines
- *232B. Spatial Planning: Regional and International Development
- *235A-235B. Urbanization and Rural Development in Third World Countries
- *M236A. Theories of Regional Economic Development I
- *236B. Theories of Regional Economic Development II
- 236C. Regional World: Territorial Development in Global Economy
- 239. Special Topics in Urban and Regional Development Policy
- 246. Housing in Social and Economic Development Policy
- C252. Global Environment and Development: Problems and Issues
- 266. City and Countryside in the Third World
- M267A. Resource-Based Development Issues: First World and Third World — Environmental Issues and Processes
- 267B. Rural Development Issues
- 269. Special Topics in Environmental Analysis and Policy
- 596. Research in Planning

Social Sciences

Anthropology

- *214. Selected Topics in Prehistoric Civilizations of the New World
- M241. Topics in Linguistic Anthropology
- 242. Ethnography of Communication
- *260. Urban Anthropology
- M272. Indians of South America
- M284. Qualitative Research Methodology
- 285P. Selected Topics in Anthropological/Archaeological Theory

Archaeology

- *259. Fieldwork in Archaeology
- 596. Individual Studies for Graduate Students

Economics

- *281A. International Trade Theory
- *281B. International Finance
- *282A-282Z. Topics in International Economics: Latin America
- *286A. Economic Development
- *286B. Cost-Benefit Analysis of Development Projects
- 287A-287Z. Topics in Development Economics
- 596. Individual Study

Folklore and Mythology

- *200B. Fieldwork
- 248. Theory and Method in Latin American Folklore Studies
- *M249. Folk Literature of the Spanish and Portuguese Worlds
- *M286A-M286B. Studies in Hispanic Folk Literature

Geography

- *223. Seminar: Humid Tropics

- *M229. Resource-Based Development Issues: First World and Third World — Environmental Issues and Processes

- *231. Terminology and Theory in Political Economy: Deconstruction and Reconstruction of Approaches in Research, Writing, and Practice

- 233. Seminar: Cultural Geography — Latin America

- *234. Environment and Subsistence in Indigenous Countries

- *240. Advanced Political Geography: Geopolitics

- *242. Advanced Population Geography

- *292. Advanced Regional Geography: Selected Regions — Latin America

- 596. Directed Individual Study or Research

History

- 200I. Advanced Historiography: Latin America

- 201I. Topics in History: Latin America

- M265. Latin American Research Resources

- 266A-266B. Seminars: Colonial Latin American History

- 267A-267B. Seminars: Latin American History, 19th and 20th Centuries

- M268A-M268B. Seminars: Recent Latin American History

Latin American Studies

- M200. Latin American Research Resources

- 205. Latin Americanist Scholarship

- M250A. Indians of South America

- 250B. Interdisciplinary Seminar: Latin American Studies

- 250C. Interdisciplinary Topics in Latin American Studies

Political Science

- 220. International Relations Theory

- *C227. Foreign Policy Process

- 230. Contending Perspectives on International Political Economy

- *231. International Political Economy I

- *C239. Selected Topics in International Relations

- 240A-240B. Seminars: Comparative Politics

- C244. Latin American Politics

- 255. Seminar: Political Change

- *259. Selected Topics in Comparative Politics

Sociology

- 231. Race and Ethnicity: International Perspectives

- *235. Theories of Ethnicity

- *259. Social Structure and Economic Change: Historical and Comparative Perspectives

- *263. Social Stratification

- 278. Sociology of Latin America

- 285A. Special Topics in Sociology: Social Movements in Latin America

- 285C. Special Topics in Sociology: Race Relations in Brazil

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 Jill Brown, J.D.
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 Edward McAniff, LL.B.
 Schuyler Moore, J.D.
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 John J. Power, M.B.A.
 Laurence H. Pretty, B.Sc., J.D.
 Joel Rabinovitz, LL.B.
 Catherine Sabatini, M.A., J.D.
 Pamela Woods, J.D.
 Kenneth Ziffren, J.D.

Visiting Professor

Elliot Dorff, M.H.L., Ph.D.

Scope and Objectives

The School of Law, one of two academic units at UCLA which operate on a semester (rather than quarter) system, offers a three-year curriculum leading to the J.D. degree. The school is accredited by the California Committee of Bar Examiners, is a member of the Association of American Law Schools, and is on the approved list of the American Bar Association. Graduates of the school are qualified to apply for admission to practice in any state in the U.S.

The school is designed to produce lawyers who are well-prepared for the various private and public roles that are assigned to members of the legal profession. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields

Professional Study

Juris Doctor Degree

Admission

Students beginning their professional work are admitted only for the Fall Semester. They must have received a bachelor's degree from a university or college of approved standing before beginning work in the school and are required to take the Law School Admission Test (LSAT).

The school seeks to admit students of outstanding intellectual ability who bring a wide range of backgrounds, experiences, and perspectives to the classroom and the legal profession. The faculty has concluded that the quality of the education of students is affected in significant ways by the presence of vital diverse viewpoints; students of all backgrounds select UCLA in significant part because of the school's outstanding achievement in creating a highly diverse educational environment.

In evaluating applicants the school places substantial weight on traditional measures of academic ability, namely grades and LSAT scores, and recognizes that other factors and attributes contribute greatly to people's ability to succeed as law students and lawyers. When assessing academic promise and achievement, an applicant's entire file is considered, including letters of recommendation, whether economic, physical, or other challenges have been overcome, scholarly achievements such as graduate study, awards, or publications, and the rigor of the undergraduate educational program.

In addition, the school considers attributes that may contribute to assembling a diverse class, placing special emphasis on socioeconomic disadvantage. Also evaluated are work experience and career achievement, community or public service, career goals (with particular attention to the likelihood of applicants representing underrepresented communities), evidence of and potential for leadership, language ability, unusual life experiences, and any other factors (except those deemed inadmissible by The Regents or by other applicable law) that indicate applicants may significantly diversify the student body or make a distinctive contribution to the school or the legal profession.

UCLA has as one of its central purposes the training of attorneys who attain high levels of professional excellence and integrity and who exercise civic responsibility in myriad ways over long careers.

Detailed information about the academic programs offered by the School of Law, course titles and descriptions, fees, and the semester-system calendar by which it operates are available in the *Bulletin of the UCLA School of Law* or from the School of Law website given at the beginning of this listing.

For information on the proficiency in English requirements for international graduate students, refer to Graduate Admission in the Graduate Study section of this catalog.

Residence and Unit Requirements

Candidates for the degree of Juris Doctor must pursue resident law school study for six semesters and successfully complete 87 units. The residence requirements may be satisfied as follows: (1) six semesters in regular session in this school or (2) two semesters in regular session (or equivalent) in a school which is accredited by the American Bar Association, coupled with four semesters in regular session (or equivalent) in this school.

Every first-year student is required to take the full schedule of required courses; second- and third-year students are required to take a minimum of 12 hours and may not take more than 16 hours each semester. The second- and third-year curriculum is elective, except for a required course in professional responsibility. In addition to the courses in the regular law school curriculum, students may take two courses for credit in other disciplines within the University. Graduate students may enroll in upper division law courses on a limited basis. Law courses are not open to non-UCLA students. Auditing of courses is not permitted.

Attendance and Grades

The right to take examinations and the privilege of continuing as a student in the school are conditioned on regular classroom attendance. Information on the grading system, which is based on a letter-grade scale of A+ to F, may be obtained from the Office of the Assistant Dean for Students. Standards for satisfactory performance and for graduation are prescribed by the faculty and are published separately. They may also be obtained from the above office.

Curriculum

The school offers courses of instruction within the school and supervised educational experiences outside it in an effort to enable its students to think intelligently and to prepare them for careers of practice and public service. To this end the school employs several instructional techniques in a variety of subject areas.

In the first year of their legal education students are exposed to an intensive study of legal reasoning in a series of fields which have historically dominated legal thought. Additionally, the first-year required course in lawyering skills provides students the opportunity to explore the relationship between legal analysis and lawyering tasks such as legal writing, oral advocacy, research, and client interviewing and counseling.

In the second and third years students have an opportunity to engage in a number of different fields of law and law-related study. All of the courses in the second- and third-year curriculum are elective, with the exception of the legal profession requirement which is a requisite for graduation.

Concurrent Degree Programs

The School of Law offers five concurrent degree programs that allow students to fulfill the requirements of the J.D. and another graduate degree simultaneously. Students may also design a tailored program from other disciplines in UCLA's curriculum or from another high-quality institution, but must arrange this in consultation with the School of Law and the other program selected. Students interested in pursuing a joint degree must apply simultaneously to both schools.

M.B.A./J.D.

The School of Law and the John E. Anderson Graduate School of Management offer a concurrent program which enables students to prepare for careers where law and management overlap and where understanding of both fields is desired. Examples of such areas include public service, international trade, industrial relations, corporate law, and specialized areas of management consulting. The program makes it possible to earn the J.D. and M.B.A. in four academic years.

M.A. Urban Planning/J.D.

The School of Law and the Department of Urban Planning in the School of Public Policy and Social Research offer a concurrent plan of study providing an integrated curriculum for students planning to specialize in the legal aspects of urban problems. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in law offers insight into the institutional causes and possibilities for treatment of these problems. Students pursue studies in both areas and receive both the J.D. and M.A. degrees at the end of four years.

M.A. American Indian Studies/J.D.

The School of Law and the American Indian Studies Interdepartmental Program offer a concurrent plan of study over four years leading to both a J.D. and an M.A. This integrated program is designed to produce law graduates with a rich understanding of tribal cultures that expands their knowledge, facilitates their practice in the field of Indian law, and enhances their service to Indian nations. Legal study includes relevant tribal, U.S., and international law. Courses in American Indian studies address the diverse histories, world views, values, languages, and practices of North American tribes.

M.S.W./J.D.

The School of Law and the Department of Social Welfare in the School of Public Policy and Social Research offer a concurrent plan of study over four years leading to both a J.D. and an M.S.W. This integrated plan provides preparation for lawyers who want to focus on social welfare law and programs. Social workers interested in legal issues related to social welfare policy would also benefit from this preparation.

Education Program/J.D.

The School of Law and the Department of Education offer a concurrent plan which allows students to design a program of study leading to the J.D. and any advanced degree in education (M.Ed., M.A., Ed.D., or Ph.D.). If the program meets the degree requirements in both areas, students are awarded both degrees on its completion. This program currently is not accepting applicants.

Master of Laws Degree

The school offers a graduate law program leading to the Master of Laws (LL.M.) degree to outstanding international students interested in pursuing graduate studies. Law school graduates with outstanding records who may be interested in this program should contact Professor Joel Handler, LL.M. Program, School of Law, 1242 Law, UCLA, Box 951476, Los Angeles, CA 90095-1476, for further information.

Law

Lower Division Course

88. Lower Division Seminar: Special Topics in Law. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in law approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES

College of Letters and Science

UCLA
251A Kinsey Hall
Box 951384
Los Angeles, CA 90095-1384
(310) 206-0516
<http://www.humnet.ucla.edu/humnet/lgbts>

Faculty Advisory Committee

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James A. Schultz, Ph.D., *Director*

Professors

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Mitchell B. Morris, Ph.D. (*Musicology*)

Lecturers

Alice Echols, Ph.D. (*Women's Studies*)
Linda Garnets, Ph.D. (*Psychology*)
Vernon Rosario, M.D., Ph.D.

Adjunct Assistant Professor

Carol Hodgson, Ph.D. (*Medicine*)

Scope and Objectives

Although lesbian, gay, bisexual, and transgender studies has only recently found a place in university curricula, the field actually represents the intersection of two traditions that have existed for thousands of years. The better known is the learned tradition, which, at least since the end of the ancient world, has been overwhelmingly hostile. Medieval theology condemned the sodomite, nineteenth-century medicine pathologized the invert, and until very recently psychiatry felt called on to "cure" the homosexual. For at least as long, however, women and men attracted to others of their own sex have kept alive another affirmative tradition, a knowledge of their past that sustained them, often in the face of overwhelming official hostility. The guests at Plato's *Symposium* looked back to Achilles and Patroclus; women-loving-women of the nineteenth century remembered Sappho; an inmate of a New York prison interviewed in the early 1920s was able to recite a long list of famous lesbians and gay men.

After the birth of the modern gay liberation movement in 1969, this underground knowledge came out of the closet and found a public voice sufficiently strong to mount a sustained challenge to the official teachings concerning minority sexualities. This challenge led to a dramatic increase in research on same-sex desire, most of it the work of scholars without academic affiliations. Inspired by these accomplishments, students and faculty at colleges and universities eventually mustered the courage to address similar topics, thereby transforming — partly by assimilation, partly by contestation — the previously hostile learned tradition. This originally rather disparate work gradually coalesced into lesbian, gay, bisexual, and transgender studies, which, over the last decade, has developed into an academic discipline of remarkable breadth and vitality. The field embraces work in genetics and cultural studies, literature and anthropology, the health sciences, history, and the visual arts. It ranges from archival research to the elaboration of queer theory, from the analysis of constitutional law to questions of public health, from the study of identical twins to the study of popular culture.

Although the initial focus in lesbian, gay, bisexual, and transgender studies is usually on minority sexualities and genders, it is impossible

to study them in any meaningful way without raising questions about sexuality and gender in general. And those questions cannot be responsibly answered without considering class, race, ethnicity, history, political economy, and the construction of scientific knowledge. Thus lesbian, gay, bisexual, and transgender studies, which may at first seem to concern the private practices of a small number of people, inevitably leads to the much larger study of sexuality, gender, and culture. It represents an important vantage point from which to investigate the social construction of gender and sexual identity, social control of behavior, changing definitions of the family, and the place of sexual expression in the public and private spheres. Because of the kinds of questions asked, lesbian, gay, bisexual, and transgender studies is the site of some of the most exciting work being done today on the relation of culture and sexuality.

First offered in Fall Quarter 1997, UCLA's minor in Lesbian, Gay, Bisexual, and Transgender Studies provides the opportunity to study sexuality from a variety of interdisciplinary perspectives. Interdisciplinarity is assured by requiring students to take at least one course each in the life sciences, social sciences, and humanities. In addition, seniors in the minor are expected to do an internship in a community organization, thereby acquiring a kind of knowledge not usually available in the classroom. After completing the minor, students should be familiar with the theoretical tools that different disciplines employ to study sexuality and gender. They should be acquainted with some of the many different ways sexuality and gender have been organized in the past and are organized in different cultures in the present and should have an enhanced understanding and appreciation both of the sexual and gender diversity of the world in which they live and of the complex ways in which sexuality and gender intersect with other categories of identity and practice.

Undergraduate Study

Lesbian, Gay, Bisexual, and Transgender Studies Minor

To enter the Lesbian, Gay, Bisexual, and Transgender Studies minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (32 units): Lesbian, Gay, Bisexual, and Transgender Studies M114, 196, and six additional courses, including at least one each in the humanities, life sciences, and social sciences, to be selected from the approved list of courses available in the program office each term. Students may petition to apply a related course not on the list toward the six-course requirement if they can show that lesbian, gay, bisexual, or transgender issues represent a significant part of the course content. Students are strongly urged to keep in close contact with advisers in the pro-

gram office who can help them plan their course of study.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Lesbian, Gay, Bisexual, and Transgender Studies

Upper Division Courses

M101A. Lesbian and Gay Literature before Stonewall. (4) (Same as English M101A and Women's Studies M101A.) Lecture, four hours. Preparation: satisfaction of English Composition requirement. Survey of lesbian and gay literature in English from earlier periods through the 1960s. Works by such authors as Walt Whitman, Oscar Wilde, Radclyffe Hall, E.M. Forster, Willa Cather, Virginia Woolf, James Baldwin, Christopher Isherwood, William S. Burroughs, John Rechy, Audre Lorde, and Edward Albee. P/NP or letter grading.

M101B. Lesbian and Gay Literature after Stonewall. (4) (Same as English M101B and Women's Studies M101B.) Lecture, four hours. Preparation: satisfaction of English Composition requirement. Survey of lesbian and gay literature in English since 1969, year of Stonewall Riots in New York City, commonly recognized as beginning of modern lesbian and gay culture. Works by such authors as Adrienne Rich, Jane Rule, Maureen Duffy, Brigid Brophy, Larry Kramer, Bertha Harris, Edmund White, Rita Mae Brown, Alan Hollinghurst, and Emma Donahue. P/NP or letter grading.

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (4) (Formerly numbered M14.) (Same as Women's Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, and transgendered people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

M115. Topics in Study of Sexual and Gender Orientation. (4) (Same as Women's Studies M115.) Lecture/discussion, three hours. Requisite: course M114 or Women's 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.

M116. Sexuality and the City: Queer Los Angeles. (4) (Same as Women's Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles.

M133. Chicana Lesbian Literature. (4) (Same as Chicana and Chicano Studies M133 and Women's Studies M133.) Lecture, three 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.

M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Anthropology M134.) Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

M137. Gay and Lesbian Perspectives in Pop Music. (4) (Same as Music History M137.) Lecture, four hours. Survey of English-language popular music in the 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

M167. Contested Sexualities. (4) (Same as Sociology M167 and Women's 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.

196. Senior Internship Seminar: Lesbian, Gay, Bisexual, and Transgender Studies. (4) Seminar, three hours. Preparation: completion of four courses toward the minor. Requisite: course M114. Limited to seniors. Internship in a lesbian, gay, bisexual, or transgender community organization coupled with a weekly seminar. Consideration of theoretical and political issues involved in such work and relation of those issues to ideas explored in minor courses already taken.

197. Selected Topics in Lesbian, Gay, Bisexual, and Transgender Studies. (4) 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.

M197D. Special Topics in Lesbian and Gay Literature. (4) (Same as English M197D.) Preparation: satisfaction of English Composition requirement. Variable specialized studies course in lesbian and gay literature. Topics focus on a particular problem or issue in terms of its relationship to lesbian and gay culture and writing. May be repeated for credit. P/NP or letter grading.

199. Special Studies in Lesbian, Gay, Bisexual, and Transgender Studies. (2 to 4) Requisite: course M114. Directed program of independent study or research on a specific topic within lesbian, gay, bisexual, and transgender studies.

LIFE SCIENCES

College of Letters and Science

UCLA
2305 Life Sciences
Box 951606
Los Angeles, CA 90095-1606

(310) 825-6614
<http://www.lifesci.ucla.edu/lscore>

Scope and Objectives

Students who wish to study life sciences have a choice of nine majors, all of which lead to a Bachelor of Science degree: Biology, Ecology, Behavior, and Evolution, Marine Biology, and Plant Biology (Organismic Biology, Ecology, and Evolution Department), Microbiology and Molecular Genetics (Microbiology and Molecular Genetics Department), Molecular, Cell, and Developmental Biology (Molecular, Cell, and Developmental Biology Department), Neuroscience (Neuroscience Interdepartmental Program), Physiological Science (Physiological Science Department), and Psychobiology (Psychology Department). This choice reflects the diversity of undergraduate instruction in life sciences at UCLA. Despite this diversity, all of

these majors require a common core of introductory courses which forms the foundation for any study of life sciences and which is required for more advanced courses in each major. The common core includes courses in chemistry, physics, and mathematics, as well as introductory courses in evolution and biodiversity, cellular and organismal biology, molecular biology, and genetics. During the first two years, students may also gain experience in a research laboratory through the Student Research Program. For more information on each major, see the individual departmental listings in this section of the catalog. For additional information on the life sciences core curriculum, see the website at <http://www.lifesci.ucla.edu/lscore/index.html>.

Students considering one of the life sciences majors are encouraged to declare a major as early as possible, even in their first year. In this way, they are identified by the life sciences advising offices and receive important curricular and other information. Because the core curriculum prepares them for any of the nine majors, they have the flexibility to switch to another life sciences major at any time during their progression through the core curriculum. Note: The Marine Biology and Psychobiology majors may require some courses in addition to the life sciences core curriculum as part of the preparation. Consult the course requirements for both majors.

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 14D, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Life Sciences

Lower Division Courses

1. Evolution, Ecology, and Biodiversity. (4) Lecture, three hours; demonstration, two hours; outside study, seven hours. Not open for credit to students with credit for former Biology 5 or 6. 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.

2. Cells, Tissues, and Organs. (5) Lecture, three hours; discussion/laboratory, three hours (alternate weeks). Requisite: Chemistry 14A or 20A or former course 10A. Introduction to basic principles of cell structure, organization of cells into tissues and organs, and principles of organ systems. Letter grading.

3. Introduction to Molecular Biology. (5) Lecture, three hours; discussion/laboratory, three hours (alternate weeks). Enforced requisites: course 2, Chemistry 14C or 30 or former course 10D. Introduction to basic principles of biochemistry and molecular biology. Letter grading.

3H. Introduction to Molecular Biology (Honors). (5) Lecture, two and one-half hours; discussion, 90 minutes; movie section, two and one-half hours. Enforced requisites: course 2, Chemistry 14C or 30 or former course 10D. Honors course parallel to course 3, but at a more advanced level. Letter grading.

4. Genetics. (4) Lecture, three hours; discussion, 90 minutes; outside study, seven and one-half hours. Enforced requisite: course 3. Principles of Mendelian inheritance and chromosomal basis of heredity in prokaryotes and eukaryotes, recombination, biochemical genetics, mutation, DNA, genetic code, gene regulation, genes in populations. Letter grading.

15. Life, Concepts, and Issues. (5) Lecture, three hours; discussion, two hours. 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 a writing component. P/NP or letter grading.

Upper Division Course

194. Teaching Practicum in Life Sciences. (2 or 4) Discussion, two hours; laboratory, three hours. Training and supervised practicum for undergraduates in teaching life sciences courses. Students serve as apprentice teaching assistants and assist in teaching laboratories and/or sections, in preparation, set up, and breaking down of materials for laboratory component, and in continued development of course material. Letter grading.

LINGUISTICS

College of Letters and Science

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Professors

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Susan R. Curtiss, Ph.D.

Bruce P. Hayes, Ph.D.
Thomas J. Hinnebusch, Ph.D. (*Linguistics, African Languages*)
Nina M. Hyams, Ph.D.
Patricia A. Keating, Ph.D.
Edward L. Keenan, Ph.D.
Hilda J. Koopman, Ph.D.
Pamela L. Munro, Ph.D.
Russell G. Schuh, Ph.D. (*Linguistics, African Languages*)
Dominique L. Sportiche, Ph.D. (*Romance and Theoretical Linguistics*)
Edward P. Stabler, Ph.D.
Donca Steriade, Ph.D.

Professors Emeriti

George D. Bedell, Ph.D.
William O. Bright, Ph.D.
Victoria A. Fromkin, Ph.D.
Mazisi R. Kunene, Ph.D.
Peter N. Ladefoged, Ph.D.
Paul M. Schachter, Ph.D.
Robert P. Stockwell, Ph.D.

Associate Professors

Anoop Mahajan, Ph.D.
Timothy A. Stowell, Ph.D.

Assistant Professors

Sun-Ah Jun, Ph.D.
Carson T. Schütze, Ph.D.

Adjunct Professor

Ian Maddieson, Ph.D.

Scope and Objectives

The goal of linguistics is the enrichment of knowledge about the nature, grammar, and history of human language. Linguistics is a theoretical discipline, akin to philosophy, anthropology, and cognitive psychology. It is important for prospective students to understand that studying linguistics is not a matter of learning to speak many languages. Linguistics courses draw examples from the grammars of a wide variety of languages, and the more languages linguists know about in depth (as distinct from possessing fluency in the use of them), the more likely they are to discover universal properties. It is also possible to pursue these universal aspects of human language through the intensive in-depth study of a single language. This accounts for the high proportion of examples from English and familiar European languages found in linguistics courses and research publications.

The core areas of linguistic theory are phonology (with its roots in phonetics), morphology, syntax, and semantics. A grammar is a system of rules which characterize the phonology, morphology, syntax, and semantics of a natural language. The properties of grammars are the central focus of linguistic theory.

Because language is central to all humanistic disciplines, as well as to several social science areas, it is studied from many points of view. Linguistics itself cannot be said to recognize a single optimal approach to the subject. Hence, the courses provide a variety of approaches which reflect the diversity of the field.

The Linguistics Department has consistently been ranked among the very best linguistics departments in the country. It offers programs

leading to the Bachelor of Arts, Master of Arts, and Ph.D. degrees.

Undergraduate Study

The majors described below are of three types: (1) a major which concentrates entirely on general linguistics, (2) several majors which combine the basic courses of the general program with a language concentration or other related fields, and (3) a major which concentrates entirely on an African language area. The combined majors in conjunction with instructional certification programs are especially appropriate for students who have nonuniversity teaching careers as goals, and the African major is for students with specific African interests.

A 2.0 grade-point average in linguistics courses is required for all Linguistics Department majors.

Linguistics B.A.

The B.A. degree program is designed for students with an exceptional interest in and aptitude for the study of languages and linguistics. It enables undergraduates to gain substantial familiarity with several languages and types of linguistic structure and to become conversant with the historical study of language and formal theories of linguistics.

Preparation for the Major

Required: Linguistics 20; two of the following: Philosophy 31, Psychology 10, 100A, one cultural anthropology course; completion of the equivalent of the sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages.

Students who complete an advanced language course are considered to have completed the equivalent of whatever courses are requisite to that one (e.g., if students complete French 100, they have automatically satisfied the requirement of the sixth term of work in one language). Students are required to complete at least the equivalent of the third term in a language other than those in the Romance, Slavic, or Germanic families. This requirement may be satisfied either as part of or in addition to the language requirement described in the preceding paragraph.

The Major

Required: A minimum of 13 upper division or graduate courses, including Linguistics 103, 110, 120A, 120B, and two courses from 125, 165A, 165B (students may substitute courses 200A and 200B for 165A and 165B respectively if they receive grades of A in 120A and 120B respectively and have consent of instructor). Both courses 165A and 165B, or 200A and 200B, are recommended for students planning linguistics graduate work. The remaining seven courses are electives, three of which must be linguistics courses. The other four may be in linguistics or in certain other fields as follows: Anthropology 143, English 121, 122, Philosophy 127A, 127B, 172, Psy-

chology 120, 124E, 133C, or upper division courses in a foreign language beyond the sixth term. Nonlinguistics courses not on the list may be used as electives only in consultation with an adviser.

Linguistics 195 or 196A/196B are recommended for students planning to pursue graduate work in linguistics, since they provide an opportunity to engage in independent research and to write a paper which can be submitted to graduate admissions committees. To enroll in the courses, students must consult with the department's senior essay and honors counselor.

Linguistics and Anthropology B.A.

Preparation for the Major

Required: Linguistics 20, completion of the sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages (at least three terms must be in a language other than those in the Romance, Slavic, and Germanic families). Anthropology 33 is strongly recommended, when offered.

The Major

Required: Thirteen upper division courses as follows: Linguistics 103, 110, 120A, 120B or 127, 125, 170, one other upper division linguistics course (recommended: 114), Anthropology M140, either 144 or M145, one course from Anthropology 141, 142A, 143, or Sociology CM124A, and three upper division electives from Anthropology 141, 142A, 143, 144, M145, the 130 series (one course only), the 170 series (one course only), Sociology CM124A, CM124B. Linguistics 165A and 165B (or 200A and 200B with grades of A in 120A and 120B respectively and consent of instructor) are recommended for students planning to pursue graduate work in linguistics.

Linguistics and Computer Science B.A.

Preparation for the Major

Required: Linguistics 20, Mathematics 31A, 31B, Philosophy 31, Program in Computing 10A, 10B, 10C, 30, completion of the sixth term in one foreign language or the third term in each of two foreign languages. Admission to the major is contingent on passing the following courses with grades of C or better and a grade-point average of 3.3 or better: Linguistics 20, Philosophy 31, Program in Computing 10A, 10B, 10C. Mathematics 31A and 31B must also be passed with grades of C or better. Mathematics 61 is recommended.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 120A, 120B, 125, 165A or 165B, C180, C185A, Computer Science 131, 132, 161 or 163, 181, and one upper division elective in linguistics or computer science. Linguistics 104 and C185B are strongly recommended.

Linguistics and East Asian Languages and Cultures B.A.

Preparation for the Major

Required: Completion of the sixth term in either Chinese, Japanese, or Korean; Linguistics 20, Philosophy 31; one cultural anthropology course; either Chinese 50, Japanese 50, or Korean 50, as appropriate; completion of the sixth term in one other foreign language or the third term in each of two other foreign languages.

The Major

Required: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one upper division elective in linguistics; for the classical Japanese track: Japanese 100A-100B, CM122, 140A-140B-140C, C149; for the modern Japanese track: Japanese 100A-100B-100C, 120, CM122, CM123 or CM127, 130B; for the classical Chinese track: Chinese 110A-110B-110C, four courses from 140A, 140B, 140C, 165, 170, 195; for the modern Chinese track: Chinese 100A-100B-100C, 101A, 101B, 130A, 130B; for the Korean track: Korean 100A-100B-100C, CM120, three courses from 101A, 101B, 101C, CM127, 130A, 130B.

Linguistics and English B.A.

Preparation for the Major

Required: Linguistics 20, English Composition 3, English 10A, 10B, 10C, Philosophy 31, completion of the sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages.

The Major

Required: Fourteen upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two upper division electives in linguistics, English 121, 122 or Applied Linguistics and Teaching English as a Second Language C116, 140A, and four electives from 141A, 141B, 142A, 142B, 143, the 150 series (one course only), the 160 series (one course only), the 170 series (one course only).

Linguistics and French B.A.

Preparation for the Major

Required: Linguistics 20, French 1, 2, 3, 4, 5, 6, 12, 15, completion of the sixth term in one other foreign language or the third term in each of two other foreign languages.

The Major

Required: Fifteen upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two upper division electives in linguistics, French 100, 101, 102, 103, 105, 107,

and two elective upper division French literature courses.

Linguistics and Italian B.A.

Preparation for the Major

Required: Linguistics 20, Italian 1, 2, 3, 4, 5, 25, Latin 1, 2, 3, completion of the third term in one other foreign language or the sixth term in Latin, Philosophy 31, one cultural anthropology course.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two upper division electives in linguistics, Italian 102A, 190, and three upper division electives in Italian.

Linguistics and Philosophy B.A.

Preparation for the Major

Required: Linguistics 20, Philosophy 31, 32, and two courses from 1, 6, 7, 21; completion of the sixth term in each of two foreign languages or the sixth term in one foreign language and the third term in each of two other foreign languages.

The Major

Required: Thirteen upper division courses as follows: Linguistics 103, 120A, 120B, 165B (or 200B with a grade of A in 120B and consent of instructor), three upper division electives in linguistics; six upper division courses in philosophy, including at least five from Philosophy 124 through 135B, 170, 172, 184, 186, 187, 188, of which at least two must be from 127A, 127B, 172.

Linguistics and Psychology B.A.

Preparation for the Major

Required: Linguistics 20, Psychology 10, 85, 100A, 100B, completion of the sixth term in one foreign language and the third term in a second foreign language. Program in Computing 10A is strongly recommended.

The Major

Required: Thirteen upper division courses as follows: Linguistics 103, 120A, 120B, C130, C132, two upper division electives in linguistics, Psychology 120, 121, 133B, 133E, and two electives to be selected from 115, 116, M117C, 118, M119L, 124A, 124B, 124C, 124E, 130, 133C, 133E, 133F, 133G, M137J, 186A, 186B. Linguistics C135 and 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) are strongly recommended.

Linguistics and Scandinavian Languages B.A.

Preparation for the Major

Required: Linguistics 20, Scandinavian 1, 2, 3, 4, and 5, or 11, 12, 13, 14, and 15, or 21, 22, 23, 24, and 25, completion of the sixth term in one other foreign language or the third term in each of two other foreign languages.

The Major

Required: Thirteen upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two upper division electives in linguistics, two courses from Scandinavian 105, 110, 115 (or one of these courses twice), 199 (in a topic related to Scandinavian linguistics, under the direction of a Scandinavian or Linguistics faculty member), and three upper division electives in Scandinavian.

Linguistics and Spanish B.A.

Preparation for the Major

Required: Linguistics 20, Spanish 1, 2, 3, 4, 5, 25, M42, M44, completion of the sixth term in one other foreign language or the third term in each of two other foreign languages.

The Major

Required: Fourteen upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two additional upper division courses in linguistics (preferably C130 and 170), Spanish 100A-100B, 115 or M118A, 119A, 119B, and two additional upper division Spanish courses.

African Languages B.A.

Preparation for the Major

Required: Linguistics 20, nine courses from African Languages 1A through 42C and 199 (six in one language and three in another).

The Major

Required: A minimum of 13 upper division courses, including three courses in an African language; African Languages M190, Linguistics 103; two courses from Film and Television 106C, Folklore M155, French 121A, Theater 102E, or one or more special four-unit African Languages 199 tutorials focusing on literature in an African language; three courses from English 114, Ethnomusicology 136A, 136B, History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, Linguistics 110, 120A, 120B or 127, 140, M146, 170, Political Science 151A, 151B, 151C. Linguistics 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) and completion of the sixth term in one of the following non-African languages are strongly

recommended: Afrikaans, Arabic, Dutch, French, German, Portuguese.

Honors Program

Honors in linguistics are awarded at graduation to those students who have a grade-point average of 3.6 or better in their junior and senior years and who have received a grade of A in Linguistics 195 or 196A/196B. Qualified students may be proposed by any member of the faculty to the faculty as a whole for the award of highest honors on the basis of a piece of research in linguistics completed at UCLA.

Computing Specialization

Students in any of the linguistics majors (except Linguistics and Computer Science) may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major and (2) completing Program in Computing 10A, 10B, 10C, 60, Linguistics C180, C185A. Students graduate with a bachelor's degree in their major and a specialization in Computing.

Linguistics Minor

The Linguistics minor is designed for students where training in linguistic analysis could be an enhancement to their major programs and to students who are interested in language(s) but do not have time in their undergraduate programs to pursue multiquarter language sequences. In addition, the minor provides students with a way to design "custom" joint degrees with linguistics where the Linguistics Department does not have an existing joint degree program combining linguistics and another field.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Course (four units): Linguistics 20.

Required Upper Division Courses (24 to 26 units): Linguistics 103, 120A, 120B, and three elective courses, of which at least two must be selected from 104 through C185B.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Linguistics offers the Master of Arts (M.A.) degree in Linguistics.

Admission

Students are normally admitted to begin residence for the M.A. program in the Fall Quarter only (exceptions may be made by the chair). The deadline for submission of applications for the Fall Quarter is December 31 of the previous year.

Applicants are asked to submit a statement of purpose, which should include their background for graduate study in linguistics and immediate and long-range goals in the field. Three scholars under whom the applicants have studied should submit letters to the department about the applicants's qualifications. Scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) must be submitted. There is no minimum score requirement. A copy of some research paper or other piece of writing in linguistics or a closely related field should also be submitted.

While not required for admission, Linguistics 103, 110, 120A, 120B, 165A, 165B are requisite to graduate courses in the corresponding areas. At the time of admission, applicants are notified which, if any, of the above courses must be taken or audited. However, any question of whether courses taken elsewhere are equivalent to the above courses must be discussed with the adviser.

Prospective students may request an information brochure from the administrative assistant in the department.

Areas of Study

Consult the department.

Course Requirements

The Master of Arts degree requires the completion, with a B average or better, of nine graduate courses in linguistics. All students are required to take Linguistics 200A, 200B, 201, 202, and 206. The remaining four courses must be chosen from Linguistics 203 through 218 or C232 through C235. All first-year graduate students must take courses 411A-411B, and all second-year students must take course 444.

The following undergraduate courses or the equivalent are requisite to graduate courses in the corresponding areas: Linguistics 103, 110, 120A, 120B, 165A, 165B. Course 103, or an examination in practical phonetics, must be passed with a grade of B or better as a requisite to Linguistics 210A, a required course for the Ph.D. that may be taken at the pre-M.A. level. A proficiency examination in elementary logic, which may be waived on the basis of appropriate coursework, is requisite to course 206.

No more than two courses (with grades of B or better) from institutions outside the University of California may be applied toward the M.A.

Comprehensive Examination Plan

After completing the required courses and the foreign language examination, students must pass a comprehensive examination administered by a committee of the faculty. The committee, consisting of four members, is appointed by the chair. This is normally an oral examination, general in scope, and results in a terminal M.A. degree.

Thesis Plan

After completing the required courses and the foreign language examination, if this plan is selected, students submit a thesis based on original research to a thesis committee for approval. If students intend to proceed to the Ph.D., this plan must be adopted.

For students wishing to be considered for advancement into the doctoral program, a copy of the thesis, complete and clearly legible, but not necessarily in final typed form, must be in the hands of the committee at least two weeks before the last day of classes in the quarter.

Requirements for receiving an M.A. include the filing of a Petition for Advancement to Candidacy form early in the quarter during which students expect to take the degree. The thesis must be typed according to regulations set by the University. Information on these regulations and procedures is available from the Graduate Division.

Doctoral Degree

Admission

General admission requirements for the program leading to the Ph.D. degree in Linguistics are the same as those listed for the M.A. If earlier graduate work was done at UCLA, admission into the Ph.D. program is considered on the basis of the following: (1) completion of all requirements for the M.A. and (2) the faculty's evaluation of the quality of the M.A. thesis and of overall work and promise.

If applicants have already received an M.A. in Linguistics from another department or institution, all the requirements expected of an M.A. candidate, including the coursework, must be fulfilled unless work elsewhere is equivalent and satisfies the course requirements. Then there are two possible procedures: (1) a master's thesis written at another institution or department may be submitted or (2) if a thesis was not written elsewhere, a paper equal in depth and scope to a thesis may be submitted. In either case an evaluation committee is appointed. This committee makes a recommendation to the entire faculty, which then accesses the applicant's qualifications for admission into the Ph.D. program

Major Fields or Subdisciplines

Students may specialize in syntax, semantics, phonology, phonetics, language change, typology, neurolinguistics, psycholinguistics, computational linguistics, and many language areas, notably African languages and American Indian languages. Other specializations may

be possible, depending on the availability of faculty expertise.

Course Requirements

Candidates for the Ph.D. are required to have taken 36 units of graduate coursework beyond the M.A. requirements. These units must include Linguistics 210A, 210B, and eight units in an area distinct from that of the student's major area of concentration. The 36 units may not include course 275 (colloquium), any 300- or 400-level course, 597, or 599. Of the 36 units, no more than 12 units may be in course 596A. A maximum of four two-unit seminars may be included in the 36 units. At some time, some of the results of the student's research must be presented at a meeting of the Linguistics Department Colloquium. This is a requirement for the degree.

Written and Oral Qualifying Examinations

In order to be advanced to candidacy, students are required to prepare two substantive research papers in different areas or fields of linguistics. These papers are to be submitted to and approved by the guidance committee. A written prospectus of the dissertation must be submitted to the guidance committee, with a copy to the department file, one month prior to the oral examination. At this time, provided the language requirement has been met, an official doctoral committee must be established.

The University Oral Qualifying Examination is administered by the doctoral committee, based primarily on the topic of the dissertation research. The examination includes all the background necessary to pursue research on the specific topic. Reexamination is possible on recommendation of the committee. Students are expected to take the examination and be advanced to candidacy no later than six quarters after being admitted to the doctoral program.

Linguistics

Lower Division Courses

1. Introduction to Study of Language. (4) Summary, for general undergraduates, of what is known about human language; unique nature of human language, its structure, its universality, and its diversity; language in its social and cultural setting; language in relation to other aspects of human inquiry and knowledge.

2. Language in the U.S. (4) Lecture, four hours; discussion, one hour. Survey of languages of the 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.

10. Structure of English Words. (4) Lecture, three to four hours. Introduction to structure of English words of classical origin, including most common base forms and rules by which alternate forms are derived. Students may expect to achieve substantial enrichment of their vocabulary while learning about etymology, semantic change, and abstract rules of English word formation.

20. Introduction to Linguistics. (4) Lecture, four hours; discussion, one hour. 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.

88. Lower Division Seminar. (4) Seminar, three hours. Limited to freshmen. Variable topics; consult *Schedule of Classes*, College of Letters and Science, or department for topics to be offered in a specific term. May be repeated for credit.

99. Special Studies in Linguistics. (2 to 4) Supervised research or training. May be repeated for credit. P/NP or letter grading.

Upper Division Courses

103. Introduction to General Phonetics. (4) Lecture, four hours; discussion, one hour. Preparation: one prior linguistics course or course 20 concurrently. Phonetics of a variety of languages and phonetic phenomena that occur in languages of the world. Extensive practice in perception and production of such phenomena.

104. Experimental Phonetics. (4) Lecture, four hours; discussion, one hour. Requisite: course 103. Survey of principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena.

110. Introduction to Historical Linguistics. (4) Requisites: courses 20, 103, 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.

C111. Intonation. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 20, 103, 120A or 120B. Recommended: course 104/204. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Laboratory equipment used for recording and analyzing intonation, and students learn to transcribe intonational elements. Concurrently scheduled with course C211.

114. American Indian Linguistics. (4) Strongly recommended preparation: course 20. Survey of genetic, areal, and typological classifications of American Indian languages; writing systems for American Indian languages; American Indian languages in social and historical context. One or more languages may be investigated in detail.

M115. Survey of African Languages. (4) (Same as African Languages M190.) Requisite: course 20. Introduction to languages of Africa, their distribution and classification, and their phonological and grammatical structures; elementary practice in several languages.

120A. Phonology I. (4) 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.

120B. Syntax I. (4) Requisite: 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.

125. Semantics. (4) Lecture, four hours; discussion, one hour. Requisite: course 120B. Survey of most important theoretical and descriptive claims about the nature of meaning.

127. Syntactic Typology and Universals. (4) 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.

C130. Language Development. (4) Lecture, four hours; discussion, one hour. 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. Concurrently scheduled with course C233.

C132. Language Processing. (4) (Formerly numbered 132.) Lecture, four hours; discussion/laboratory, one hour. Requisites: courses 20, 120A, 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 inferencing, speech error models of sentence production, and computation of syntactic structure during production. Concurrently scheduled with course C232.

C135. Neurolinguistics. (4) Lecture, four hours; discussion, one hour. Requisites: courses 1 or 20, and C130. 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.

140. Linguistics in Relation to Language Teaching. (4) Requisites: courses 120A, 120B. Aspects of linguistics in relation to teaching of language, with particular focus on special problems entailed in teaching non-European languages.

M146. Language in Culture. (4) (Same as Anthropology M140.) Lecture, three hours; discussion, one hour. Requisite: course 20 or Anthropology 33. Study of language as an aspect of culture; relation of habitual thought and behavior to language; and language and the 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.

M150. Introduction to Indo-European Linguistics. (4) (Same as Indo-European Studies M150.) Preparation: one year of college-level study (course 3 or better, eight units minimum) of either Greek or Latin and either German or Russian. Survey of Indo-European languages from ancient to modern times; their relationships and chief characteristics.

160. Field Methods. (6) Discussion, four hours; individual or group sessions, one to two hours. Requisites: courses 103, 120A, 120B. Analysis of a language unknown to members of class from data elicited from a native speaker of the language.

165A. Phonology II. (4) Lecture, four hours; discussion, one hour. Requisite: course 120A (undergraduates with grade of A in course 120A may replace course 165A with 200A, with consent of instructor). Further study in phonological theory and analysis: autosegmental theory, syllable structure, metrical theory, interface of phonology and grammar.

165B. Syntax II. (4) Lecture, four hours; discussion, one hour. Requisite: course 120B. 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.

170. Language and Society: Introduction to Sociolinguistics. (4) Requisite: course 20. Study of patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies.

175. Linguistic Change in English. (4) Requisites: courses 110, 120A, 120B. Principles of linguistic change as exemplified through detailed study of history of English pronunciation, lexicon, and syntax.

M176A. Structure of Japanese I. (4) (Same as Japanese CM122.) Lecture, three hours. Preparation: two years of Japanese. Requisite: Japanese 120. Discussion of many seemingly idiosyncratic characteristics of Japanese syntax and semantics in light of word-order typology and universal grammar, often in form of a contrastive analysis of Japanese and English.

M176B. Structure of Japanese II. (4) (Same as Japanese CM123.) Lecture, three hours. Preparation: two or more years of Japanese language study. Survey of Japanese language at three different levels of organization: (1) word level — word class, verbal morphology and semantics; (2) clause/sentence level — tense, aspect, modality; (3) discourse level — point of view, ellipsis, topicalization.

M177. Structure of Korean. (4) (Same as Korean CM120.) Lecture, three hours. 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.

M178. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM127 and Korean CM127.) Lecture, three hours. Preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor.

C180. Mathematical Linguistics I. (4) Lecture, four hours. 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. Concurrently scheduled with course C208. P/NP or letter grading.

C185A. Computational Linguistics I. (4) Requisites: courses 120B, C180, Program in Computing 10B. Recommended: course 165B or 200B, Program in Computing 60. Survey of recent work on natural language processing, including basic syntactic parsing strategies, with brief glimpses of semantic representation, reasoning, and response generation. Concurrently scheduled with course C209A.

C185B. Computational Linguistics II. (4) Requisite: course C185A/C209A. 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. Concurrently scheduled with course C209B.

195. Senior Essay. (4) Limited to senior linguistics majors. Extended piece of writing is undertaken on a linguistic topic selected by the student to be completed under supervision of a faculty member. Consult professor in charge to enroll.

196A. Honors Essay. (4) Preparation: 3.5 grade-point average. Requisite: course 165A/200A or 165B/200B (may be taken concurrently). Recommended: completion of both courses 165A and 165B (or 200A and 200B) before or during term in which course 196A is taken. Draft of extended piece of writing on a linguistic topic selected by the student is prepared under supervision of a faculty member. Consult professor in charge to enroll. In Progress grading (credit to be given only on completion of course 196B).

196B. Honors Essay. (2) Requisite: course 196A. Piece of writing drafted in course 196A is presented in a seminar, revised, and put into final form under supervision of a faculty member. Consult professor in charge to enroll.

197. Special Topics in Linguistics. (4) Requisite: course 1 or 20. Variable topics selected from any undergraduate linguistics course area in which students desire greater in-depth knowledge. May be repeated for credit with topic change.

199. Special Studies in Linguistics. (2 to 4) Requisites: courses 120A, 120B. May be repeated for credit.

Graduate Courses

200A. Phonological Theory I. (4) Preparation: graduate linguistics student or grade of A in course 120A or equivalent course in phonology. Courses 200A and 201 form two-course survey of current research in phonological theory. Interaction of phonology with morphology and syntax, syllable structure, stress.

200B. Syntactic Theory I. (4) 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.

201. Phonological Theory II. (4) 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.

202. Language Change. (4) Requisites: courses 110, 200A, 200B. Survey of current theories and research problems in language change.

203. Phonetic Theory. (4) Requisite: 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.

204. Experimental Phonetics. (4) Requisite: course 103. Use of laboratory equipment to investigate articulatory, acoustic, and perceptual properties of speech. Topics include experimental design and statistics; theoretical basis of acoustic structure of speech sounds; computer-based speech processing, analysis, and modeling; perceptual and acoustic evaluation of synthetic speech.

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.

206. Syntactic Theory II. (4) 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.

207. Formal Semantics. (4) Requisite: course C180/C208. Survey of current approaches to model-theoretic semantics and its relation to current linguistic theory. Approaches include generalized categorial grammars, Montague grammar, Boolean-based systems, generalized quantifier theory, logical form.

C208. Mathematical Linguistics I. (4) Lecture, four hours. 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. Concurrently scheduled with course C180. Graduate students expected to complete additional problem sets. S/U or letter grading.

C209A. Computational Linguistics I. (4) Requisites: courses 120B, C180, Program in Computing 10B. Recommended: course 165B or 200B, Program in Computing 60. Survey of recent work on natural language processing, including basic syntactic parsing strategies, with brief glimpses of semantic representation, reasoning, and response generation. Concurrently scheduled with course C185A.

C209B. Computational Linguistics II. (4) Requisite: course C185A/C209A. 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. Concurrently scheduled with course C185B.

210A. Field Methods I. (6) 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.

210B. Field Methods II. (6) 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.

C211. Intonation. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 20, 103, 120A or 120B. Recommended: course 104/204. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Laboratory equipment used for recording and analyzing intonation, and students learn to transcribe intonational elements. Concurrently scheduled with course C111.

212. Learnability Theory. (4) Requisite: course C180/C208. 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 the environment.

213A. Grammatical Development. (4) Requisites: courses 200A, 200B. Recommended: course C130/C233. 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/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) Requisites: courses 165B and/or 200B. Recommended: courses C132/C232, 206. 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.

214. Survey of Current Syntactic Theories. (4) Requisite: course 206. Survey of several current syntactic theories, compared with one another and with theory discussed in course 206, from point of view of theories' relative descriptive and explanatory power.

215. Syntactic Typology. (4) Requisite: course 200B. Current results in word-order universals; genetic classification of the world's languages; cross-language properties of specific construction types, including relative clauses, passives, positive and negative conference systems, agreement systems, deixis systems, and types of sentence complements.

216. Syntactic Theory III. (4) Requisite: course 206. 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.

218. Mathematical Linguistics II. (4) Lecture, four hours. Requisite: course C180/C208. 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.

220. Linguistic Areas. (4) Requisites: courses 120A, and 120B or 127. Recommended: courses 165A/200A, 165B/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.

225. Linguistic Structures. (4) Requisites: courses 120A, and 120B or 127. Recommended: courses 165A/200A, 165B/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.

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.

C232. Language Processing. (4) Lecture, four hours; discussion/laboratory, one hour. Requisites: courses 20, 120A, 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 inferencing, speech error models of sentence production, and computation of syntactic structure during production. Concurrently scheduled with course C132.

C233. Language Development. (4) Lecture, four hours; discussion, one hour. 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. Concurrently scheduled with course C130. Graduate students expected to apply more sophisticated knowledge and produce research paper of greater depth.

C235. Neurolinguistics. (4) Requisites: courses 1 or 20, and C130. 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.

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.

237. Linguistic Methods Laboratory. (4) Laboratory, four hours. Variable content, with topics such as computer implementation of linguistic models, corpus studies, experimental methods for linguistic data collection, statistical analysis of results. May be repeated for credit. Letter grading.

M246C. Topics in Linguistic Anthropology. (4) (Same as Anthropology M241.) Problems in relations of language, culture, and society. May be repeated for credit.

251A. Topics in Phonetics and Phonology. (4) (Formerly numbered 251.) Lecture, four hours. Requisite: course 200A. Course 201, 203, or 204 may be required. Specialized topics in phonetics and phonology. Meets with course 251B. May be repeated for credit.

251B. Topics in Phonetics and Phonology. (2) (Formerly numbered 251.) Lecture, four hours. Requisite: course 200A. Course 201, 203, or 204 may be required. Specialized topics in phonetics and phonology. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 251A. May be repeated for credit. S/U grading.

252A. Topics in Syntax and Semantics. (4) (Formerly numbered 252.) Lecture, four hours. Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. Meets with course 252B. May be repeated for credit.

252B. Topics in Syntax and Semantics. (2) (Formerly numbered 252.) Lecture, four hours. Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 252A. May be repeated for credit. S/U grading.

253A. Topics in Language Variation. (4) (Formerly numbered 253.) Requisite: course 110. Course 202 may be required. Specialized topics in language variation. Meets with course 253B. May be repeated for credit.

253B. Topics in Language Variation. (2) (Formerly numbered 253.) Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 253A. May be repeated for credit. S/U grading.

254A. Topics in Linguistics. (4) (Formerly numbered 254.) Lecture, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204, 205, 206, 207, C208, C209A, C209B, 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.

254B. Topics in Linguistics. (2) (Formerly numbered 254.) Lecture, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204, 205, 206, 207, C208, C209A, C209B, 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 M.A. or Ph.D. degree requirements. Meets with course 254A. May be repeated for credit. S/U grading.

256A. Topics in Phonetics and Phonology II: Proseminar. (4) Requisite: course 200A. Course 201, 203, or 204 may be required. Specialized topics in phonetics and phonology. May be repeated for credit. Meets with course 251. In Progress grading (credit to be given only on completion of course 256B).

256B. Topics in Phonetics and Phonology II: Proseminar. (2) Requisite: course 256A. Specialized topics in phonetics and phonology. May be repeated for credit.

257A. Topics in Syntax and Semantics II: Proseminar. (4) Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May be repeated for credit. Meets with course 252. In Progress grading (credit to be given only on completion of course 257B).

257B. Topics in Syntax and Semantics II: Proseminar. (2) Requisite: course 257A. Specialized topics in syntax and semantics. May be repeated for credit.

258A. Topics in Language Variation II: Proseminar. (4) Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May be repeated for credit. Meets with course 253. In Progress grading (credit to be given only on completion of course 258B).

258B. Topics in Language Variation II: Proseminar. (2) Requisite: course 258A. Specialized topics in language variation. May be repeated for credit.

259A. Topics in Linguistics II: Proseminar. (4) Requisites: courses 200A, 200B. Course 201, 202, 203, 204, 205, 206, 207, C208, C209A, C209B, 212, 213A, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. May be repeated for credit. Meets with course 254. In Progress grading (credit to be given only on completion of course 259B).

259B. Topics in Linguistics II: Proseminar. (2) Requisite: course 259A. Individual proseminars on topics such as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, psycholinguistics, etc. May be repeated for credit.

260A-260B-260C. Seminars: Phonetics. (2 or 4 each) Discussion, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

261A-261B-261C. Seminars: Phonology. (2 or 4 each) Discussion, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

262A-262B-262C. Seminars: Syntax and Semantics. (2 or 4 each) Discussion, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

263A-263B-263C. Seminars: Language Variation. (2 or 4 each) Discussion, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

264A-264B-264C. Seminars: Special Topics in Linguistic Theory. (2 or 4 each) Discussion, three hours. Each course may be taken independently for credit. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. May not be applied toward M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

275. Linguistics Colloquium. (4) Preparation: completion of M.A. requirements. Varied linguistic topics, generally presentations of new research by students, faculty, and visiting scholars. S/U grading.

276. Linguistics Colloquium. (No credit) Designed for graduate students. Same as course 275, but taken without credit by students not presenting a colloquium. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. 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-411B. Research Orientation. (2-2) 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 M.A. or Ph.D. 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 M.A. or Ph.D. degree requirements. S/U grading.

444. M.A. Thesis Preparation Seminar. (4) Student presentations, two hours. Student presentations of proposed topics for M.A. theses, with discussion and criticism by other students and faculty. May not be applied toward M.A. or Ph.D. degree requirements. S/U grading.

495. College Teaching of Linguistics. (2) 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 M.A. course requirements. May be repeated for credit. S/U grading.

596B. Directed Linguistic Analysis. (1 to 8) Preparation: completion of M.A. degree requirements. Intensive work with native speakers by students individually. May be repeated for credit. S/U grading.

597. Preparation for M.A. Comprehensive and Ph.D. 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 M.A. course requirements. May be repeated for credit. S/U grading.

598. Research for M.A. Thesis. (1 to 8) Research and preparation of M.A. thesis. May not be applied toward M.A. course requirements. May be repeated for a maximum of eight units. S/U grading.

599. Research for Ph.D. Dissertation. (1 to 16) Preparation: advancement to Ph.D. candidacy. May not be applied toward Ph.D. course requirements. May be repeated for credit. S/U grading.

African Languages

Lower Division Courses

1A-1B-1C. Elementary Swahili. (4-4-4) Lecture, five hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Major language of East Africa, particularly Tanzania.

2A-2B-2C. Intermediate Swahili. (4-4-4) Enforced requisite: course 1C. Course 2A is enforced requisite to 2B, which is enforced requisite to 2C.

7A-7B-7C. Elementary Zulu. (4-4-4) Lecture, five hours. Course 7A is enforced requisite to 7B, which is enforced requisite to 7C. Most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group.

8A-8B-8C. Intermediate Zulu. (4-4-4) Enforced requisite: course 7C. Course 8A is enforced requisite to 8B, which is enforced requisite to 8C.

11A-11B-11C. Elementary Yoruba. (4-4-4) Lecture, five hours. Course 11A is enforced requisite to 11B, which is enforced requisite to 11C. Major language of western Nigeria.

12A-12B-12C. Intermediate Yoruba. (4-4-4) Enforced requisite: course 11C. Course 12A is enforced requisite to 12B, which is enforced requisite to 12C.

15. Intensive Elementary Swahili. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 1A-1B-1C) in Swahili, major language of East Africa, particularly Tanzania.

16. Intensive Intermediate Swahili. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 1C or 15. Intensive instruction (equivalent to courses 2A-2B-2C) in Swahili, major language of East Africa, particularly Tanzania.

17. Intensive Elementary Zulu. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 7A-7B-7C) in Zulu, most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group.

18. Intensive Intermediate Zulu. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 7C or 17. Intensive instruction (equivalent to courses 8A-8B-8C) in Zulu, most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group.

25. Intensive Elementary Yoruba. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 11A-11B-11C) in Yoruba, major language of western Nigeria.

26. Intensive Intermediate Yoruba. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 11C or 25. Intensive instruction (equivalent to courses 12A-12B-12C) in Yoruba, major language of western Nigeria.

31A-31B-31C. Elementary Bambara. (4-4-4) Lecture, five hours. Course 31A is enforced requisite to 31B, which is enforced requisite to 31C. Major language of Mali, also widely spoken in adjacent parts of West Africa; includes Maninka (Malinke), Dyula, and other mutually intelligible dialects.

32A-32B-32C. Intermediate Bambara. (4-4-4) Enforced requisite: course 31C. Course 32A is enforced requisite to 32B, which is enforced requisite to 32C.

35. Intensive Elementary Bambara. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 31A-31B-31C) in Bambara, major language of Mali and contiguous areas.

36. Intensive Intermediate Bambara. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 31C or 35. Intensive instruction (equivalent to courses 32A-32B-32C) in Bambara, major language of Mali and contiguous areas.

41A-41B-41C. Elementary Hausa. (4-4-4) Lecture, five hours. Course 41A is enforced requisite to 41B, which is enforced requisite to 41C. Major language of northern Nigeria and adjacent areas.

42A-42B-42C. Intermediate Hausa. (4-4-4) Enforced requisite: course 41C. Course 42A is enforced requisite to 42B, which is enforced requisite to 42C.

45. Intensive Elementary Hausa. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 41A-41B-41C) in Hausa, major language of northern Nigeria and adjacent areas.

46. Intensive Intermediate Hausa. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 41C or 45. Intensive instruction (equivalent to courses 42A-42B-42C) in Hausa, major language of northern Nigeria and adjacent areas.

51A-51B-51C. Elementary Amharic. (4-4-4) Lecture, five hours (15 hours for intensive course). Course 51A is enforced requisite to 51B, which is enforced requisite to 51C. Major language of Ethiopia. P/NP (undergraduates), S/U (graduates), or letter grading.

52A-52B-52C. Intermediate Amharic. (4-4-4) Lecture, five hours (15 hours for intensive course). Enforced requisite: course 51C. Course 52A is enforced requisite to 52B, which is enforced requisite to 52C. P/NP (undergraduates), S/U (graduates), or letter grading.

55. Intensive Elementary Tigrinya. (12) Lecture, 20 hours. Intensive instruction in Tigrinya, major language of Eritrea and Tigray, province of Ethiopia.

61A-61B-61C. Elementary Wolof. (4-4-4) Lecture, five hours. Course 61A is enforced requisite to 61B, which is enforced requisite to 61C. Major language of Senegambia.

62A-62B-62C. Intermediate Wolof. (4-4-4) Enforced requisite: course 61C. Course 62A is enforced requisite to 62B, which is enforced requisite to 62C. P/NP or letter grading.

75. Intensive Elementary Chichewa. (12) Lecture, 20 hours. Intensive instruction in Chichewa (ChiNyanja), major language of Malawi and adjacent areas of Zimbabwe, Mozambique, Zambia, and Tanzania.

85. Intensive Elementary Setswana. (12) Lecture, 20 hours. Intensive instruction in Setswana, primary language of Botswana and adjacent areas of South Africa.

97. Elementary and Intermediate Studies in African Languages. (1 to 6) Instruction at elementary or intermediate level, based on needs of students, in any language for which appropriate facilities are available. Those taught in past included Akan, Efik, Ewe, Fula, Igbo, Lingala, Luganda, and Xhosa.

Upper Division Courses

103A-103B-103C. Advanced Swahili. (4-4-4) Requisite: course 2C. Course 103A is requisite to 103B, which is requisite to 103C. Readings in Swahili literature and the contemporary press. Discussions mainly in Swahili.

109A-109B-109C. Advanced Zulu. (4-4-4) Lecture, five hours; outside study, seven hours. Requisite: course 8C. Course 109A is requisite to 109B, which is requisite to 109C. Readings in Zulu literature and the contemporary press. Discussions mainly in Zulu.

123A-123B-123C. Advanced Yoruba. (4-4-4) Requisite: course 12C. Course 123A is requisite to 123B, which is requisite to 123C. Readings in Yoruba literature and the contemporary press. Discussions mainly in Yoruba.

133A-133B-133C. Advanced Bambara. (4-4-4) Requisite: course 32C. Course 133A is requisite to 133B, which is requisite to 133C. Readings in Bambara literature and the contemporary press. Discussions mainly in Bambara.

143A-143B-143C. Advanced Hausa. (4-4-4) Requisite: course 42C. Course 143A is requisite to 143B, which is requisite to 143C. Readings in Hausa literature and the contemporary press. Discussions mainly in Hausa.

153A-153B-153C. Advanced Amharic. (4-4-4) Lecture, five hours (15 hours for intensive course). Requisite: course 52C. Course 153A is requisite to 153B, which is requisite to 153C. Readings in Amharic literature and the contemporary press. Discussions mainly in Amharic. P/NP (undergraduates), S/U (graduates), or letter grading.

M190. Survey of African Languages. (4) (Same as Linguistics M115.) Requisite: Linguistics 20. Introduction to languages of Africa, their distribution and classification, and their phonological and grammatical structures; elementary practice in several languages.

199. Special Studies in African Languages. (1 to 6) Instruction at advanced level or supervised research, based on needs of individual students, in any language or group of languages for which appropriate facilities are available.

Graduate Courses

202A-202B-202C. Comparative Bantu. (4-4-4) Requisites: Linguistics 110, 165A, 165B. Recommended: three quarter courses in one Bantu language selected from 1A through 8C, 199. Investigation of relationships among the Bantu languages; extent and external relationships of Bantu.

596. Directed Studies. (1 to 8) Directed individual study or research. Four units may be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

Indigenous Languages of the Americas

Lower Division Courses

17. Intensive Elementary Quechua. (12) Lecture, 15 hours; laboratory, five hours. Intensive course equivalent to courses 18A-18B-18C. Language of the Incas and its present-day dialects, as spoken in Andean South America. Offered in summer only. Letter grading.

18A-18B-18C. Elementary Quechua. (4-4-4) Lecture, five hours. Course 18A is enforced requisite to 18B, which is enforced requisite to 18C. Language of the Incas and its present-day dialects, as spoken in Andean South America.

Upper Division Courses

119A-119B-119C. Advanced Quechua. (4-4-4) 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.

Graduate Course

596. Directed Studies in Quechua. (1 to 8) Requisites: courses 119A-119B-119C. Directed individual study or research in Quechua. Four units may be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

Related Courses

Anthropology

143. Field Methods in Linguistic Anthropology

Applied Linguistics and Teaching English as a Second Language

220. Language Acquisition

223. Topics in Psycholinguistics

Armenian (Near Eastern Languages)

210. History of the Armenian Language

English

121. History of the English Language

122. Introduction to Structure of Present-Day English

210. History of the English Language

218. Celtic Linguistics

240. Studies in History of the English Language

241. Studies in Structure of the English Language

Folklore and Mythology

217. Folk Speech

German (Germanic Languages)

150. Language and Linguistics

217. History of the German Language

230. Survey of Germanic Philology

C238. Linguistic Theory and Grammatical Description

251. Seminar: Syntax and Phonology of German

252. Seminar: Historical and Comparative Germanic Linguistics

Hebrew (Near Eastern Languages)

190A-190B. Survey of Hebrew Grammar

210. History of Hebrew Language

Indo-European Studies

210. Indo-European Linguistics: Advanced Course

280A-280B. Seminars: Indo-European Linguistics

Italian

222A. History of the Italian Language

222B. Structure of Modern Italian

222C. Italian Dialectology

Japanese (East Asian Languages)

CM122. Structure of Japanese I

225A-225B. Seminars: Linguistic Analysis of Japanese Narratives

Latin (Classics)

240. History of the Latin Language

Philosophy

127A, 127B. Philosophy of Language

172. Philosophy of Language and Communication

287. Seminar: Philosophy of Language

Portuguese (Spanish and Portuguese)

100A. Phonology and Morphology

100B. Syntax

M118A. History of Portuguese and Spanish: Phonology

M118B. History of Portuguese and Spanish: Morphology and Syntax

M205A-M205B. Development of Portuguese and Spanish Languages

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish

Psychiatry

257A-257B-257C. Communication Disorders Associated with Developmental Disabilities and Psychiatric Disorders

Psychology

123. Psycholinguistics

260A-260B-260C. Proseminars: Cognitive Psychology

Russian (Slavic Languages)

123. Historical Commentary on Modern Russian

204. Introduction to History of the Russian Language

241. Topics in Russian Phonology

242. Topics in Russian Morphology

243. Topics in Historical Russian Grammar

263. Russian Dialectology

264. History of the Russian Literary Language

265. Topics in Russian Syntax

Semitics (Near Eastern Languages)

280A-280B-280C. Seminars: Comparative Semitics

Slavic (Slavic Languages)

202. Introduction to Comparative Slavic Linguistics

242. Comparative Slavic Linguistics

251. Introduction to Baltic Linguistics

281. Seminar: Slavic Linguistics

282. Seminar: Structural Analysis

Sociology

CM124A. Conversational Structures I

266. Selected Problems in Analysis of Conversation

267. Selected Problems in Communication

Spanish (Spanish and Portuguese)

100A. Introduction to Study of Spanish Grammar: Phonology and Morphology

100B. Introduction to Study of Spanish Grammar: Syntax

115. Applied Linguistics

M118A. History of Portuguese and Spanish: Phonology

M118B. History of Portuguese and Spanish: Morphology and Syntax

202A. Phonology

202B. Morphology

204A-204B. Generative Syntax and Semantics

M205A-M205B. Development of Portuguese and Spanish Languages

209. Dialectology

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish

256A-256B. Studies in Spanish Linguistics

257. Studies in Dialectology

Turkic Languages (Near Eastern Languages)

230A-230B-230C. Historical and Comparative Survey of Turkic Languages

Christopher S. Tang, Ph.D., *Chair*

Christopher Erickson, Ph.D., *Vice Chair*

William Broesamle, M.B.A., *Senior Associate*

Dean

John J. McDonough, D.B.A., *Senior Associate*

Dean

Steven A. Lippman, Ph.D., *Vice Dean*

William G. Ouchi, D.Litt., Ph.D., *Vice Dean*

Stacey Dunn, M.B.A. *Associate Dean*

Sue Johnson, *Associate Dean*

Jason L. Frand, Ph.D., *Assistant Dean*

Eric Mokover, M.B.A. *Assistant Dean*

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Michael J. Brennan, Ph.D. (*Finance; Goldyne and Irwin Hearsh Professor of Money and Banking*)

John W. Buckley, Ph.D. (*Accounting; Ernst and Young Professor of Accounting*)

Lee G. Cooper, Ph.D. (*Marketing*)

Bradford Cornell, Ph.D. (*Finance*)

Samuel A. Culbert, Ph.D. (*Human Resources/Organizational Behavior*)

Michael R. Darby, Ph.D. (*Business Economics; Warren C. Corder Professor of Money and Financial Markets*)

José de la Torre, D.B.A. (*Strategy and Organization*)

Sebastian Edwards, Ph.D. (*Business Economics; Henry Ford II Professor of International Management*)

Donald Erlenkotter, Ph.D. (*Decision Sciences, Operations and Technology Management*)

Eric G. Flamholtz, Ph.D. (*Accounting, Human Resources/Organizational Behavior*)

Arthur M. Geoffrion, Ph.D. (*Decision Sciences; James A. Collins Professor of Management*)

Martin Greenberger, Ph.D. (*Information Systems; IBM Professor of Computers and Information Systems*)

Mark S. Grinblatt, Ph.D. (*Finance*)

Dominique M. Hanssens, Ph.D. (*Marketing*)

Patricia J. Hughes, Ph.D. (*Accounting*)

Sanford M. Jacoby, Ph.D. (*Human Resources/Organizational Behavior*)

Uday S. Karmarkar, Ph.D. (*Operations and Technology Management; Times Mirror Professor of Management Strategy and Policy*)

Larry J. Kimball, Ph.D. (*Business Economics*)

Archie Kleingartner, Ph.D. (*Human Resources/Organizational Behavior*)

Edward E. Leamer, Ph.D. (*Business Economics; Chauncey J. Medberry Professor of Management*)

David Lewin, Ph.D. (*Human Resources/Organizational Behavior; Neil Jacoby Professor of Management*)

Bennet P. Lientz, Ph.D. (*Information Systems*)

Steven A. Lippman, Ph.D. (*Decision Sciences; George Robbins Professor of Management*)

Francis A. Longstaff, Ph.D. (*Finance*)

James B. MacQueen, Ph.D. (*Decision Sciences*)

John W. Mamer, Ph.D. (*Decision Sciences*)

John J. McDonough, D.B.A. (*Human Resources/Organizational Behavior, Accounting*)

Bill McKelvey, Ph.D. (*Strategy and Organization*)

Bruce L. Miller, Ph.D. (*Accounting*)

Daniel J.B. Mitchell, Ph.D. (*Human Resources/Organizational Behavior; Ho-Su Wu Professor of Management*)

Donald G. Morrison, Ph.D. (*Marketing; William E. Leonhard Professor of Management*)

William G. Ouchi, D.Litt., Ph.D. (*Strategy and Organization; Sanford and Betty Sigoloff Professor of Corporate Renewal*)

William P. Pierskalla, Ph.D. (*Operations and Technology Management; John E. Anderson Professor of Management*)

Anthony P. Raia, Ph.D. (*Human Resources/Organizational Behavior*)

Richard W. Roll, Ph.D. (*Finance; Allstate Professor of Insurance and Finance*)

Richard P. Rumelt, D.B.A. (*Strategy and Organization; Harry and Elsa Kunin Professor of Business and Society*)

Rakesh K. Sarin, Ph.D. (*Operations and Technology Management; Paine Professor of Management*)

Hans Schöllhammer, D.B.A. (*Strategy and Organization*)

Eduardo S. Schwartz, Ph.D. (*Finance; California Professor of Real Estate and Land Economics*)

Carol A. Scott, Ph.D. (*Marketing*)

E. Burton Swanson, Ph.D. (*Information Systems*)

Christopher S. Tang, Ph.D. (*Decision Sciences, Operations and Technology Management*)

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Ivo I. Welch, Ph.D. (*Finance*)

J. Fred Weston, Ph.D. (*Business Economics, Finance; Warren C. Corder Professor Emeritus of Money and Financial Markets*)

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Robert M. Williams, Ph.D.

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Theodore A. Andersen, Ph.D. (*Finance*)

Sushil Bikhchandani, Ph.D. (*Decision Sciences*)

Randolph E. Bucklin, Ph.D. (*Marketing*)

Bhagwan Chowdhry, Ph.D. (*Finance*)

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Carla Hayn, Ph.D. (*Accounting*)

Barbara S. Lawrence, Ph.D. (*Human Resources/Organizational Behavior, Strategy and Organization*)

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Avanidhar Subrahmanyam, Ph.D. (*Finance*)

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David Aboody, Ph.D. (*Accounting*)

David R. Bell, Ph.D. (*Marketing*)

Shlomo Benartzi, Ph.D. (*Accounting*)

Antonio E. Bernardo, Ph.D. (*Finance*)

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Teck Hua Ho, Ph.D. (*Operations and Technology Management*)

Matthias Kahl, Ph.D. (*Finance*)

Olivier Lédot, Ph.D. (*Finance*)

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David M. Porter, Jr., *Acting (Human Resources/Organizational Behavior)*

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 Shi Zhang, Ph.D. (*Marketing*)

Lecturers

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 Alan L. Carsrud, Ph.D.
 Gonzalo Freixes, J.D.
 Julie Ann Gardner, M.B.A.
 Jane Guerin, J.D.
 Ariella D. Herman, Ph.D.
 Gordon L. Klein, J.D.
 Danny S. Litt, M.B.A.
 Eric Mokover, M.B.A.
 Linda F. Newton, M.B.A.
 David S. Ravetch, M.A.
 Richard B. Stern, Ph.D.
 Eric H. Sussman, M.B.A.

Adjunct Professors

William M. Cockrum, M.B.A. (*Finance*)
 Jeffrey I. Cole, Ph.D. (*Entertainment Management*)
 Janis S. Forman, Ph.D. (*Communications Program*)
 George T. Geis, Ph.D. (*Decision Services, Information Systems*)
 Sanford C. Sigoloff, B.S. (*Strategy and Organization*)
 Victor C. Tabbush, Ph.D. (*Business Economics*)
 George S. Yip, D.B.A. (*Strategy and Organization*)
 S. William Yost, Ph.D. (*Operations and Technology Management*)

Adjunct Assistant Professors

Robert F. Foster, M.B.A. (*Operations and Technology Management*)
 Jason L. Frand, Ph.D. (*Information Systems*)
 Leonard Weil, B.A. (*Finance*)

Scope and Objectives

The John E. Anderson Graduate School of Management at UCLA offers a variety of programs leading to graduate degrees at the master's and doctoral levels. These include both an academic (M.S.) and professional (M.B.A.) master's, as well as a 21-month Executive M.B.A. Program designed for working managers who are moving from specialized areas into general management and a three-year Fully Employed M.B.A. Program for emerging managers. A Ph.D. in Management is also offered, as are a certificate Executive Program and research conferences and seminars for experienced managers.

The school offers an undergraduate minor in Accounting and several undergraduate courses in management. Enrollment in these courses, although open to all University students who have completed the requisites, is limited. The school limits the number of courses taken by undergraduate students to 11.

Undergraduate Study

Accounting Minor

Admission to the Accounting minor is competitive and based on a 3.0 grade-point average in the lower division preparation courses. Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the minor.

Transfer credit for any of the courses is subject to department approval and is considered only for requisite coursework. Decisions on admission to the minor are made by the Anderson School. The requisite grade-point average and completion of the preparation courses do not guarantee admission to the program.

Required Lower Division Courses (28 units): Economics 1, 2, M40 (or Statistics 10 as a substitute for course M40); Management 1A-1B; Mathematics 3A, 3B (higher-level courses and/or Advanced Placement Test credit may be substituted).

Required Upper Division Courses (28 units): Management 120A, 120B, 122, 127A, and three courses from 108, 123, 124, 127B, 128.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The John E. Anderson Graduate School of Management offers the Master of Science (M.S.) degree in Management and the Master of Business Administration (M.B.A.) degree, as well as concurrent M.B.A. degrees with other programs. In addition, the school offers the Executive M.B.A. Program and the M.B.A. for the Fully Employed (FEMBA).

Master of Business Administration

Admission

Although no specific undergraduate major is required for entrance, applicants should complete elementary algebra and differential calculus before entering the M.B.A. program. Applicants are required to take the Graduate Management Admission Test (GMAT). Any questions about the GMAT should be addressed to Educational Testing Service, Box 966-R, Princeton, NJ 08541, (609) 771-7590.

International applicants who do not hold degrees from universities or colleges where English is the primary language are required to take the Test of English as a Foreign Language (TOEFL). Inquiries can be addressed to (609) 951-1100.

The M.B.A. program application, which includes the application for admission to graduate status, is required. Admission is for the Fall

Quarter only. Completed applications, with full documentation, must be filed directly with the John E. Anderson Graduate School of Management Office of Admissions by April 4. Early application is strongly advised.

Consideration is given to the academic record, score on the GMAT and, for applicants whose native language is not English, score on the TOEFL; potential for management as evidenced by work experience and community, extracurricular, or other experience; and several written essays and letters of recommendation. Preference is given to those who have had full-time management-related work experience since completing the bachelor's degree. Those few applicants admitted directly from a baccalaureate program may choose to work for up to three years before entering graduate school. No other admission deferrals are granted.

Applications and information about the M.B.A. program are available from the M.B.A. Program Admissions Office, John E. Anderson Graduate School of Management, UCLA B201 Anderson Complex, Box 951481, Los Angeles, CA 90095-1481.

J.D./M.B.A.

The School of Law and the John E. Anderson Graduate School of Management offer a concurrent degree program which enables students to prepare for a career where law and management overlap and where understanding of both fields is necessary. Examples of such areas would include public service, international trade, industrial relations, corporate law, and specialized areas of management consulting. The program makes it possible to earn the J.D. and M.B.A. in four academic years. Application should be made to both schools simultaneously.

M.D./M.B.A.

The John E. Anderson Graduate School of Management and the School of Medicine offer a concurrent degree program which enables students to prepare for a career where medicine and management overlap and where understanding of both fields is necessary. Examples of such areas include medical management at a hospital center and management of health care delivery. The program makes it possible to earn the M.D. and the M.B.A. in five academic years. Applications should be made to the M.B.A. program in the third year of medical school.

M.S. Computer Science/M.B.A.

The John E. Anderson Graduate School of Management and the Department of Computer Science in the School of Engineering and Applied Science offer a concurrent degree program which enables students to complete requirements for the M.S. in Computer Science and the M.B.A. in three academic years. Application materials should be requested separately from both schools.

M.L.I.S./M.B.A.

Jointly sponsored by the Department of Information Studies (Graduate School of Education and Information Studies) and the John E. Anderson Graduate School of Management, this three-year concurrent degree program is designed to provide an integrated set of courses for students who seek careers that draw on general and specialized skills in the two professional fields. Application materials should be requested separately from both schools.

M.P.H./M.B.A.

The John E. Anderson Graduate School of Management and the School of Public Health offer a three-year concurrent degree program designed for students who desire a management career in health care and related fields and who wish in-depth professional preparation for such a career. The program reflects the combined interest of employers, faculty, and students who recognize the increasing challenges facing managers in the health care industry and the need for individuals who are skilled in dealing with these challenges. Application materials should be requested separately from both schools.

M.A. Latin American Studies/M.B.A.

The John E. Anderson Graduate School of Management and the Latin American Studies Program jointly sponsor a three-year concurrent degree program designed for individuals preparing for careers in international management with a special focus on the Latin American region. Establishment of the program was predicated on the belief that individuals employed in the area of international business and management are better equipped to meet the challenges of their employment with complementary preparation in language and regional studies. Application materials should be requested separately from both schools.

M.A. Urban Planning/M.B.A.

The John E. Anderson Graduate School of Management and the Department of Urban Planning (School of Public Policy and Social Research) offer a three-year concurrent degree program designed for students who seek careers which draw on general and specialized skills in urban planning and management. By providing knowledge of the workings of both the private and public sectors, the program enables individuals who have acquired these skills to move easily between careers in private industry and public service. Application materials should be requested separately from both schools.

M.S.N./M.B.A.

The John E. Anderson Graduate School of Management and the School of Nursing offer a three-year concurrent degree program designed for students who seek careers in hospital and nursing administration. By providing knowledge of both management and clinical care issues, the program prepares individuals for management positions in an increasingly

complex environment. Application materials should be requested separately from both schools.

Areas of Study

Accounting; business economics; decision sciences; entertainment management; entrepreneurial studies; finance; human resources and organizational behavior; information systems; international business and comparative management; marketing; operations and technology management; strategy and organization; real estate.

Course Requirements

The three required elements of the M.B.A. program are the management core, the advanced electives, and the management field study. The management core courses teach the fundamental techniques and disciplines which underlie the practice of management. Advanced electives provide specialized knowledge and skills for one or more fields (typically two) of management work. The management field study allows an opportunity to apply knowledge gained in the program to strategic issues in real organizations.

Management Core. The management core consists of eight courses on subjects basic to the practice of management. These courses include one course on the management of human resources in organizations (Management 409) and seven courses in technical and functional fields (Management 402, 403, 405, 408, 410, 411, and 420).

Management Field Study. The two-term management field study project (Management 444A-444B) consists of teams of three to five students who serve as management consultants to business firms or other organizations. Conclusions are summarized in a report which serves in lieu of a comprehensive examination for members of the team. The field study is judged by standards applicable to professional management consulting.

Advanced Electives. These courses are chosen by students to focus on one or more fields of specialization within the broad realm of management. Eleven of these electives must be selected from management curriculum area or interdisciplinary studies courses. Management 404, 406, 407, and 412, formerly part of the management core, may be taken as advanced electives. Three electives may be selected from any University department, subject only to general University regulations. These free electives normally must be taken while enrolled in the program. They may support or complement the remainder of the program of study. A maximum of two four-unit Management 596 courses (independent studies) and one four-unit Management 454 course (internship) may be applied toward the 96-unit requirement. These courses count as free electives.

Comprehensive Examination Plan

The comprehensive examination requirement is fulfilled by completing the two-quarter core course in field studies.

Thesis Plan

None.

Executive M.B.A. Program**Admission**

Designed for mid-career managers with strong records of achievement, the Executive M.B.A. Program enables executives to study advanced management in a high quality educational environment while continuing to work full time in their professional roles. The program is limited to 60 participants with superior academic records and a minimum of eight to 10 years of work experience with five years at the management level.

Areas of Study

The emphasis is on general management training; increased competence in management specialties; management of international businesses; organizational and interpersonal skills; and sophisticated understanding of the integration of businesses and their environments.

Course Requirements

A total of 66 units of coursework toward the degree must be completed in residence in the Executive M.B.A. program at UCLA. Completion of the intensive 24-month course of study leads to a regular M.B.A. degree. First year required courses for Fall Quarter: Management 461, 463, 473A, and 474; Winter Quarter: Management 462, 464, and 468; Spring Quarter: Management 465, 467, 472 and 478. In the second year, the following courses are required: Fall Quarter: Management 466A, and 477; Winter Quarter: Management 466B, 470A, 470B, 476, or 478; Spring Quarter: Management 469, 470C, 470D, and 475. Four units of 596 coursework is applicable toward the degree course requirements.

Classes are held at the John E. Anderson Graduate School of Management on alternating weekends, all day Friday and Saturday, with three five-day, off-campus residential sessions at the beginning of the first year and at the middle and end of the second year. The final residential session is the culmination of an international field study and is held abroad. Further information and application materials may be obtained by writing to the Assistant Dean, Executive M.B.A. Program, UCLA, A101F Anderson Complex, Box 951481, Los Angeles, CA 90095-1481.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

None.

Fully Employed M.B.A. Program

Admission

The M.B.A. for the Fully Employed (FEMBA) is designed for emerging managers with strong records of academic and professional achievement who wish to pursue an M.B.A. degree without leaving full-time employment. The program is limited to 125 participants with superior academic records and a minimum of four to six years of work and/or managerial experience. For further information and application, write to the Assistant Dean, Fully Employed M.B.A. Program, UCLA, A101 Anderson Complex, Box 951481, Los Angeles, CA 90095-1481.

Areas of Study

Consult the department.

Course Requirements

Students in the program choose one of two possible formats, with classes meeting either one afternoon per week (from 1:30 to 5 p.m.) and Saturday mornings (from 8:30 a.m. to noon) or all day Saturday (8:30 a.m. to noon and 1:30 to 5 p.m.). A regular M.B.A. degree is awarded on completion of 84 units which are typically completed in three years. The required units are a combination of specified core courses and advanced electives in finance, marketing, or general management.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

None.

Master of Science

Admission

All applicants to the program leading to the Master of Science degree in Management are required to take the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants who do not hold a degree from an English-speaking university are required to take the Test of English as a Foreign Language (TOEFL). Three letters of recommendation must be submitted with the completed application. Program information and application materials may be obtained from the M.S./Ph.D. Programs Office, UCLA, C524 Anderson Complex, Box 951481, Los Angeles, CA 90095-1481.

Applications are accepted for Fall Quarter admission only; the deadline for submission of applications and complete documentation is January 10.

Areas of Study

Decision sciences.

Course Requirements

Students entering the M.S. program are assumed to have taken calculus through differentiation and integration of several variables, two courses in probability and statistics, two quar-

ters of computer programming, and a managerial core of courses in managerial accounting, managerial economics, and managerial finance (Management 403, 405, 408). These courses can be waived on the basis of previous coursework.

The specialization consists of the following five-course methodological core: Management 203A, 210A, 210B, 210C, 216A. The specialization also includes three elective courses that typically are supportive of the thesis, along with four units of Management 598. The elective courses may be methodological in nature or may relate to management science aspects of a functional field such as operations management, information systems, or finance. Courses from other departments may also be selected.

Comprehensive Examination Plan

None.

Thesis Plan

The thesis must be finished within one year after all required coursework is completed. A student lacking a strong prerequisite background nominates a thesis committee by the fifth quarter of study and presents a proposal for committee approval at the beginning of the sixth quarter.

Doctoral Degree

Admission

Information regarding admission to the program leading to the Ph.D. degree in Management is the same as that listed under the M.S. degree.

Major Fields or Subdisciplines

Accounting; business economics; decision sciences; finance; human resources and organization behavior; information systems; international business and comparative management studies; marketing; operations and technology management; policy and organization.

Course Requirements

Research Preparation Requirement. The research preparation requirement consists of two parts: (1) a course requirement and (2) a research paper. Students are required to take five research courses which are not part of the major field area classes taught in the John E. Anderson Graduate School of Management. These courses must be completed before taking the oral qualifying examination and may not be waived by prior graduate work. The research paper must be submitted to and accepted by the research paper committee no later than the Spring Quarter of the third year of study.

Breadth Requirement. The breadth requirement consists of eight courses which are clearly outside the major field area. Students should use these courses to become more knowledgeable about the basic elements of several other management disciplines and functional areas or to define a minor field of re-

search and teaching proficiency. Three of these courses may be waived by prior coursework from a previously earned master's degree. They must be completed before taking the oral qualifying examination.

There is no formal major field course requirement. In consultation with a major field adviser, a course of study is designed which prepares students to pass the major field examination.

Written and Oral Qualifying Examinations

Proficiency in the major field area is determined by a written examination, supplemented in some areas by an oral examination. The major field examination must be passed by the end of the Spring Quarter of the third year of study.

Students are required to present the substance of their dissertation proposal in a formal seminar to which all Ph.D. students and faculty are invited.

When all the preliminary requirements have been fulfilled (coursework, research paper, major field examination, seminar), the University Oral Qualifying Examination can be held; if passed, students are advanced to candidacy. The oral qualifying examination must be passed within four and one-half years of the date of entrance into the program.

Management

Lower Division Courses

1A-1B. Elementary Accounting. (4-4) Lecture, three hours. Not open to freshmen. P/NP or letter grading. **1A.** Introduction to accounting theory and practice. Recording, analyzing, and summarizing procedures used in preparing financial statements, asset side of balance sheet, current liabilities, payroll accounting. **1B.** Requisite: course 1A. Partnership and corporation accounting, statement of cash flows, financial statement analysis, cost and managerial accounting.

88. Lower Division Seminar: Special Topics in Management. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which 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 a professional school faculty member.

Upper Division Courses

107. Business Communications. (4) Process and discipline of effective spoken presentations. Examination and application of classical and contemporary thinking on substance, structure, and delivery of messages. Elements of graphic presentation of data and presentation technology. Students design and deliver informative and persuasive presentations on key management issues. Critique of all efforts; certain efforts to be videotaped for review. 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.

120A. Intermediate Financial Accounting I. (4) 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.

120B. Intermediate Financial Accounting II. (4) 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.

122. Management Accounting. (4) Requisites: course 1B, Economics M40. 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.

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. Special Applications in Accounting. (4) Requisite: course 120B. Recommended: course 122. Designed for seniors. Use of "Strategic Management," a computer program that simulates experience on a senior management team. Under real and sometimes adverse economic conditions, teams must make strategic and tactical decisions, evaluate performance results, and compete for key resources, market share, and business opportunities. Emphasis on theories of return on equity, product life cycles, product line margin analysis, issuing debt versus equity, and other topics that allow students to apply accounting principles learned in previous courses. P/NP or letter grading.

127A. Tax Principles and Policy. (4) (Formerly numbered 127.) 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.

128. Special Topics in Accounting. (4) Selected topics in public accounting, including mergers and acquisitions, public-company status and the going-public process, role of the partner, serving an entrepreneurial client, and fund accounting. Discussion of a case study of current interest in the accounting profession. Business plan preparation. P/NP or letter grading.

130A. Basic Managerial Finance. (4) Lecture, three hours. Requisites: course 120A or 120B, Economics M40. 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.

130B. Advanced Managerial Finance. (4) Lecture, three hours. Requisite: course 130A. Analysis of capital budgeting and working capital management. Review of long-term financing through security markets and lease contracts. Management of financial risk using options, futures, and forward contracts. Study of merger and acquisition processes and reorganization under bankruptcy laws. P/NP or letter grading.

133. Investment Principles and Policies. (4) Lecture, three hours. Requisite: course 130A. Principles underlying investment analysis and policy; salient characteristics of governmental and corporate securities; policies of investment companies and investing institutions; relation of investment policy to money markets and business fluctuations; security price-making forces; construction of personal investment programs.

140. Elements of Production and Operations Research. (4) Requisites: Mathematics 3A, 3B, 3C, 31E, Economics M40. 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.

150. Elements of Industrial Relations. (4) Principles and methods of effectively utilizing human resources in organizations. Relationship between social, economic, and other environmental factors and current problems in industrial relations.

175. Elements of Real Estate and Urban Land Economics. (4) Examination of business decision making as related to logical forces shaping cities and influencing real estate market functions and land uses. Emphasis on decision making as it relates to appraising, building, financing, managing, marketing, and using urban property.

182. Leadership Principles and Practice. (4) Knowledge and skills leading to effectiveness in interpersonal relations. Understanding oneself as a leader and others as individuals and as members of working groups. Understanding of group process, including group leadership. Lectures and "sensitivity training" laboratory.

190. Management Theory and Policy. (4) Lecture, three hours. Requisite: course 130A. Study of basic concepts and theory of management. Emphasis on operational analysis of manager's role in all types of organizations. Management issues in areas of planning, organizing, staffing, directing, and controlling. P/NP or letter grading.

197. Special Topics in Management. (4) 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.

199. Special Studies in Management. (2 to 8) Discussion: three hours. Designed for juniors/seniors. Undergraduate individual investigation of selected research topic to be arranged with a faculty member. P/NP or letter grading.

Graduate Courses

200. Advanced Microeconomics. (4) Seminar, three hours. Requisite: course 405. Economist's approach to organization and competitive interaction. Topics include game theory, threat credibility, incentive contracts, information advantages, and entry deterrence.

201A. Business Forecasting. (4) Seminar, three hours. Requisites: courses 402, 406. Role of business forecasting in managerial planning. Principles and methods of forecasting. Evaluation of reliability of existing forecasting techniques. Coverage of both short- and long-term forecasting of industry, regional, and national business trends.

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.

202A. Regulation. (4) Lecture, three hours. Requisite: course 405. Reasons for government intervention in theory and practice. Effect of regulation on business. How regulation and deregulation occur. Areas include public utilities, banking, pollution, and the political process.

202B. Analytics of Competitive Strategy. (4) Discussion, three hours. Requisites: courses 402, 405. Development and analysis of strategies to maximize value in competitive and cooperative situations. Problems include competitive bidding, tacit collusion, and strategies in repeated settings.

M202C. Growth, Science, and Technology. (4) (Formerly numbered 202C.) (Same as Policy Studies M281.) 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.

203A. Economics of Decision. (4) Preparation: rudiments of economic theory, calculus, probability, and statistics. Basics of single-person decision theory from a normative viewpoint. Expected utility theory with objective and subjective probability. Departures from expected utility behavior. Introduction to multi-person decision theory.

203B. Economics of Information. (4) Discussion, three hours. Preparation: rudiments of economic theory of the firm, calculus, probability, and statistics. Requisite: course 203A. Optimal decision and information rules. Amount, cost, and value of information. Risk aversion, stochastic dominance, and their impact on economic decisions in a stochastic environment.

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.

205B. Comparative Market Structure and Competition. (4) Requisite: course 205A. Comparative study of public policies toward competition, market structures, and competitive practices in key industries in selected countries.

205C. Business Forecasting for Foreign Economies. (4) Requisite: course 201A. Forecasting changes in business activity, population, industrial structure, productivity, Gross Domestic Product and its components for selected countries. S/U or letter grading.

207. Resource Administration of Nonmarket Activities. (4) Seminar, three hours. Requisite: course 405. Examination of behavior of managers in profit vs. not-for-profit sectors to determine critical variables that explain observed differences in behavior. Use of methodology of microeconomics, particularly utility maximization.

208. Public Services and Private Functions. (4) Requisites: courses 405, 406. Sources and uses of federal, state, and local revenues and their impact on public and private resource allocation. Examination of proper roles of government and private sector in financing and provision of public goods and services.

209. Selected Topics in Business Economics. (4) Special topics in business economics. Current developments in theory or practice in business economics. May be repeated for credit.

210A. Mathematical Programming. (4) Discussion, three hours. Preparation: linear algebra. Comprehensive development of theory and computational methods of linear programming, with applications to a variety of areas.

210B. Applied Stochastic Processes. (4) Discussion, three hours. Requisite: Mathematics M170A or Electrical Engineering 131A. Fundamentals of stochastic processes, including Poisson processes, renewal theory, and Markov chains. Sequential stochastic (usually Markovian) decision processes in discrete and continuous time. Emphasis on problem formulation and characterization and computations of optimal policies, often via dynamic programming; applications to inventory, queueing, maintenance, reliability, and replacement problems. S/U or letter grading.

210C. Network Flows and Integer Programming. (4) Preparation: linear programming. Theory and techniques of discrete and network-related mathematical programming models in management science. Applications to various allocation, coordination, operating, and planning problems. Emphasis on fundamentals, efficient computational methods, and keys to successful practical applications.

211A. Nonlinear Mathematical Programming. (4) Requisites: course 210A, Mathematics 32A. Theory, methods, and application of optimization of nonlinear systems. Review of classical optimization methods; optimality and duality theory for convex programs; main computational approaches to convex programming; survey of current computer codes and computational experience.

211B. Large-Scale Mathematical Programming. (4) Requisite: course 210A. Theory and computational methods for optimizing large-scale linear and nonlinear programs. Exploitation of special structures with combinatorial, dynamic, multidivisional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variables and/or constraints.

212A. Decision Sciences Models I. (4) Requisites: course 407, Mathematics 31B. Broad survey of deterministic models of decision sciences, including solution methods and applications management. Solution methods include linear programming, network optimization, integer programming, nonlinear programming, and dynamic programming. Application areas include corporate planning, finance, marketing, production and operations management, distribution, and project management. S/U or letter grading.

212B. Decision Sciences Models II. (4) Requisites: course 212A, Mathematics 32A. Broad survey of nonlinear, time-staged, and probabilistic models for managerial decision making. Application areas include finance, marketing, facilities design, production, and energy systems. S/U or letter grading.

212C. Decision Sciences Models III. (4) Requisites: courses 212A, 212B. In-depth reviews of actual decision sciences applications. Emphasis on professional skills needed for successful practical applications. S/U or letter grading.

213A. Intermediate Probability and Statistics. (4) Requisite: course 402. Introduction to probability theory and hypothesis testing as applied to management. SAS programs used in this course and its sequels.

213B. Statistical Methods in Management. (4) Requisite: course 213A. Introduction to parameter and interval estimation, simple and multiple linear regression and correlation, fixed, random, and mixed effects analysis of variance models and nonparametric statistics, all as they apply to management studies.

213C. Introduction to Multivariate Analysis. (4) Requisite: course 213B. 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 discriminant analysis, multivariate analysis of variance, canonical correlation, and confirmatory factor models).

214B. Behavioral Science Models. (4) Formulation, analysis, and interpretation of mathematical models in behavioral sciences. Emphasis on stochastic process models for aspects of individual and group behavior such as learning, problem solving, classification, communication, bargaining, and social exchange systems.

215. Negotiations Analysis. (4) Discussion, three hours. Series of negotiation exercises to foster development of students' negotiation skills and experience. Use of economic and game-theoretic concepts in debrief to gain insight and develop framework for finding the broad negotiation principles applicable. S/U or letter grading.

215D. Time-Series Analysis. (4) Requisite: course 213B. Univariate Box/Jenkins analysis, transfer functions, and intervention analysis. Relationship between econometric and time-series models. Granger causality, multiple time-series analysis. Numerous computer applications in modeling and forecasting.

216A. Simulation of Operational Systems. (4) Discussion, three hours. Preparation: background in FORTRAN, PL/1, PL/C, or other batch computing language available on campus and in basic statistics (course 402) and modeling (course 407). Computer simulation methodology, including design, validation, operating procedures, and analysis of results of simulation experiments. Applications of simulation to management problems.

217A. Decision Analysis. (4) Lecture, three hours. Requisite: course 402. Framework provided for structuring and analyzing decision making under uncertainty. Topics include decision trees, value of information, subjective probability, attitude toward risk, sensitivity analysis, and multicriteria decision making. Applications to a number of business problems, including new product development, litigation, treasure hunting, and bidding. S/U or letter grading.

217B. Game Theory. (4) Requisite: course 213A. Nature of models for rational behavior in presence of conflicts of interests, zero-sum and nonzero-sum games, two-person and many-person games, state of the art, philosophical and computational limitations, relations with individual and group decision making.

218A. Selected Topics in Decision Sciences. (1 to 4) Newly developing topics and viewpoints. Topics have included reliability and optimal maintenance theory, large-scale distribution/inventory systems, and Markovian decision processes under uncertainty. May be repeated for credit. S/U or letter grading.

218C. Selected Topics in Business Statistics. (1 to 4) Special topics in statistical methods. Current developments in statistical theory and practice. Analysis of recent literature. Topics and instructors announced in advance. May be repeated for credit.

218X-218Y-218Z. Current Issues in Decision Sciences. (1 to 4 each) Lecture, one hour; discussion, three hours. Current issues and research on a variety of topics in general area of decision sciences. May be repeated for credit. In Progress and S/U grading.

220A. Intermediate Financial Accounting I. (4) Requisite: course 403. Concepts and principles of financial accounting. Intended to enhance students' understanding of published corporate financial statements. Emphasis on assets and revenue recognition.

220B. Intermediate Financial Accounting II. (4) Requisite: course 220A. Concepts and principles of financial accounting. Intended to enhance students' understanding of published corporate financial statements. Emphasis on liabilities and owners' equity.

220C. Advanced Financial Accounting. (4) Requisites: courses 220A, 220B. Continuation of courses 220A and 220B, with emphasis on a range of topics, including accounting for partnerships, mergers, combinations, and parent/subsidiary relationships. Review of litigation procedures, including reorganizations, receiverships, and bankruptcy.

222. Management Accounting. (4) Lecture, three hours. Requisite: course 403. Nature, objectives, and procedure of cost accounting and control; job costing and process costing; joint product costing, standard costs; theories of cost allocation and absorption. S/U or letter grading.

223. Auditing. (4) Requisite: course 403. Theory and practice underlying auditors' examination and reporting on financial statements, including professional ethics, internal control, and selection and application of auditing procedures, with emphasis on generally accepted auditing standards.

224. Law for Entrepreneurs. (4) Lecture, three hours. Examination of various legal issues encountered by entrepreneurs in operating business ventures, including contract negotiation, protecting goodwill, legal issues in marketing, employment law, bankruptcy, enterprise formation, and creditor rights. S/U or letter grading.

226. International Accounting. (4) Requisite: course 403. Comparative analysis of accounting concepts and practices in other countries; study of contrasts between various systems; problems of accounting for international corporations, including transfers of funds and income measurement; accounting influences on economic development.

227A. Taxation Principles and Policy. (4) Discussion, three hours. Requisite: course 403. Study of fundamental income tax problems encountered in business, investment, employment, and personal decisions. Special emphasis on structuring real estate and securities transactions. Current trends in law and policy.

227B. Taxation and Business Planning. (4) Discussion, three hours. Requisite: course 403. Study of tax issues arising in formation, operation, and termination of a corporation. Specific emphasis on structuring shareholders' transactions involving dividends, redemptions, liquidations, acquisitions, and capital structure.

228. Financial Statement Analysis. (4) Lecture, three hours. Requisite: course 403. Issues of accounting information evaluation, with special emphasis on uses of financial statements by decision makers external to the firm (e.g., investors, creditors). Topics include load decisions, bankruptcy prediction, and interpreting earnings.

229A. Special Topics in Accounting. (4) Lecture, three hours. Designed for Ph.D. students. Examination in depth of problems or issues of current concern in accounting, such as application of information economics and principal-agent model to accounting.

229B. Empirical Research in Accounting. (4) Lecture, three hours. Preparation: training in econometrics. Designed for Ph.D. students. Introduction to empirical accounting literature, focusing on role that accounting information plays in formation of capital market prices.

229X-229Y-229Z. Accounting Workshops. (1-1-2) Discussion, two hours. Designed for Ph.D. 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.

230. Theory of Finance. (4) Lecture, three hours. Requisite: course 408. Primary focus on valuation of corporate liabilities and other securities under uncertainty. Capital asset pricing model presented rigorously and compared with more recent theories of asset pricing such as arbitrage pricing theory and option pricing model, using empirical evidence. Secondary focus on analysis of problems in corporate finance such as optimal financing of the corporation and the market for corporate control. S/U or letter grading.

231A. Topics in Corporate Finance. (4) Discussion, three hours. Requisite: course 230. Identifying and solving financial problems through use of cases. Application of financial theory and financial techniques to business problems, using written reports and classroom discussion. S/U or letter grading.

231B. Nonprofit Sector Financial Policy. (4) Discussion, three hours. Requisite: course 408. Identifying and solving financial problems for all types of nonprofit organizations, with attention to funds accounting, budgeting and control, investment decision making when market valuation cannot be used as a criterion, and sources of funds for nonprofit organizations. Use of cases.

231D. Takeovers, Restructuring, and Corporate Governance. (4) Lecture, three hours. Requisite: course 230. Process by which corporate control transactions take place; role of market for corporate control in leading to economic restructuring and shifts in resource allocation by corporations. Empirical evidence on economic and capital market reactions to control transactions and to defensive measures by management. Focus on interaction of strategic planning, firm value maximization, and investment decisions in life cycle of growth of the firm. S/U or letter grading.

231E. Managing Finance and Financing the Emerging Enterprise. (4) Requisites: courses 230, 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 which may be appropriate to securing organizations' money requirements.

232A. Security Analysis and Investment Management. (4) Lecture, three hours. Requisite: course 230. Topics include security valuation, application of portfolio theory to investment decisions, performance evaluation, and basics of fixed income portfolio management strategies. S/U or letter grading.

232B. Fixed-Income Markets. (4) Lecture, three hours. Preparation: demonstrable training in statistics. Requisites: courses 230, 233A. 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) Requisite: course 230. 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 an option trading game and writing a term paper analyzing their strategies. S/U or letter grading.

233A. Money and Capital Markets. (4) Requisite: course 230. Application of interest theory and flow funds analysis to price determination process in markets for bonds, mortgages, stocks, and other financial instruments. Study of funds flow from credit markets. Analysis of costs of capital in individual industries.

233B. Financial Institutions. (4) Lecture, three hours. Requisite: course 230. Theory and practice of financial institutions and stock exchanges. Main topics include deposit insurance and regulation, international banking, market microstructure, and investment banking. S/U or letter grading.

234A. International Financial Markets. (4) Lecture, three hours. Requisites: courses 205A, 230. 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 the markets to be dealt with in detail. S/U or letter grading.

234B. Financial Management of Multinational Corporations. (4) Lecture, three hours. Requisite: course 230. Financial management of multinational firms from perspective of a financial vice president or other financial officer within the company. Topics include measuring foreign exchange risk, managing that risk with both contractual and operating strategies, foreign investment decisions, capital budgeting and cost of capital in an international perspective, political risk, working capital management, and performance evaluation and control.

238. Special Topics in Finance. (4) Requisite: course 230. Selected topics in finance theory, empirical studies, and financial policy. May be repeated for credit with instructor change. S/U or letter grading.

239A. Theory of Exchanges under Uncertainty. (4) Requisite: course 230. Primarily designed for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. Foundations of theory of exchange developed as introduction to theoretical literature on pricing of capital assets.

239B. Theory of Investment under Uncertainty. (4) Requisites: courses 230, 239A. Primarily designed for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. Foundations of theory of firm capitalization and investment decisions, with special attention to questions of exchange and allocative efficiency.

239C. Empirical Research in Finance. (4) Discussion, three hours. Preparation: training in econometrics. Requisite: course 230. Primarily designed for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. In-depth study of empirical research in the field of finance, statistical methodologies applied to test market efficiency, and asset pricing theory. S/U or letter grading.

239D. Ph.D. Seminar: Corporate Finance. (4) Preparation: courses in 239 series. Requisite: course 230. Designed for Ph.D. students. Advanced topics in corporate finance theory and empirical research. May be repeated for credit with instructor change. S/U or letter grading.

239X-239Y-239Z. Finance Workshops. (1-1-2) Discussion, 90 minutes. Designed for Ph.D. 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.

240A. The Operating Manager. (4) Definition and analysis of problems of production planning, inventory management, quality control, system design, and implementation from operating manager's perspective, primarily through case studies. Course is integrative in nature, rather than one of developing new methodologies and techniques.

240B. Operations Planning, Scheduling, and Control. (4) Requisite: course 407. Forecasting, inventory planning, aggregate planning, job-shop scheduling models, and automated manufacturing systems, with emphasis on managerial relevance and usefulness of models in solving or providing insights into real-world problems.

240C. Design of Operational Systems. (4) Requisite: course 407. Issues, concepts, objectives, and criteria in determination of capabilities, characteristics, and configurations of manufacturing and service systems. Examination of analytic and synthesizing methodologies for selection of capacity, location, technology, processes, material movement and storage systems, facilities, work group structures, and jobs.

240D. Operations Strategy and Policy. (4) Discussion, three hours. Definition and scope of operations strategy and its relation to corporate strategy, importance of productivity and its amplification in global competition, positioning the system to match market requirements, capacity decisions, product and process technology, work force and job design, strategic implications of operating decisions, suppliers and vertical integration. Case analyses involving strategic issues in manufacturing and nonmanufacturing situations.

240E. Managing Entrepreneurial Operations. (4) Lecture, three hours. 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.

240F. Supply Chain Management. (4) Lecture, three hours. Requisite: course 410. Business environment today is characterized by globalized operations, intense competition, rapid turnover in technology, and short product life cycles. Consequently, firms can no longer afford to operate in isolation. In many industries competition has moved from the firm level to the supply chain level. Provides understanding of strategic, tactical, and operational issues in supply chain management. S/U or letter grading.

241A. Managing Technology for Competitive Advantage. (4) Advanced technologies such as robotics, computer-integrated manufacturing, computer-aided design and manufacturing (CAD/CAM), and flexible manufacturing systems. Effects of technological innovation on operations managers at both strategic and operational levels. Course is integrative in nature.

241B. Project Management. (4) Requisite: course 407. Management of development projects. Decision-making environment, economic analysis, network analysis, scheduling, and control of development projects. Sequential and aggregate development decisions.

242A. Models for Operations Planning, Scheduling, and Control. (4) Designed for Ph.D. students. Survey of research studies and recent literature in operations planning, scheduling, and control. Emphasis throughout on formal models and their applications. Aggregate planning, work force scheduling, inventory management, and detailed operations scheduling and control.

242B. Models for Operations Systems Design. (4) Designed for Ph.D. students. Survey of research literature on models for design of manufacturing and service systems, including long-range forecasting, operational economics, capacity, location, facilities, processes/technology, work, and work structures.

243A. Planning for Facilities Systems. (4) Requisite: course 212A. Planning of location, expansion, and replacement for interdependent systems of facilities. Examination of spatial and dynamic economic considerations. Applications in selected industries and public systems.

243B. Inventory Theory. (4) Requisite: course 210B. General discussion of inventory models, with emphasis on characterizing the form of optimal policies and efficient computational methods. Consideration of deterministic, stochastic, discrete-time, and continuous-time models.

243C. Scheduling Models for Intermittent Systems. (4) Requisite: course 407. 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.

243X-243Y-243Z. Operations and Technology Management Seminars. (1-1-2) Discussion, 90 minutes to three hours. Designed for Ph.D. students. Required of all students in operations and technology management concentration during first two years of their Ph.D. work. Student and faculty presentations of ongoing research. May be repeated for credit.

244X-244Y-244Z. Research in Operations and Technology Management. (1-1-2) Designed for Ph.D. students. Normally taken in first and second years of Ph.D. study. Survey of research literature in operations and technology management. Seminar reports dealing with special topics. May be repeated for credit with topic change.

245. Special Topics in Operations and Technology Management. (4) Lecture, three hours. Studies of advanced subjects of current interest in operational management. Emphasis on recent developments and application of specialized knowledge to operational problems. Topics vary each term. May be repeated for credit with topic change.

246C. Management in Public and Private Nonprofit Sectors. (4) Designed for graduate students. Examination of roles and management systems of the three sectors of U.S. society; unique aspects and managerial issues of public and private nonprofit organizations and of their political, social, and technical environments. Financial, marketing, and operational considerations and evaluation, control, and ethical issues of service delivery systems.

247A. Environment of the Art World. (4) Consideration and analysis of political, social, economic, and environmental forces in American society as they affect existence and development of arts institutions in the U.S. Exploration of present policies and trends and potential future developments.

247B. Role of Management in Artistic Decision Making. (4) Descriptive study of criteria for decision making in artistic institutions, including role of the institution in society, economic environment of the arts, and artistic value systems of arts organizations.

248A. Strategic Management in the Entertainment Industry. (4) Discussion, three hours. Requisites: courses 403, 405, 406, 408, 420. Examination of financial and strategic aspects of transactions and company management in the entertainment industry. Cases and topics include organizational behavior and decision making in creative companies; trends in industry structure and competitive economics; accounting issues; institutional and private investment in motion pictures; theatrical distribution, international and ancillary markets (pay TV, videocassettes, syndication).

249A. Special Topics in Public and Private Nonprofit Management. (4) Studies of advanced subjects of current interest in public/not-for-profit management. Emphasis on recent developments and application of specialized knowledge to public/not-for-profit problems. Topics vary each term. May be repeated for credit with topic change.

249B. Special Topics in Arts Management. (4) Examination of current issues in management of artistic organizations. Relevant combinations of lectures, discussions, case studies, and team research projects.

M250A. Labor Relations: Process and Law. (4) (Formerly numbered 250A.) (Same as Policy Studies M232.) Lecture, three hours. Designed for graduate students. Consideration, at advanced level, of collective bargaining process, labor/management agreement, administration of the contract, law of labor/management relations, union structure and goals, and influence of external labor markets on labor relations. S/U or letter grading.

250B. Human Resource Management: Process and Law. (4) Requisite: course M250A. Systematic exposure to theoretical and empirical literature concerning administrative and legal aspects of human resource management. Topics include processes of managing human resources and impact of governmental policies on employer/employee relations.

250C. Behavioral Foundations of Human Resource Management. (4) Requisite: course 250B. Topics include development and training; human resource accounting; behavioral foundations of participating management; motivation, productivity, and satisfaction; designing reward systems; and evaluation of organization effectiveness. Emphasis on understanding, predicting, and influencing human behavior in organizations.

251. Managing Human Resources. (4) Management of people in organizations, designed for managers as well as personnel specialists. Organized at three related but distinct levels of analysis: (1) day-to-day utilization of people as organizational resources to achieve optimal productivity, satisfaction, retention, and development; (2) personnel management function or system that performs specialized human resource functions; and (3) issues facing top management which involve management of human resources, including strategic planning for human resources, union/management relations, and design of corporate culture.

252. Systems of Employee/Management Participation. (4) Designed to provide understanding of systems of employee/management participation around the world (apart from traditional collective bargaining systems). Specific concepts such as worker participation in decision making, industrial democracy, joint consultation, workers' councils, profit sharing.

253. Employee Discipline, Discharge, and Grievance/Appeal Settlement. (4) Designed for graduate students. Analysis of conflict in the employment relationship; theoretical and empirical findings. Principles and philosophies that underlie resolution of labor/management impasses, with emphasis on grievance procedures, arbitration, mediation, and fact-finding.

M255. Comparative Industrial Relations. (4) (Formerly numbered 255.) (Same as Policy Studies CM231.) Lecture, three hours; outside study, nine hours. Requisite: course 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. S/U or letter grading.

257. Human Resource Management in Creative and Nonprofit Sectors. (4) Designed for graduate students. Analysis of human resource management theory and practices in industries where primary product is creative or intellectual (e.g., arts, entertainment, education, high technology, and journalism). Consideration of incorporation of work design, employee influences, systems, and business strategies in human resource management. Interpersonal and group process for managing human behavior. S/U or letter grading.

258. Selected Topics in Industrial Relations. (1 to 4) Designed for Ph.D. students. Examination in depth of problems or issues of current concern in industrial relations. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

259A. Individuals and Groups in Human Systems. (4) Lecture, three hours. Designed for graduate students. Doctoral-level survey of research literature dealing with interpersonal dynamics, groups, and aspects of culture in work organizations, with emphasis on theory and research. Current research in psychology, anthropology, and small group studies. Variety of methods represented, including clinical and cross-cultural approaches. S/U or letter grading.

259B. Advanced Studies in Human Resource Management. (4) 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, organization behavior, and economics, including topics such as careers, participation, negotiations, and technology/work systems. S/U or letter grading.

M259C. Labor Markets and Public Policy. (4) (Formerly numbered 259C.) (Same as Policy Studies CM230.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of major topics in economic analysis of labor markets and public policies toward the labor market. Topics include labor force trends and measurement, compensation determination, productivity, internal labor markets, human capital, union wage effects, unemployment, and minority and female labor-market experience. S/U or letter grading.

260A. Advanced Marketing Management. (4) Requisite: course 411. Decision-oriented course concerned with solution of product, price, promotion, and distribution channel problems. Extensive use of case studies.

260B. Marketing Strategy and Planning. (4) Lecture, three hours. Requisite: course 411. Development of a framework for strategic marketing planning based on customer behavior, market segmentation, product positioning, product life cycle, market responsiveness, and competitive reaction. Within this framework, development of key elements in annual marketing process.

261A. Management in the Distribution Channel. (4) Lecture, three hours. Requisite: course 411. Examination of decisions in the distribution channel. Issues of power in the distribution channel and trade-offs between alternative channel systems.

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.

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.

263A. Consumer Behavior. (4) 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.

264A. Marketing Research: Design and Evaluation. (4) Lecture, three hours. Requisite: course 411. Designed for prospective users of research results rather than for specialists in research. Marketing research is an 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.

264B. Advanced Marketing Research. (4) Discussion, three hours. Requisite: course 264A. Advanced topics in marketing research, with emphasis on quantitative tools to aid marketing decision making. Topics include demand and market share forecasting, conjoint analysis, market segmentation and cluster analysis, brand positioning and competitive market structures, and assessing market response to price, advertising, promotion, distribution, and sales force.

265A. Marketing and the Law. (4) Lecture, three hours. Requisite: course 411. Detailed study of legislative enactments (federal, state, or local) which influence operation of institutions engaged in marketing activities, together with analysis of judicial decisions which have interpreted these laws.

265B. Social Issues in Marketing. (4) Lecture, three hours. Requisite: course 411. Environmental impact of marketing in society; study of theories, methods, and relationships for evaluating transaction behavior in a scientific and humanistic context; macroanalytic perspectives in marketing.

266A. Product Management. (4) Lecture, three hours. Requisite: course 411. Investigation of process of developing new products and management of mature brands in existing markets. Regarding new product development, focus on concept screening, designing new products, and test marketing. Tactical management of marketing mix with currently available data emphasized in managing mature brands.

266B. Advertising and Marketing Communications. (4) Lecture, three hours. Requisite: course 411. Detailed review of use of communication tools in marketing. Critical review of advertising and promotional policies from developmental and executional perspectives. Discussion of other forms of marketing communications, with goal of helping students develop integrated communication strategies.

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.

269A. Theory in Marketing. (4) 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.

269B. Research in Marketing Management. (4) Discussion, three hours. Designed for Ph.D. 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.

269C. Quantitative Research in Marketing. (4) Designed for Ph.D. 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.

269D. Behavioral Research in Marketing. (4) Designed for Ph.D. 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.

269E. Special Research Topics in Marketing. (4) Designed for Ph.D. 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.

269X-269Y-269Z. Workshops: Marketing. (1-1-2) Designed for Ph.D. students. Required of all students during first two years of their Ph.D. work. Series consists of a number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and Ph.D. students. Active participation and intellectual interchange, which helps students gain a richer perspective on the field of marketing. In Progress grading.

270A. Information Systems Applications. (4) Lecture, three hours. Requisite: course 404. Fundamental concepts and uses of information systems in organizations. Systems for intraorganizational and interorganizational transaction, coordination, and control. Information technology for reengineering of business processes. Analysis and evaluation of systems and their impacts. S/U or letter grading.

270B. Decision Support Systems. (4) Lecture, three hours. Requisite: course 404. Systems for support of individual and group decision making and collaborative work. Expert and other knowledge-based systems and their applications. Fundamentals of human/computer interaction. S/U or letter grading.

270C. Application Frontiers in Information Systems. (4) Lecture, three hours. Requisite: course 404. Exploration of new state-of-the-art applications in information systems, such as in electronic commerce. Assessment of industrial opportunities and impacts. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

271A. Information Systems Technology. (4) Lecture, three hours. Requisite: course 404. Computing and communication platform specification, configuration, sizing, and selection for business applications — from hand-helds to workstations to mainframes. Open and proprietary architectures. Client/server. Comparative performance and cost analyses. Industry trends. S/U or letter grading.

271B. Networks for Information Systems. (4) Lecture, three hours. Requisite: course 404. Telecommunications technology. Design, implementation, and management of local and wide area networks for the firm. Security; protocols and standards; commercial value-added and public-access networks; Internet. Industry trends. S/U or letter grading.

271C. Emergent Technologies in Information Systems. (4) Discussion, three hours. Requisite: course 404. Special topics in new and emergent technologies such as multimedia, digital imaging, object-oriented software, heterogeneous databases, and parallel processing. Assessment of industrial opportunities and impacts. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

272A. Information Systems Development. (4) Discussion, three hours. Methods and tools for information systems design, development, implementation, and maintenance. User requirements analysis. Design and specification of application software and databases. Classic and alternative approaches, such as rapid prototyping. System integration. Automated support. S/U or letter grading.

273A. Information Systems Management. (4) Discussion, three hours. Requisite: course 404. Managing information systems function within the enterprise. Role of chief information officer. Centralized and decentralized organizational designs. Outsourcing and other vendor relationships. Costing and pricing of services. Strategic planning. Management of information systems professionals. S/U or letter grading.

274A. Special Topics in Information Systems. (4) Discussion, three hours. Designed primarily for Ph.D. students. Examination in depth of problems or issues of current concern in information systems theory and practice. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

274B. Workshop: Information Systems Research. (4) Discussion, three hours. Designed for Ph.D. students. New developments in information systems theory, practice, and empirical research. In-depth consideration of research designs and methods. Presentation of student work-in-progress. May be repeated for credit. S/U or letter grading.

274X-274Y-274Z. Current Research in Information Systems. (1-1-2) Discussion, two hours. Designed for Ph.D. students. Year-long sequence associated with Information Systems Colloquium Series. Regularly scheduled presentations of current research and state-of-the-art developments in information systems field. Study and discussion of research presented. May be repeated for credit. S/U grading.

278A. Urban Real Estate Financing and Investing. (4) Discussion, three hours. 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.

278B. Sources, Uses, and Flows of Real Estate Capital. (4) Discussion, three hours. Analysis of money, capital, and mortgage markets to determine potential availability and costs of mortgage money from alternative sources. Evaluation of various sources of funds to determine factors influencing decisions to make mortgage loans. Examination of all types of lending instruments, particularly mortgage instruments, and mortgage-based securities for their impacts on real estate investment decisions.

279A. Special Studies in Urban Land Economics. (4) Limited to master's or Ph.D. candidates working on thesis- or dissertation-related research. May be repeated for credit.

279B. Selected Topics in Urban Land Economics. (4) Discussion, laboratory, and fieldwork. Designed for second-year graduate students. Intended for students who wish to pursue a particular topic in housing, real estate, or urban land economics in depth on individual or cooperative basis. All work is computer-based; however, students are provided introduction to use of computers (preferably PCs) in various kinds of real estate analysis. May be repeated for credit.

280A. Studies, Research Philosophies, and Methodology in Human Systems. (4) Discussion, three hours. Designed for Ph.D. students. Survey of seminal studies of human systems, including individual, group, and intergroup behavior, and organization behavior. Consideration of objectivist and subjectivist philosophies of science and their implications for related methodologies, including experimentation, field studies, case approaches, and a range of analytic and descriptive procedures in data collection. Emphasis on existing literature, philosophy of science, and concepts. May be repeated for credit. S/U or letter grading.

280B. Personal and Professional Development. (4) Discussion, three hours. Designed for Ph.D. students. Provides setting where students may explore their own professional values and approaches in process of testing and learning values and standards in applied behavioral sciences and human systems development. S/U or letter grading.

280C. Research Design in Human Systems Studies. (4) Discussion, three hours. Designed for Ph.D. students. Process of designing studies of human systems, including choice of research topics. Actively involves students in preparation of research proposals for research papers and Ph.D. dissertations. May be repeated for credit. S/U or letter grading.

281A. Sociotechnical Systems. (4) Designed for graduate students. Introduction to systems concepts and view of work organizations as interacting social and technical systems open to forces from the surrounding environment. Focus on developing sociotechnical systems analytic approach and understanding advantages of this approach for designing and managing organizations.

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. Task Group Processes. (4) Lecture, three hours. Requisite: course 281A or 281B. Structures, processes, and interrelations of work groups in sociotechnical systems. Emphasis on understanding how group activities interrelate with physical/technical environment. Imparts practical knowledge of task group functioning through class exercises and field observations. Consideration of team concepts and project group design. S/U or letter grading.

284A. Organization Design. (4) Lecture, three hours. Requisite: course 281A or 281B. Survey of organizational design theories and methods, including bureaucratic, participative, and cognitive models. Development of specific methods ranging from microdesign of jobs to macrodesign of total organizational systems. Special emphasis on sociotechnical and differentiation/integration models. S/U or letter grading.

284B. Organization Development. (4) Discussion, three hours. Designed for graduate students. Analysis of effects of organizational and managerial practices on individual self-fulfillment and systems effectiveness. Theories of organization change and action/research methods in organization development. Theory merged with practice through seminar discussions of field observations. 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.

287. Groups and Their Facilitation. (4) Discussion, three hours. Development of cognitive and experiential understanding of dynamics of small group training and its facilitation, including "sensitivity"/basic groups, group counseling, self-help groups, small groups, and committees in managerial decision making. Analysis of relevant theory, research findings, and case studies. S/U or letter grading.

288A. Selected Topics in Behavioral Science. (4) Discussion, three hours. Designed for graduate students. Theories of human behavior fundamental to study of individual, group, organizational, and cultural behavior. Exploration in depth of selected theoretic positions, extending and consolidating behavioral science knowledge and application. May be repeated for credit. S/U or letter grading.

288B. Current Issues in Sociotechnical Systems and Organization Design. (4) Discussion, three hours. Designed for graduate students. Current topics in analysis and design of organizations as sociotechnical systems engaged with various technologies and environments, emphasizing design approaches emanating primarily from Europe, the Orient, and the U.S. In-depth comparisons of selected job and organizational design cases. May be repeated for credit. S/U or letter grading.

288C. Selected Topics in Human Systems Studies and Organizational Behavior. (4) Discussion, three hours. Designed for graduate students. Psychological and social psychological aspects of human behavior and performance in organizations. Theoretical models, empirical findings, and applications of such topics as attitudes and values, cognitive and perceptual processes, behavioral conflict, and individual change processes. May be repeated for credit. S/U or letter grading.

288D. Current Issues in Human Systems Change and Development through Consulting. (4) Discussion, three hours. Current topics in philosophy, art, and technology of improving organizations and increasing managerial effectiveness through consulting interventions. In-depth treatment of consultant entry and exit, diagnosing, process consultation, consciousness raising, team building, and values. Relevant to development of effective M.B.A. field-study teams. S/U or letter grading.

288E. Proseminar: Behavioral and Organizational Sciences Colloquium. (4) Discussion, three hours. Designed for graduate students. Series of presentations by scholars and practitioners in behavioral and organizational sciences, with focus on integrative themes or major issues in the field, designed to provide dialogue among students and faculty on significant topics, controversies, and leading-edge ideas. May be offered in one or successive terms and may be repeated for credit. S/U or letter grading.

290. Organization Theory. (4) Lecture, three hours. Analysis of theory and practice of managerial function of planning and control. Implementation of objectives through policy formulation, decision making, and control. Individual projects and reports. S/U or letter grading.

292A. Research and Development Policy. (4) Examination of research and development as a process and as an element of a goal-oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of forecasting technological futures.

292C. Comprehensive Planning in Public Sector. (4) Evolving modes of planning under complexity, with particular emphasis on public sector. Development of policy through standard setting, bargaining, and regulating governing relationships; reality and value judgments; social and technical dimensions of alternatives; and social and technological forecasting.

293A. Political Environment of American Business. (4) Lecture, three hours. Evaluation of certain criticisms made by business of the American political system. Designed to provide clearer understanding of principal features of American politics, especially as they influence business enterprise.

M293B. Morality of Capitalism. (4) (Same as Political Science M211.) Lecture, three hours. Examination of major philosophical writings that defend or criticize capitalism on basis of principles of right conduct and just social arrangements (i.e., on moral grounds).

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.

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. Small Business Management. (4) Exploration of crucial aspects in managing small business enterprises. Emphasis on identification and analysis of characteristic operating problems of small firms and application of appropriate methods or techniques for their solution.

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.

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.

296B. International Comparative Management Research. (4) Designed for Ph.D. students. In-depth study of theory and research pertaining to international business and comparative management. Emphasis on recent research developments and methodological issues. Imparts knowledge on design and conduct of international comparative management research.

297A. Comparative and International Management. (4) Comparative study of practice of management in selected foreign countries, as affected by their social environments and development of management theory. S/U or letter grading.

297B. International Business Policy. (4) Requisite: course 205A. Analysis of key managerial problems encountered in a multinational corporation. Concepts and theories acquired in other courses in international business and comparative management, applied to a series of complex cases and simulations of international business operation.

297C. International Business Law. (4) Requisites: 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) Requisite: 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.

298A. Special Topics in Management Theory. (4) Designed for Ph.D. 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 Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298B. Special Topics in International and Comparative Management. (4) Designed for Ph.D. students. Examination in depth of problems or issues of current concern in international and comparative management. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298C. Special Topics in Sociotechnical Systems. (4) Designed for Ph.D. students. Examination in depth of problems or issues of current concern in sociotechnical systems. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298D. Special Topics in Management. (1 to 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 or letter grading.

298X-298Y-298Z. Management Strategy and Policy Workshops. (1-1-2) Discussion, three hours. Designed for Ph.D. 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.

299M. Ph.D. Seminar: Research Methodology. (4) Discussion, three hours. Designed for Ph.D. students. Methodological issues in management research. Emphasis on identification of research opportunities and formulation and evaluation of a research proposal. Alternative goals, settings, and designs. Hypothesis development and testing. Measurement. Implementation considerations.

299R. Research Methods in Management. (4) Designed for Ph.D. students. Provides feedback and evaluation of papers prepared for research requirement. Quarterly meetings to discuss expectations of research committee and Doctoral Office. Students must enroll the term in which they are submitting their research paper. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

400. Mathematics for Management. (4) Designed for graduate students. Fundamental mathematics for business, including topics from matrix algebra, probability, and calculus, with applications to model building and decision making in business firms. S/U grading.

401A-401B. Managerial Problem Solving. (2-2) Discussion, three hours. Use of international business simulation and series of complex multifaceted cases to learn to apply M.B.A. core disciplines in real-world globally focused business problems. In Progress and letter grading.

402. Data Analysis, Statistics, and Decision Making. (4) Designed for graduate students. In-depth introduction to probability, decision theory, and statistical inference, with emphasis on solution to actual business problems.

403. Financial Accounting. (4) Designed for graduate students. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of "the language of business" — accounting. S/U or letter grading.

404. Information Systems. (4) Lecture, three hours. Designed for graduate students. Introduction to information systems in organizations from perspective of general manager. Managerial and strategic uses of information systems, information technology that underlies these systems, and ways such systems are developed and managed. S/U or letter grading.

405. Managerial Economics. (4) Lecture, four hours; discussion, one hour (optional). 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.

406. Global Economy. (4) Requisites: courses 402, 403, 405. Provides analytical framework required for understanding the way changing macroeconomic conditions in world economy affect economic growth, inflation, interest rates behavior, exchange rate determination, global competitiveness, unemployment, and the trade account. Provides skills to enable students to assess critically how developments in world economy affect particular industry environments.

407. Managerial Model Building. (4) Lecture, three hours. Requisites: courses 402, 403, 405. Survey of uses of formal modeling approaches in managerial decision making. Emphasis on model types and formulations, and use of solutions obtained from computer routines. Application areas include finance, marketing, production, and public systems.

408. Managerial Finance. (4) Requisites: courses 402, 403, 405. Analysis of main decision areas of managerial financial management, aimed at principles generally applicable to all types of organizations. Emphasis on financial planning and control, sources of funds, developing objectives and standards which lead to effective allocation and use of organization's resources.

409. Managing Human Resources in Organizations. (4) 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 the managerial process and development of prospective general managers.

410. Operations and Technology Management. (4) Requisites: courses 402, 403, 405. 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. S/U or letter grading.

411. Elements of Marketing. (4) Requisites: courses 402, 403, 405. 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. S/U or letter grading.

412. Management of Organizations. (4) Lecture, three hours. Preparation: completion of first-year core program. Integrative approach to theory and practice of management in complex organizations, emphasizing managerial roles in designing organizational structures, creating/maintaining planning, control, information, incentive systems, different patterns of human interaction such structures and systems tend to produce.

413A. Personal Computing for Managers. (4) Lecture, three hours. Designed for graduate students. Personal computing in support of strategic analysis, decision making, and management communication. Use of personal productivity tools and network resources. Accessing publicly available information. Emphasis on hands-on exercises. S/U or letter grading.

413B. Advanced Topics in Managerial Computing. (4) Lecture, three hours. Designed for graduate students. New information technology for personal computing by managers. In-depth study of a specific new technology. Extensive hands-on assignments. S/U or letter grading.

420. Business Strategy. (4) Requisites: courses 402, 403, 408, 411. 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 the policy process. S/U or letter grading.

421A. Management Communications I (1) Lecture, 30 minutes; laboratory, one hour. Strategies and techniques for more effective individually written managerial communications such as memos, reports, decision recommendations, etc. Emphasis on analytically based persuasive writing. S/U grading.

421B. Management Communications II. (1) Lecture, 30 minutes; laboratory, one hour. Strategies and techniques for more effective preparation of group writing assignments in managerial contexts where multiple audiences are important. Issues include achieving a single voice, establishing appropriate tone, incorporation of multiple points of view, etc. S/U grading.

422. Analysis and Communications. (4) Discussion, three hours. Designed for graduate students. 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.

444A-444B. Management Field Study: Two-Quarter Plan. (4-4) Fieldwork, three 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. S/U or letter grading.

445. Management Field Study: One-Quarter Plan. (8) Fieldwork, six hours. Must be taken in second year (or its equivalent for part-time students) and be based on client need and adviser approval. 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. S/U or letter grading.

451. Fieldwork in Organizational Development. (2 to 12) Requisite: course 284B or 450. Supervised practical fieldwork in organizational development consultation in interpersonal, group, intergroup, total organization, and interorganizational settings.

452. Fieldwork in Technical Assistance for Minority Business Enterprise. (1 to 4) Preparation: completion of first year of master's program. Supervised field experience in business consulting and other forms of technical assistance for business firms and management in ethnic communities; seminars and other shared learning experiences in transmitting business administration technology to the urban ghetto.

453. Fieldwork in Arts Management. (4 to 12) Supervised field experience and practical work in all phases of an arts organization (pictorial, performing, or community), concentrating on its managerial problems and its relationship to the community and society in general.

454. Fieldwork in Organizations. (4) Preparation: completion of two terms of M.B.A. program. Supervised, nonpaid practical experience or fieldwork in an organization as an intern or fellow. Execution of predetermined assignment(s) pursuant to a defined program of study which may include formal classwork. May not be repeated for credit.

457. Fieldwork in Investment Management. (4) Discussion, three hours. Use of academic theories learned in a practical experience by managing a portfolio started with donated funds. Mirrors situations experienced by typical money management firms and includes investment strategy, asset allocation, security analysis, and organizational issues. S/U or letter 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) (Formerly numbered 596N.) Directed individual study or research. May be repeated. S/U or letter grading.

597. Preparation for Qualifying Examinations. (4 or 12) Preparation for master's comprehensive examination or Ph.D. qualifying examinations.

598. Thesis Research in Management. (4 or 12) Research for and preparation of master's thesis. May be repeated. S/U grading.

599. Ph.D. Dissertation Research in Management. (4 or 12) Research for and preparation of Ph.D. dissertation.

Executive M.B.A. Program

461. Managerial Problem Solving. (2) Limited to Executive M.B.A. Program students. Focus on individual problem-solving and decision-making skills. Alternative conceptual frameworks presented for augmenting individual's diagnostic and decision-making skills. Use of readings, cases, decision simulations, and discussions to explore areas of charting job and career progress, working with others, and shaping the work culture.

462. Economic Analysis for Managers. (4) Limited to Executive M.B.A. 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.

463. Data Analysis and Management Decisions under Uncertainty. (4) Limited to Executive M.B.A. 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.

464. Managerial Accounting. (4) Limited to Executive M.B.A. 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.

465. Quantitative Methods for Managers. (4) Limited to Executive M.B.A. Program students. Survey of modeling approaches to managerial planning and decisions. Emphasis on ability to recognize situations where models can be used advantageously, to work effectively with model building specialists, and to make good use of models once they have been developed.

466A-466B. Financial Policy for Managers. (4-2) Limited to Executive M.B.A. Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, for portfolio investment decisions, for financial institutions, and for international financial management. Focus on learning sound theoretical tools and applying them in casework.

467. Management Issues in Information Systems. (2) Limited to Executive M.B.A. Program students. Growing role of information systems in the corporation and how they change ways of doing business. Examples from airlines, health, computer, communications, distribution, and publishing industries. Strategic, organizational, and societal implications.

468. Economic Forecasting. (2) Limited to Executive M.B.A. 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.

469. Management of Human Resources. (4) Limited to Executive M.B.A. Program students. Introduction to major areas of human resource management — personnel management, labor economics, labor law, and labor relations — accomplished by examining some major concepts, theories, and research related to each of these topic areas, as well as some practical problems for managers posed by each.

470A. Introduction to Action Research and Policy Analysis. (2) Lecture, two hours. Limited to Executive M.B.A. Program students. Provides methods of organizational and strategic analysis to determine relationship of the organization with its environment. In Progress grading (credit to be given only on completion of course 470D).

470B. Strategic Overview. (2) Lecture, two hours. Limited to Executive M.B.A. Program students. Preparation of a strategic overview of a selected international 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 470D).

470C. Action Research Project. (2) Lecture, two hours. Limited to Executive M.B.A. Program students. Further research and analysis of one of the strategic issues facing the selected company and identified in the strategic overview (course 470B). In Progress grading (credit to be given only on completion of course 470D).

470D. Seminar: Policy Analysis. (2) Lecture, two hours. Limited to Executive M.B.A. Program students. Site visit to selected company, presentation of final reports, and evaluation of student efforts by corporate personnel. S/U or letter grading.

472. Marketing Strategy and Policy. (4) Limited to Executive M.B.A. 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.

473A. Managerial and Organizational Processes. (2) (Formerly numbered 473.) Lecture, four hours every other week for 13 weeks. Limited to Executive M.B.A. Program students. Macroanalytic issues, including intergroup relations, design and functioning of organizations, and relationships of organizations to their environment. S/U or letter grading.

473B. Customer Information Strategy. (2) Lecture, four hours every other week for 13 weeks. Limited to Executive M.B.A. Program students. Development of a customer orientation as a necessity for success in the highly competitive global marketplace, including principles of customer orientation, information as a strategic asset, customer equity, market forecasting, measuring effects of marketing investments, and customer response-based strategy. S/U or letter grading.

474. Operations and Technology Management: Systems, Strategies, and Policies. (4) Lecture, three hours. Limited to Executive M.B.A. 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.

475. International Managerial Policies and Strategies. (4) Limited to Executive M.B.A. Program students. Study of economic and business decisions in an international context, with emphasis on formulation and implementation of management strategies in multinational enterprises. Application of concepts of international economic analysis and exploration of international corporate strategies.

476. Competitive Strategy and Business Policy. (4) Limited to Executive M.B.A. 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.

477. The Manager and Business/Society Relationships. (4) Limited to Executive M.B.A. Program students. While organizations may, to some extent, choose their immediate environments, there are broad environmental factors and trends that affect most, if not all, organizations. Examination of emerging trends in key areas of government regulation, labor relations, international trade, basic economic structure, and social responsibility.

478. Selected Topics in Management. (2 to 4) Seminar, 90 minutes to three hours. Limited to Executive M.B.A. Program students. Examination of selected problems and issues in an area of current concern in management. S/U or letter grading.

Ya-Hong Xie, Ph.D.
Jenn-Ming Yang, Ph.D.

Professors Emeriti

Rointan F. Bunshah, D.Sc.
David L. Douglass, Ph.D.
William Klement, Jr., Ph.D.
John H. Lyman, Ph.D.
John D. Mackenzie, Ph.D. (*Nippon Sheet Glass Company Professor Emeritus of Materials Science*)
Aly H. Shabaik, Ph.D.
George H. Sines, Ph.D.
Christian N.J. Wagner, Dr. rer. nat.
Alfred S. Yue, Ph.D.

Associate Professor

Mark S. Goorsky, Ph.D.
Yang Yang, Ph.D.

Adjunct Professor

John J. Gilman, Ph.D.

Adjunct Associate Professor

Marek A. Przystupa, Ph.D.

Scope and Objectives

At the heart of materials science is an understanding of the microstructure of solids. "Microstructure" is used broadly in reference to solids viewed at the subatomic (electronic) and atomic levels, and the nature of the defects at these levels. The microstructure of solids at various levels profoundly influences the mechanical, electronic, chemical, and biological properties of solids. The phenomenological and mechanistic relationships between microstructure and the macroscopic properties of solids are, in essence, what materials science is all about.

Materials engineering builds on the foundation of materials science and is concerned with the design, fabrication, and optimal selection of engineering materials. Such materials must fulfill simultaneously dimensional, property, quality control, and economic requirements.

The department also has a program in electronic materials which provides a broad-based background in materials science, with opportunity to specialize in the study of those materials used for electronic and optoelectronic applications. The program incorporates several courses in electrical engineering in addition to those in the materials science curriculum.

The undergraduate program leads to the Bachelor of Science degree in Materials Engineering. Students are introduced to the basic principles of metallurgy and ceramic and polymer science as part of the department's Materials Engineering major. A joint major field, Chemistry/Materials Science, is offered to students enrolled in the Department of Chemistry and Biochemistry (College of Letters and Science).

The graduate program allows for specialization in one of the following fields: ceramics and ceramic processing, electronic and optical materials, and structural materials.

MATERIALS SCIENCE AND ENGINEERING

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King-Ning Tu, Ph.D., *Chair*
Mark S. Goorsky, Ph.D., *Vice Chair*
Jenn-Ming Yang, Ph.D., *Vice Chair*

Professors

Alan J. Ardell, Ph.D.
Bruce S. Dunn, Ph.D.
Kanji Ono, Ph.D.
King-Ning Tu, Ph.D.

Undergraduate Study

Materials Engineering B.S.

The ABET-accredited materials engineering program is designed for students who wish to pursue a professional career in the materials field and desire a broad understanding of the relationship between microstructure and properties of materials. Metals, ceramics, and polymers, as well as the design, fabrication, and testing of metallic and other materials such as oxides, glasses, and fiber-reinforced composites, are included in the course contents.

The Major

Course requirements are as follows (180 minimum units required):

(1) Six core courses: Chemical Engineering M105A (or Mechanical and Aerospace Engineering M105A), Civil and Environmental Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, 105D.

(2) Materials Science and Engineering 88, 110, 110L, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L; Mechanical and Aerospace Engineering 191A or 192A.

(3) Three elective courses from Chemical Engineering C114, Civil and Environmental Engineering 130, 130F, 135A, Electrical Engineering 121A, 123A, 123B, 124, Materials Science and Engineering 111, 121, 122, 123 (two units), 143A, 151, 161, 162, Mechanical and Aerospace Engineering 156A, 166C.

(4) One course from Electrical Engineering 131A or Mathematics M170A or Mechanical and Aerospace Engineering 193 or Statistics M100A, plus 12 additional units from Chemistry and Biochemistry 30, 30L, Materials Science and Engineering 197, Physics 1C, or by petition, upper division courses from engineering, intermediate or advanced foreign language, mathematics, or physical or life sciences. Intermediate foreign language courses may be lower division.

(5) Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering 15 or Electrical Engineering 5C or Mechanical and Aerospace Engineering 20; Materials Science and Engineering 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B.

(6) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Electronic Materials Option

Course requirements are as follows (193 minimum units required):

(1) Six core courses: Chemical Engineering M105A (or Mechanical and Aerospace Engineering M105A), Electrical Engineering 10, 101, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 102, and Civil and Environmental Engineering 108

or Mechanical and Aerospace Engineering 105D.

(2) Materials Science and Engineering 88, 110, 110L, 121, 122, 130, 131, 131L, 190; Electrical Engineering 121A, 121B, 122AL, 123A, 123B, and two courses from Materials Science and Engineering 132, 150, 160; Mechanical and Aerospace Engineering 191A or 192A.

(3) Four elective courses from Materials Science and Engineering 111, 143A, 162, Electrical Engineering 110, 124, 131A, 172; two laboratory courses from Materials Science and Engineering 161L, 191L, 199, Electrical Engineering 172L.

(4) Chemistry and Biochemistry 20A, 20B, 20L; Electrical Engineering 5C; Materials Science and Engineering 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The department of Materials Science and Engineering offers the Master of Science (M.S.) degree in Materials Science and Engineering.

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program are required to take the General Test of the Graduate Record Examination (GRE). A bachelor's degree in materials science, metallurgy, or ceramics is required. Students having a bachelor's degree in chemistry, physics, or other engineering disciplines are admitted if an introductory materials course has been taken or remedial work comparable to an introductory course is performed.

Students not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which cannot be applied toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.seas.ucla.edu/ms/>. Forms are also available by writing to the Materials Science and Engineering Department, UCLA, 6532 Boelter Hall, Box 951595, Los Angeles, CA 90095-1595 or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Areas of Study

There are three main areas in the M.S. program: ceramics and ceramic processing; electronic and optical materials; and structural materials. Students may specialize in any one of the three areas, although most students are more interested in a broader education and select a variety of courses. Basically, students select courses which serve their interests best in regard to thesis research and job prospects.

Course Requirements

Thesis Plan. Nine courses are required, of which six must be graduate courses. The courses are to be selected from the following lists, although suitable substitutions can be made from other engineering disciplines or from chemistry and physics with the approval of the departmental graduate adviser. Two of the six graduate courses may be Materials Science and Engineering 598 (thesis research). The remaining three courses in the total course requirement may be upper division courses.

Comprehensive Examination Plan. Nine courses are required, six of which must be graduate courses, selected from the following lists with the same provisions listed under the thesis plan. Three of the nine courses may be upper division courses.

Electronic and optical materials: Materials Science and Engineering 111, 121, 122, 143A, 151, 161, 162, 200, 201, 221, 222, 223, 244, 298.

Ceramics and ceramic processing: Materials Science and Engineering 111, 121, 122, 143A, 151, 161, 162, 200, 201, 244, 246A, 246D, 298.

Structural materials: Materials Science and Engineering 111, 121, 122, 143A, 151, 161, 162, 200, 201, 243A, 243C, 244, 250A, 250B, 298.

As long as a majority of the courses taken are offered by the department, substitutions may be made with the consent of the departmental graduate adviser.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science 1M52A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D,

M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Comprehensive Examination Plan

Consult the graduate adviser for details. If the comprehensive examination is failed, students may be reexamined once with the consent of the graduate adviser.

Thesis Plan

In addition to fulfilling the course requirements, under the thesis plan, students are required to write a thesis on a research topic in materials science and engineering supervised by the thesis adviser. A M.S. thesis committee reviews and approves the thesis.

Doctoral Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the program leading to the Ph.D. degree in Materials Science and Engineering are required to take the General Test of the Graduate Record Examination (GRE).

Applicants to the Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having the M.S. degree.

Students not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which cannot be applied toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.seas.ucla.edu/ms/>. Forms are also available by writing to the Materials Science and Engineering Department, UCLA, 6532 Boelter Hall, Box 951595, Los Angeles, CA 90095-1595 or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Major Fields or Subdisciplines

Ceramics and ceramic processing; electronic and optical materials; structural materials.

Course Requirements

There is no formal course requirement for the Ph.D. degree, and students may substitute coursework by examinations. Normally, however, students take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree is built around one

major field and one minor field. The major field has a scope corresponding to a body of knowledge contained in nine courses, at least six of which must be graduate courses, plus the current literature in the area of specialization. The major fields named above are described in a Ph.D. major field syllabus, each of which can be obtained in the department office. The minor field normally embraces a body of knowledge equivalent to three courses, at least two of which are graduate courses. Grades of B- or better, with a grade-point average of at least 3.33 in all courses included in the minor field, are required. If students fail to satisfy the minor field requirements through coursework, a minor field examination may be taken (once only). The minor field is chosen to support the major field and is usually a subset of the major field.

For information on completing the Engineer degree, see Engineering Schoolwide Programs.

Written and Oral Qualifying Examinations

During the first year of full-time enrollment in the Ph.D. program, students need to take the oral preliminary examination, which encompasses the body of knowledge in materials science. After all coursework is completed in the major and minor fields, students take a written preliminary examination in the major field. Students may not take an examination more than twice.

After passing both preliminary examinations, students are ready to take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee but ordinarily include a broad inquiry into the student's preparation for research. The doctoral committee also reviews the prospectus of the dissertation at the oral qualifying examination.

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are "inside" members and must hold appointments at UCLA in the student's major department in the School of Engineering and Applied Science. The "outside" member must be a UCLA faculty member outside the student's major department.

Materials Science and Engineering

Lower Division Courses

14. Science of Engineering Materials. (4) Lecture, three hours; recitation, one hour; outside study, eight hours. Requisites: Chemistry 20A, 20B, 20L, Physics 1A, 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.

88. Freshman Seminar: New Materials. (2) Seminar, two hours; outside study, four hours. Preparation: high school chemistry and physics. Not open to students with credit for course 14. 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.

90L. Physical Measurement in Materials Engineering. (2) Laboratory, four hours; outside study, two hours. Requisite: course 14. Various physical measurement methods used in materials science and engineering. Mechanical, thermal, electrical, magnetic, and optical techniques. Letter grading.

Upper Division Courses

110. Introduction to Materials Characterization A (Crystal Structure and X-Ray Diffraction of Material). (4) Lecture, three hours; laboratory, two hours. Requisite: course 14. Modern methods of materials characterization; fundamentals of crystallography, properties of X rays, X-ray diffraction; powder method, Laue method; determination of crystal structures; phase diagram determination; X-ray stress measurements; X-ray spectroscopy; design of materials characterization procedures. Letter grading.

110L. Introduction to Materials Characterization A Laboratory. (2) Laboratory, two hours; outside study, four hours. Requisite: course 14. Experimental techniques and analysis of materials through X-ray scattering techniques; powder method, lane method, crystal structure determination, and special projects. Letter grading.

111. Introduction to Materials Characterization B (Electron Microscopy). (4) Lecture, three hours; laboratory, two hours. Requisites: courses 14, 110. 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. Letter grading.

120. Physics of Materials. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 14, 110. 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, and dielectrical properties. Letter grading.

121. Materials Science of Semiconductors. (4) Lecture, four hours; outside study, eight hours. 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.

122. Principles of Electronic Materials Processing. (4) Lecture, four hours; outside study, eight hours. Requisite: course 14. 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.

123. Electronic Packaging and Interconnection. (2) Lecture, two hours; outside study, six hours. Various electronic packaging methods and interconnection technologies. Design, fabrication, and testing of complex microelectronic components, interconnections, and assemblies. Letter grading.

130. Phase Relations in Solids. (4) Lecture, four hours; outside study, eight hours. Requisites: course 14, and Chemical Engineering M105A or Mechanical and Aerospace Engineering M105A. 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; outside study, eight hours. Requisite: course 130. 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. 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. Requisite: 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.

143A. Mechanical Behavior of Materials. (4) Lecture, four hours; outside study, eight hours. Requisite: course 14. Recommended: Civil Engineering 108. 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.

150. Introduction to Polymers. (4) Lecture, three hours; laboratory, two 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 14. 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; outside study, eight hours. Requisites: courses 14, 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 14, Electrical Engineering 100. 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.

M180. Introduction to Biomaterials. (4) (Same as Biomedical Engineering M180.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: course 14. 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. Letter grading.

190. Materials Selection and Engineering Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 132, 150, 160. Explicit guidance among the 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.

191L. Computer Methods and Instrumentation in Materials Science. (2) Lecture, two hours; outside study, 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.

197. Seminar: Technical Writing for Materials Engineers. (2) Seminar, two hours; outside study, four hours. Corequisite: course 132 or 190 or 598 or 599. Types of technical documents and basic document patterns. Document planning, paragraph and sentence structures. Illustration and references. Reports, theses, and proposals. Oral presentation. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

Graduate Courses

200. Principles of Materials Science I. (4) Lecture, four hours; outside study, eight 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, three hours; outside study, nine 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.

221. Science of Electronic Materials. (4) Lecture, four hours; outside study, eight 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; outside study, eight 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; outside study, eight 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) (Formerly numbered 248B.) Lecture, three hours; outside study, nine hours. Designed for graduate engineering students. Deposition methods used in high-technology applications. Theory and experimental details of physical vapor deposition (PVD), chemical vapor deposition (CVD), plasma-assisted vapor deposition processes, plasma spray, electrodeposition. Applications in semiconductor, chemical, optical, mechanical, and metallurgical industries. 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; outside study, eight hours. Requisite: course 143A or Mechanical and Aerospace Engineering 156B. Elastic and plastic behavior of crystals, geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening. Letter grading.

244. Electron Microscopy. (4) Lecture, four hours; outside study, eight hours. Requisite: course 111. Essential features of electron microscopy, geometry of electron diffraction, kinematical and dynamical theories of electron diffraction, including anomalous absorption, applications of theory to defects in crystals. Moiré fringes, direct lattice resolutions, Lorentz microscopy, laboratory applications of contrast theory. S/U or letter grading.

245C. Diffraction Methods in Science of Materials. (4) Lecture, four hours; outside study, eight hours. Requisite: course 110. Theory of diffraction of waves (X rays, electrons, and neutrons) in crystalline and noncrystalline materials. Long- and short-range order in crystals, structural effects of plastic deformation, solid-state transformations, arrangements of atoms in liquids and amorphous solids. S/U or letter grading.

246A. Mechanical Properties of Nonmetallic Crystalline Solids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 160. Material 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. Methods for evaluating mechanical properties. S/U or letter grading.

246B. Structure and Properties of Glass. (4) Lecture, four hours; outside study, eight 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. S/U or letter grading.

246D. Electronic and Optical Properties of Ceramics. (4) Lecture, four hours; outside study, eight 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. S/U or letter grading.

250A. Analysis and Design of Composite Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: one course from 143A, Electrical Engineering 175, Mechanical and Aerospace Engineering 156A, or 156B. Requisite: course 151. Mechanics of laminated composites, textile structural composites, strength and failure theory, fracture, fatigue and damage tolerance, environmental effects, microcomputer software for composite analysis and design. Letter grading.

250B. Advanced Composite Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: B.S. 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. S/U or letter 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.

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. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

474A. Advanced Transportation Systems. (4) Lecture, four hours; outside study, eight hours. Survey of aerospace and advanced ground transportation systems, materials, structures, propulsion systems, control systems, communication systems, and infrastructure support. Letter grading.

475A. Manufacturing Processes. (4) Lecture, four hours; outside study, eight hours. Manufacturing properties of materials, thermomechanical processes, chemical and physical processes, material removal processes, packaging, fastening, joining and assembly, tooling and fixtures. 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 M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. S/U grading.

597C. Preparation for Ph.D. 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 M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. 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

College of Letters and Science

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Tony F.C. Chan, Ph.D., *Chair*
Mark L. Green, Ph.D., *Administrative Vice Chair*
Richard S. Elman, Ph.D., *Undergraduate Vice Chair*
Roberto Schonmann, Ph.D., *Graduate Vice Chair*
Kirby A. Baker, Ph.D., *Program in Computing Director*

Professors

Christopher R. Anderson, Ph.D. (*Numerical Analysis*)
Kirby A. Baker, Ph.D. (*Algebraic Systems, Lattice Theory*)
A.V. Balakrishnan, Ph.D. (*Electrical Engineering*)
Don M. Blasius, Ph.D. (*Automorphic Forms, Number Theory*)
Robert F. Brown, Ph.D. (*Algebraic Topology*)
Russel Cafilisch, Ph.D. (*Fluid Dynamics, Kinetic Theory, Partial Differential Equations*)
Tony F.C. Chan, Ph.D. (*Scientific Computing, Applied Mathematics*)
S.Y. Alice Chang, Ph.D. (*Geometric Partial Differential Equations, Classical Analysis*)
Jennifer T. Chayes, Ph.D. (*Mathematical Physics, Condensed Matter Theory*)
Lincoln Chayes, Ph.D. (*Mathematical Physics, Condensed Matter Theory*)
Robert D. Edwards, Ph.D. (*Geometric Topology*)
Edward G. Effros, Ph.D. (*Operator Algebras, Representation Theory, Convexity*)
Richard S. Elman, Ph.D. (*Quadratic Forms, Algebra*)
Bjorn E. Engquist, Ph.D. (*Numerical Analysis, Applied Mathematics*), *Applied Mathematics Director*
Gregory I. Eskin, Ph.D. (*Partial Differential Equations*)
Hector O. Fattorini, Ph.D. (*Control Theory, Partial Differential Equations*)
Theodore W. Gamelin, Ph.D. (*Function Algebras, Analytic Functions*)
John B. Garnett, Ph.D. (*Classical Analysis*)
David A. Gieseker, Ph.D. (*Algebraic Geometry*)
Mark L. Green, Ph.D. (*Algebraic and Differential Geometry*)
Robert E. Greene, Ph.D. (*Differential Geometry*)
Nathaniel Grossman, Ph.D. (*Differential Geometry, Mathematical Geodesy*)
Haruzo Hida, Ph.D. (*Number Theory*)
Heinz-Otto Kreiss, Ph.D. (*Applied Mathematics, Numerical Analysis*)
Ker-Chau Li, Ph.D. (*Statistics*)
Thomas M. Liggett, Ph.D. (*Probability Theory*)
D. Anthony Martin (*Mathematical Logic*)
Alexander Sergeev Merkurjev, Ph.D. (*Algebra*)
Ronald J. Miech, Ph.D. (*Number Theory*)
Yiannis N. Moschovakis, Ph.D. (*Mathematical Logic, Computation Theory*)
Thomas Mountford, Ph.D. (*Probability Theory*)
William I. Newman, Ph.D. (*Applied Mathematics and Computation*)
Stanley J. Osher, Ph.D. (*Scientific Computing, Applied Mathematics*)
Peter Petersen, Ph.D. (*Riemannian Geometry*)
Sorin T. Popa, Ph.D. (*Operator Algebras*)
James V. Ralston, Jr., Ph.D. (*Partial Differential Equations*)
Paul H. Roberts, Ph.D., D.Sc. (*Fluid Mechanics*)
Jonathan D. Rogawski, Ph.D. (*Automorphic Forms, Number Theory, Representation Theory*)
Bruce L. Rothschild, Ph.D. (*Combinatorics and Graph Theory*)
Murray M. Schacher, Ph.D. (*Algebra, Number Theory*)
Roberto Schonmann, Ph.D. (*Probability Theory*)

Lloyd S. Shapley, Ph.D. (*Game Theory, Mathematical Economics*)
Zhen-Su She, Ph.D. (*Applied Mathematics*)
Eitan Tadmor, Ph.D. (*Applied Mathematics*)
Masamichi Takesaki, Ph.D. (*Functional Analysis and Operator Algebras*)
V.S. Varadarajan, Ph.D. (*Quantum Theory, Ordinary Differential Equations*)
James H. White, Ph.D. (*Differential Geometry and Applications to Molecular Biology*)
Wing Hung Wong, Ph.D. (*Statistics*)
Lai-Sang Young, Ph.D. (*Dynamical Systems*)

Professors Emeriti

Richard F. Arens, Ph.D.
Donald G. Babbitt, Ph.D.
Robert J. Blattner, Ph.D.
David G. Cantor, Ph.D.
Lennart Carleson, Ph.D.
C.C. Chang, Ph.D.
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S.T. Hu, Ph.D., D.Sc.
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Barrett O'Neill, Ph.D.
Lowell J. Paige, Ph.D.
Sidney C. Port, Ph.D.
Raymond M. Redheffer, Ph.D.
Leo R. Sario, Ph.D.
Robert Steinberg, Ph.D.
Frederick A. Valentine, Ph.D.
N. Donald Ylvisaker, Ph.D.

Associate Professors

Rodolfo De Sapio, Ph.D. (*Differential and Algebraic Topology*)
Ming Gu, Ph.D. (*Computational Linear Algebra*)
Gregory Hjorth, Ph.D. (*Logic*)
Geoffrey Mess, Ph.D. (*Low-Dimensional Topology*)
Ricardo Perez-Marco, Ph.D. (*Dynamical Systems*)
Lihe Wang, Ph.D. (*Partial Differential Equations*)

Assistant Professors

Gang Liu, Ph.D. (*Mathematical Physics*)
Terence Tao, Ph.D. (*Analysis*)
Christoph Thiele, Ph.D. (*Harmonic Analysis*)

Lecturers

David Cohen, M.A.
Susie W. Hakansson, Ph.D. (*Mathematics Education*)
Shelley Kriegl, Ed.D. (*Mathematics Education*)
Barbara G. Wells, Ph.D. (*Mathematics Education*)

Adjunct Professor

Herbert Enderton, Ph.D. (*Mathematical Logic*)

Adjunct Assistant Professors

Michael Chu, Ph.D. (*Hedrick*)
Randolph Cooper, Ph.D. (*Program in Computing*)
Ivan Dimitrov, Ph.D. (*Hedrick*)
Elias Jonsson, Ph.D. (*Computational and Applied Mathematics*)
Michael Leonard, Ph.D. (*Program in Computing*)
Huazhang Luo, Ph.D. (*Hedrick*)
Michael Mossinghoff, Ph.D. (*Program in Computing*)
Dario Nardi, Ph.D. (*Program in Computing*)
Irina Popovici, Ph.D. (*Computational and Applied Mathematics*)
Jianhong Jackie Shen, Ph.D. (*Computational and Applied Mathematics*)
Dimitri Shlyakhtenko, Ph.D. (*Hedrick*)
David Strong, Ph.D. (*Program in Computing*)
Eric Urban, Ph.D. (*Hedrick*)
Don Wang, Ph.D. (*Hedrick*)
John Westman, Ph.D. (*Program in Computing*)

Scope and Objectives

Gauss has called mathematics the “Queen of the Sciences.” It has provided powerful intellectual tools that have made possible tremendous advances in modern science and technology. The Department of Mathematics provides courses of study that introduce students to the fundamentals of mathematics and allow them to master the most important parts of the subject, both pure and applied. It leads doctoral students to the frontiers of mathematical research, where they can begin to push back those frontiers.

Undergraduate Study

Admission

Students entering UCLA directly from high school who declare one of the five mathematics majors offered by the department at the time they apply for admission are automatically admitted to that major.

UCLA students who wish to enter one of the mathematics majors must have a minimum grade of C– in each preparation for the major course completed and a combined grade-point average of at least 2.0 in those courses. Grades in any completed major courses must also average at least 2.0. Students with 60 or more units of credit must have completed at least 12 units of calculus to enter any of the mathematics majors.

Transfer students must have a minimum grade of C in the equivalent of each preparation for the major course completed. Those transferring with 60 or more quarter units of credit must have completed at least 12 quarter units of calculus to enter any of the mathematics majors.

Preliminary Examination in Mathematics

If students wish to enroll in Mathematics 1, 3A, or 31A, they must pass the Mathematics Diagnostic Test.

The examination may be taken at any one of several times, including all sessions of the summer Orientation Program. It is also given several times during the academic year. For specific dates and test locations, refer to the *Schedule of Classes* or the departmental website at <http://www.math.ucla.edu/undergrad/diagnostic.html>, or contact the Mathematics Student Services Office, 6356 Math Sciences.

Advanced Placement in Calculus

Students who have taken the Advanced Placement (AP) Calculus AB Test and obtained a score of 4 or 5 receive four units of credit and Mathematics 31A equivalency; those with a score of 3 receive four units of calculus and analytic geometry credit. They may petition for 31A equivalency, or they may take course 31A at UCLA, although they must still satisfy the course requisites (Mathematics Diagnostic Test). Students who take the BC Test and obtain a score of 4 or 5 receive eight units of credit and Mathematics 31A, 31B equivalency;

those with a score of 3 receive eight units of calculus and analytic geometry credit. They may petition for 31A, 31B equivalency, or they may take courses 31A, 31B at UCLA, although they must still satisfy the course requisites (Mathematics Diagnostic Test). Students receiving a score of 3 on the AB or BC examination should consult the undergraduate mathematics counselor prior to enrolling in a calculus course at UCLA.

Credit Limitations

Credit is given for at most one course in each of the following groups: (1) 3A, 31A; (2) 3B, 31B, 31E; (3) 3C, 32A; (4) 110A, 117; (5) M170A, Statistics M100A, 110A.

Mathematics 2, 38A, 38B, and Statistics 10 are not open for credit to students with credit for any course from Mathematics 110A through 199.

Mathematics 132 is not open for credit to students with credit for Physics 132.

Mathematics 151A-151B are not open for credit to students with credit for Electrical Engineering 103.

Mathematics M170A and Statistics M100A are not open for credit to students with credit for Electrical Engineering 131A.

Students may not take or repeat a mathematics course for credit if it is a requisite for a more advanced course for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Mathematics 31B, they must do so before completing course 32A).

Students may not receive credit for both a course and the honors version of that course (e.g., they may not receive credit for both Mathematics 32A and 32AH).

Upper Division Courses

Mathematics 113, 115A, 117, 131A, 132, 142, 151A, 164, and 167 are offered each term. The remaining upper division courses are usually offered once or twice each year. The tentative class schedule for the forthcoming academic year is posted in the Student Services Office in February.

Undergraduate Majors

The department offers five majors: Mathematics, Applied Mathematics, Mathematics of Computation, Mathematics/Applied Science, and General Mathematics. The department also participates with the Economics Department in the Mathematics/Economics Interdepartmental Program, which offers a Mathematics/Economics major.

The Mathematics major is designed for students whose basic interest is mathematics; the Applied Mathematics major for those interested in the classical relationship between mathematics, the physical sciences, and engineering; the Mathematics of Computation major for individuals interested in the mathematical theory and the applications of computing; the Mathematics/Applied Science major for

those with substantial interest in the applications of mathematics to a particular outside field of interest; and the General Mathematics major for students planning to teach mathematics at the high school level. As part of the Mathematics/Applied Science major, the department offers programs for students interested in the fields of actuarial science, management/accounting, medical and life sciences, and operations research.

Courses taken to fulfill any of the requirements for any of the mathematics majors must be taken for a letter grade.

Students planning to pursue graduate study in mathematics are strongly encouraged to take a three-term sequence of graduate-level courses during their senior year.

Mathematics B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Physics 1A, and two courses from Chemistry and Biochemistry 20A, 20B, Economics 11, Life Sciences 1, Philosophy 31, 32, Physics 1B, 1C, 6B, 6C. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

The Major

Required: Mathematics 110A-110B, 115A, 131A-131B, 132, one course from 120A, 121, 123, and at least five courses from 106 through 199 and Statistics M100A through M120B. The 12 courses must be passed with a minimum overall grade-point average of 2.0.

Applied Mathematics B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Physics 1A, 1B, and one course from Chemistry and Biochemistry 20A, 20B, Physics 1C. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

The Major

Required: Mathematics 115A, 131A, either 131B or 132, 142; two two-term sequences from two of the following categories: *numerical analysis* — courses 151A-151B, *probability and statistics* — courses M170A and 170B or Statistics M100A and 100B or 110A-110B, *differential equations* — courses 135A-135B; four courses from 110A through 199 and Statistics M100A through M120B (appropriate courses from other departments may be substituted for some of the additional courses provided departmental consent is given before such courses are taken). The 12 courses must be passed with a minimum overall grade-point average of 2.0.

Mathematics of Computation B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Program in Computing 10A, 10B, 10C, Physics 1A, 1B, and one course from Chemistry and Biochemistry 20A, 20B, Physics 1C. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

The Major

Required: Eleven Mathematics Department courses, including Mathematics 115A, 131A, 131B or 132, 151A-151B, and six courses from 110A through 199 and Statistics M100A through M120B; three upper division computer science courses (12 units). The 14 courses must be passed with a minimum overall grade-point average of 2.0.

Mathematics/Applied Science B.S.

The major is designed for students with a substantial interest in mathematics and its applications to a particular field. It is an individual major in that students, in consultation with a faculty adviser, design their own program. They may also select one of the established programs: actuarial plan, management/accounting plan, medical and life sciences plan, or operations research plan. In the past, Mathematics/Applied Science majors have combined the study of mathematics with fields such as biochemistry, biology, chemistry, economics, geography, and physics.

Students interested in designing an individual program should meet with the undergraduate adviser, 6356 Math Sciences, during their sophomore year. A proposed program is drawn up, then forwarded to the mathematics/applied science curriculum committee for approval. All programs must include the following preparation for the major and major courses.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses. Additional preparation, varying with the individual program, may be required.

The Major

Required: Fourteen courses, seven in the Mathematics Department selected from Mathematics 110A through 199 and Statistics M100A through M120B and seven upper division courses in a related field selected from one or two other departments. The seven Mathematics Department courses must be passed with an overall grade-point average of 2.0, as must the seven courses outside mathematics.

At least five of the courses from the related discipline must be taken after the program has been

approved. Students are not admitted to the major if they have 135 or more units by the end of the term in which they plan to enter the program.

Actuarial Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Economics 11, 100. Economics 100 may not be applied as one of the upper division courses for the major.

The Major

Required: Seven Mathematics Department courses, including Mathematics 115A, 151A, 164, M170A and 170B or Statistics M100A and 100B or 110A-110B, and two courses from Mathematics 113, 151B, 171, Statistics 100C, M120A; six outside courses, including Economics 101, 102, 147A, 160, and two courses from Economics 145 through 199, English Composition 131A through 131D, Management 130A, 130B, 190.

Management/Accounting Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Management 1A-1B.

The Major

Required: Seven Mathematics Department courses, including Mathematics 115A, 131A, 164, M170A or Statistics M100A or 110A, Mathematics 170B or Statistics 100B or 110B, and two courses from Mathematics 110A through 199 and Statistics 100C; seven management courses, including Management 120A, 120B, 122, 140, 212A, 212B, and one additional course from 108 through 190.

Medical and Life Sciences Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Chemistry and Biochemistry 20A, 20B, 20L, 30, 30L, Life Sciences 1, 2, 3, 4, Physics 1A, 1B.

The Major

Required: Seven Mathematics Department courses, including Mathematics 115A, 135A, 151A, M170A, 170B, and two courses from 110A through 199 and Statistics 100B through M120B; six outside courses, including Physiological Science 111A-111B-111C or M180A-M180B-M180C, and three courses from Biomathematics 110, Computer Science M196B, Physiological Science C100, and C135 or Neuroscience 103 (appropriate courses from other departments may be substituted for some of the courses provided departmental consent is given before such courses are taken).

Operations Research Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 11, 100, Management 1A, Program in Computing 10A.

The Major

Required: Seven Mathematics Department courses, including Mathematics 115A, 131A, 151A-151B, M170A or Statistics M100A or 110A, Statistics 100B or 110B, and one course from Mathematics 110A, 113, 117, 164, 167, 170B, 171, Statistics 100C; six outside courses, including Economics 101, Management 140, 212A, 212B, and two courses from Management 201A, 203A, 210A, 210B, 210C, 211A, 213A, 213C, 217A, 217B, 240B, 240C.

General Mathematics B.S.

The major is designed primarily for students planning to teach mathematics at the high school level. It provides exposure to a broad range of mathematical topics, especially those appropriate for the prospective teacher. Students planning to pursue graduate studies in mathematics or related fields are encouraged to enter the Mathematics, Applied Mathematics, or Mathematics of Computation major.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Program in Computing 10A, and three courses from the Physics 1 or 6 sequence, Chemistry and Biochemistry 20A, 20B, or Program in Computing 10B, 10C, 30, 60. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

The Major

Required: Mathematics 110A or 117, 115A, 123, M170A or Statistics M100A or 110A, one course from 131A through 136, one course from 142 through 167, and six courses from 106 through 199, 370A, 370B, and Statistics 100B through M120B.

Honors

Honors Courses

The department offers a lower division honors sequence in calculus and upper division honors sequences in algebra and analysis. The sequences are intended for students (not necessarily mathematics majors) who desire a broad, comprehensive introduction to these topics.

Honors Program

Students majoring in Mathematics, Applied Mathematics, and Mathematics of Computation who wish to graduate with departmental honors should apply for admission to the honors program in the Student Services Office. They may apply any time after completing four courses from the calculus sequence or from upper division mathematics courses with an overall grade-point average of 3.6 or better. The program entails taking a specified sequence of courses as part of the major requirements, completing an approved seminar offered by the Mathematics Department or submitting an original research project, and earning an overall GPA of at least 3.6 in approved upper division and graduate mathematics courses.

Students completing the program are awarded honors at graduation; if they demonstrate exceptional achievement (i.e., at least a 3.8 GPA in upper division mathematics courses taken for the major), they are awarded highest honors. Consult the department for further information.

Computing Specialization

Majors in Mathematics, Applied Mathematics, Mathematics/Applied Science, or General Mathematics may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Mathematics 61 or 113, Program in Computing 10A, 10B, and two courses from 10C, 15, 20, 30, 60, with a minimum grade of C– in each course and a combined grade-point average of at least 2.0, and (3) completing at least two courses from Mathematics 149 through 159. Students must petition for admission to this program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Student Services Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Mathematics Minor

The Mathematics minor is designed to provide students with the opportunity to widen their background and general comprehension of the role of mathematics in various disciplines.

To enter the minor, students must have an overall grade-point average of 2.0 or better and meet with the undergraduate mathematics adviser in the Student Services Office, 6356 Math Sciences.

Required Lower Division Courses (12 units): Mathematics 32A, 33A, 33B.

Required Upper Division Courses (20 units): At least five courses (20 units) selected from Mathematics 106 through 199 and Statistics M100A through M120B.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The department of Mathematics offers the Master of Arts (M.A.) degree in Mathematics and the Master of Arts in Teaching (M.A.T.).

Master of Arts

Admission

Prospective graduate students in mathematics need not have an undergraduate mathematics major but must have completed at least 12 quarter courses (or eight semester courses) in substantial upper division mathematics, particularly advanced calculus, algebra, differential equations, and differential or projective geometry. For admission to the program leading to the Master of Arts degree in Mathematics, applicants must have earned in these upper division mathematics courses a cumulative grade-point average of at least 3.2.

Applicants must take the Graduate Record Examination (GRE) General Test and the Subject Test in Mathematics and must submit at least three letters of recommendation from mathematicians who know their recent work.

Areas of Study

The Master of Arts degree in Mathematics may be earned under the comprehensive examination plan in the basic (pure mathematics) program, in an interdisciplinary program in applied mathematics, or in statistics.

Course Requirements

Eleven courses are required for the M.A. degree, of which at least eight must be graduate courses, while the remaining three may be approved upper division courses. With consent of the graduate vice chair, students in the applied mathematics and statistics programs may take up to five of the required 11 courses in other departments, provided that these courses are in professional or scientific fields closely related to research in applied mathematics or statistics, respectively. All courses must be passed with the grades of B– or better.

Students may enroll in Mathematics 596 any number of times and may apply up to two 596 courses toward the 11-course requirement for the M.A., provided a B– or better is received in these courses (not the grade of S).

Comprehensive Examination Plan

Students must pass two written qualifying examinations at the M.A. level within seven quarters of full-time study. By option, the following examinations are required.

Pure Option: One examination in algebra and one examination in either real analysis or complex analysis.

Applied Option: One examination in real analysis or complex analysis and one examination in numerical analysis or applied differential equations.

Statistics Option: Two examinations in probability, theoretical statistics, or applied statistics.

These examinations are offered during the Fall Quarter and toward the end of the Spring Quarter and are three-hour tests. Students may retake them any number of times until the examinations have been passed.

Thesis Plan

None.

Master of Arts in Teaching

Admission

The Master of Arts in Teaching (M.A.T.) program serves the needs of present and prospective mathematics teachers in high school and junior college. Consult the department for admission requirements.

Areas of Study

Consult the department.

Course Requirements

Eleven courses are required as follows:

Core Courses. Students must take Mathematics 201A-201B-201C and 202A-202B. Normally students also take one quarter of Mathematics 596 while fulfilling the essay requirement described below.

Credential Requirements. Students planning to teach in secondary schools who do not already have valid credentials for such teaching should enroll in the single subject instructional credential program in the Department of Education (Graduate School of Education and Information Studies). Of the courses required by this program, students receive M.A.T. credit only for the following courses: Education 312, 330A, and 330B, 406A-406B-406C, 407A-407B. Actual receipt of the credential is not a degree requirement. Interested students should check with the Department of Education for a full and up-to-date description of credential requirements and should submit a Department of Education application for admission to the credential program.

Additional Courses. Besides the six core courses described above, a seventh upper division or graduate course in mathematics is required. Particularly recommended are Mathematics 106, 110B, 110C, 111, 131B, 135A, and Statistics 100B. Candidates on the junior college track normally take five 100- or 200-level courses in mathematics in addition to the six core courses. However, with prior approval of the graduate vice chair, one course of a predominantly mathematical nature taken in another department may be presented for degree credit.

Students may not receive degree credit for Mathematics 104, 370A, or 370B. In addition, students may not receive degree credit for more than two quarters of Mathematics 596 or for more than two quarters of any 300-series courses.

Essay Requirement. A master's essay on some subject in mathematics related to the student's prospective teaching is required. This is written by the student, under the direction of a faculty member, while enrolled in Mathematics 596.

Comprehensive Examination Plan

In the M.A.T. program, one examination in mathematical subject matter is taken, as is one in content and philosophy of secondary school

mathematics. Ordinarily, these are administered in conjunction with Mathematics 201A-201B-201C and 202A-202B. Reexamination after failure is allowed.

Thesis Plan

None.

Doctoral Degree

Admission

Prospective graduate students in mathematics need not have an undergraduate mathematics major but must have completed at least 12 quarter courses (or eight semester courses) in substantial upper division mathematics, particularly advanced calculus, algebra, differential equations, and differential or projective geometry. For direct admission to the program leading to the Ph.D. degree in Mathematics, a grade-point average of at least 3.5 must be presented. Applicants who have already obtained a master's degree must have maintained an average of better than 3.5 in graduate study.

Applicants must take the Graduate Record Examination (GRE) General Test and Subject Test in Mathematics and must submit at least three letters of recommendation from mathematicians who know their recent work.

Major Fields or Subdisciplines

The Ph.D. degree in Mathematics may be earned under the pure, applied, or statistics option. Many possible choices of fields exist within these programs, and students are urged to read the booklet, *Graduate Studies in Mathematics at UCLA*, where the specialties of the faculty and the active research areas in the department are described in some detail.

Course Requirements

Under the pure mathematics and statistics options, students must pass (with a grade of A or B) at least 12 courses from Mathematics 205A through 285N, but excluding the basic courses 210A-210B, 245A-245B, and 246A-246B. At most, three of these courses may be in the 285 series. Each student must actively participate (and lecture 90 minutes, normally two lectures) in at least two advanced seminars. Credit for one of the seminars must be obtained within three registered quarters after passing the written qualifying examinations, the other within five quarters after passing the written qualifying examinations.

Under the applied mathematics option, students must pass (with a grade of A or B) at least 18 approved graduate courses, including at least 12 courses from Mathematics 205A through 285N. At most, three of these may be in the 285 series.

Written and Oral Qualifying Examinations

Students must pass four written qualifying examinations, at least two of which must be passed at the Ph.D. level. One examination (any level) must be passed within three quarters of full-time study. Three examinations must

be passed within six quarters of full-time study with one examination at the Ph.D. level. Students in the applied option have the opportunity to substitute an outside examination (at the M.A. level) for one of the regular departmental examinations. By option, the following examinations are required.

Pure Option: One examination in algebra and one examination in real analysis. Either one or both of these required examinations may be passed at the M.A. level, subject to the above restriction on the number of M.A. passes.

Applied Option: One examination in real analysis and one examination in either numerical analysis or applied differential equations.

Statistics Option: One examination in real analysis and probability at the M.A. level and one examination in theoretical and applied statistics at the Ph.D. level.

Students should consult an adviser in the area in which they plan to do research for advice on which qualifying examinations should be taken to work in that area.

After passing the four written qualifying examinations, the student may set up the doctoral committee which administers the University Oral Qualifying Examination for advancement to candidacy.

Mathematics

Lower Division Courses

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.

2. Finite Mathematics. (4) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Finite mathematics consisting of matrices, Gauss/Jordan method, combinatorics, probability, Bayes theorem, and Markov chains. 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). Requisite: successful completion of Mathematics Diagnostic Test or course 1 (C– or better). Not open for credit to students with credit in another calculus sequence. Techniques and applications of differential calculus. Introduction to the integral. P/NP or letter grading.

3B. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 3A (C– or better). Techniques and applications of integral calculus, logarithmic and exponential functions, introduction to differential equations. P/NP or letter grading.

3C. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 3B (C– or better). Functions of several variables, vectors, partial differentiation, and vector-valued functions. P/NP or letter grading.

31A. Calculus and Analytic Geometry. (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 (C– or better). Differential calculus and applications; introduction to integration.

31B. Calculus and Analytic Geometry. (4) Lecture, three hours; discussion, one hour. Requisite: course 31A (C– or better). Transcendental functions; methods and applications of integration.

31BH. Calculus and Analytic Geometry (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 31B.

31E. Calculus for Economics Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 31A (C– or better). Not open for credit to students with credit for course 3B, 3C, or 31B. Calculus with applications to economics. Partial differentiation, differentials, implicit functions, exponential and logarithmic functions, extrema, optimization, constrained extrema, first-order linear differential equations with constant coefficients. P/NP or letter grading.

32A. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Requisite: course 31B (C– or better). Introduction to differential calculus of several variables.

32AH-32BH. Calculus of Several Variables (Honors). (4) Lecture, three hours; discussion, one hour. Requisite: course 31B (B or better). Honors sequence parallel to courses 32A, 32B.

32AL. Calculus Computer Laboratory. (1) Corequisite: course 32A. Prior knowledge of computers not required. Application of mathematical software to calculus of curves and surfaces. P/NP or letter grading.

32B. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Requisite: course 32A (C– or better). Introduction to integral calculus of several variables, vector field theory, line and surface integrals. P/NP or letter grading.

32BL. Calculus Computer Laboratory. (1) Corequisite: course 32B. Application of mathematical software to calculus of curves and surfaces. P/NP or letter grading.

33A. Matrices and Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisite: course 32A (C– or better). Introduction to matrix theory, differential equations, and systems of differential equations.

33AH. Matrices and Differential Equations (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 33A. P/NP or letter grading.

33AL. Linear Algebra and Differential Equations Computer Laboratory. (1) Corequisite: course 33A. Application of mathematical software to solve problems in linear algebra and differential equations.

33B. Infinite Series. (4) (Formerly numbered 31C.) Lecture, three hours; discussion, one hour. Requisite: course 33A (C– or better). Infinite sequences and series; applications.

33BH. Infinite Series (Honors). (4) (Formerly numbered 31CH.) Lecture, three hours; discussion, one hour. Honors course parallel to course 33B. P/NP or letter grading.

38A-38B. Fundamentals of Mathematics for Elementary Teachers. (4-4) Not open to freshmen or for credit to students with credit for any course from Mathematics 110A through 199. May not be applied toward Letters and Science general education requirements. Courses 38A, 38B, and 104 form one-year sequence for prospective elementary teachers in Diversified Liberal Arts Program. P/NP or letter grading. **38A.** Lecture, three hours; discussion, one hour. Counting numbers and other subsystems of real numbers; sets; operations, relations, algorithms; applications and problem solving. Emphasis on understanding arithmetic procedures. **38B.** Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 38A. Continuation of course 38A. Elementary number theory; probability and statistics; the microcomputer and simple instructional programs; measurement and approximation; coordinate geometry. Other topics appropriate for elementary classroom.

61. Introduction to Discrete Structures. (4) Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, Program in Computing 10A or 3. Not open for credit to students with credit for course 113. Discrete structures commonly used in computer science and mathematics, including sets and relations, permutations and combinations, graphs and trees, induction, Boolean algebras.

Upper Division Courses

General and Teacher Training

104. Fundamental Concepts of Geometry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 38A, 38B. Designed for prospective elementary teachers. Informal geometry and topology, motion geometry, measurement of geometric figures, LOGO computer language, models and constructions appropriate for elementary classrooms.

106. History of Mathematics. (4) Requisite: course 3A or 31A. Roots of modern mathematics in ancient Babylonia and Greece, development of algebra through Middle Ages to Fermat and Abel, invention of analytic geometry and calculus, selected topics in modern mathematics. P/NP or letter grading.

Algebra, Number Theory, and Logic

110A-110B. Algebra. (4-4) Lecture, three hours; discussion, one hour. Requisite: course 115A. **110A.** Not open for credit to students with credit for course 117. Ring of integers, integral domains, fields, polynomial domains, unique factorization. **110B.** Groups, structure of finite groups.

110AH-110BH. Algebra (Honors). (4-4) (Formerly numbered 110AH-110BH-110CH.) Lecture, three hours; discussion, one hour. Honors sequence parallel to courses 110A-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) (Formerly numbered 111A-111B-111C.) Lecture, three hours; discussion, one hour. Requisites: courses 110A or 117, 115A. Divisibility, congruences, Diophantine analysis, selected topics in theory of primes, algebraic number theory, Diophantine equations.

M112. Introduction to Set Theory. (4) (Formerly numbered M112A.) (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Requisite: course 31B or Philosophy 32. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

113. Combinatorics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Permutations and combinations, counting principles, recurrence relations and generating functions, combinatorial designs, graphs and trees, with applications including games of complete information. Combinatorial existence theorems, Ramsey theorem.

114A-114B. Logic and Computability. (4-4) (Formerly numbered 114A-114B-114C.) Lecture, three hours; discussion, one hour. Requisite: course 115A. Propositional and predicate logic; syntax and semantics; formal deductions; completeness and compactness; Herbrand expansions. Effectively computable, Turing computable, and recursive functions; thesis of Church. Universal functions; unsolvability results. Recursive and recursively enumerable sets; recursive enumerability of valid sentences. Formal number theory; definability of recursive functions; incompleteness and undecidability; theorems of Gödel, Tarski, Church. P/NP or letter grading.

115A-115B. Linear Algebra. (4-4) Lecture, three hours; discussion, one hour. P/NP or letter grading. **115A.** Requisite: course 33A. Abstract vector spaces, linear transformations, and matrices; determinants; inner product spaces; eigenvector theory. **115B.** 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.

115AH. Linear Algebra (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 115A.

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.

Geometry and Topology

120A-120B. Differential Geometry. (4-4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, 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. 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.

Analysis

131A-131B. Analysis. (4-4) Lecture, three hours; discussion, one hour. **131A.** Requisites: courses 32B, 33B. Rigorous introduction to foundations of real analysis; real numbers, point set topology in Euclidean space, functions, continuity. **131B.** Requisites: courses 33B, 115A, 131A. Derivatives, Riemann integral, sequences and series of functions, power series, Fourier series.

131AH-131BH. Analysis (Honors). (4-4) Lecture, three hours; discussion, one hour. Honors sequence parallel to courses 131A-131B.

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.

135A-135B. Ordinary Differential Equations. (4-4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. **135A.** Basic procedures and techniques for solving differential equations; linearity, basis of solutions, variation of parameters, Green's function; systems of equations; constant coefficient equations, matrix differential equations, method of eigenvalues and eigenvectors. **135B.** Laplace transform method; existence and uniqueness results; series solutions at regular singular points; Sturm/Liouville problems, orthogonal series, eigenfunction expansions; two-dimensional autonomous systems, phase-plane analysis; stability and asymptotic behavior of solutions; selected applications.

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.

Applied Mathematics

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.

143. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Foundations of Newtonian mechanics, kinematics and dynamics of a rigid body, variational principles and Lagrange equations; calculus of variations, variable mass; related topics in applied mathematics.

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.

149. Mathematics of Computer Graphics. (4) Lecture, three hours; discussion, one hour. Requisites: course 115A, and Program in Computing 10A or equivalent knowledge of programming in either Pascal or C language. Study of homogeneous coordinates, projective transformations, interpolating and approximating curves, representation of surfaces, and other mathematical topics useful for computer graphics.

151A-151B. Applied Numerical Methods. (4-4) (Formerly numbered 141A-141B.) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, Program in Computing 3 or 10A. Introduction to numerical methods with emphasis on algorithms, analysis of algorithms, and computer implementation issues. Letter grading. **151A.** Solution of nonlinear equations. Numerical differentiation, integration, and interpolation. Direct methods for solving linear systems. **151B.** Numerical solution of differential equations. Approximation theory, iterative solutions of linear equations, solution of nonlinear systems, two-point boundary value problems, optimization.

153. Numerical Methods for Partial Differential Equations. (4) (Formerly numbered 148A.) Lecture, three hours; discussion, one hour. Requisites: courses 151A-151B. Introduction to first- and second-order linear partial differential equations. Finite difference and finite element solution of elliptic, hyperbolic, and parabolic equations. Method of lines and Rayleigh/Ritz procedures. Concepts of stability and accuracy.

157. Software Techniques for Scientific Computation. (4) Lecture, three hours; discussion, one hour. Requisites: course 151A, Program in Computing 10C. Software structures, concepts, and conventions that support object-oriented programming. Identification of class structure, problem partitioning, and abstraction. Design and implementation of computer applications requiring scientific computation, visualization, and GUI components. Interlanguage interfacing. P/NP or letter grading.

164. Linear Programming. (4) (Formerly numbered 144.) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Electrical Engineering 136. Principles of linear programming, duality theorem, simplex methods; applications to industrial and business problems. Additional topics such as sensitivity analysis, integer programming, distribution and transportation algorithms, and applications to game theory.

167. Game Theory. (4) (Formerly numbered 147.) Lecture, three hours; discussion, one hour. Requisite: course 115A. Games in extensive form, strategic equilibrium, matrix games and minimax theorem, cooperative and noncooperative solutions of bimatrix games and Lemke/Howson algorithm. Possible additional topics include combinatorial games, stochastic games, coalitional games and the core, marriage problem, and cost allocation. P/NP or letter grading.

Probability

M170A. Probability Theory. (4) (Formerly numbered M150A.) (Same as Statistics M100A.) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Not open to students with credit for Statistics M100A, 110A, or Electrical Engineering 131A. Probability distributions, random variables and vectors, expectation, normal approximations. P/NP or letter grading.

170B. Probability Theory. (4) (Formerly numbered 150B.) Lecture, three hours; discussion, one hour. Requisite: course M170A or Statistics M100A. Convergence in distribution, normal approximation, laws of large numbers, Poisson processes, random walks.

171. Stochastic Processes. (4) (Formerly numbered 151.) Lecture, three hours; discussion, one hour. Requisite: course M170A or Statistics M100A. Discrete Markov chains, continuous-time Markov chains, renewal theory.

172A-172B. Actuarial Mathematics. (4) Lecture, three hours; discussion, one hour. **172A.** Requisite: course 70. Survival distributions and life tables, life insurance, life annuities, net premiums, net premium reserves. **172B.** Requisites: course 172A, Statistics 110A-110B. Multiple life functions, multiple decrement models, valuation theory for pension plans, insurance models, nonforfeiture benefits and dividends.

181. Mathematics of Finance. (4) Lecture, three hours; discussion, one hour. Requisites: course 33A, Economics 11, and Statistics 110A or equivalent background in calculus-based probability. Modeling, mathematics, and computation for financial securities. Price of risk. Random walk models for stocks and interest rates. No-arbitrage theory for pricing derivative securities; Black/Scholes theory. European and American options. Monte Carlo, trees, finite difference methods. P/NP or letter grading.

Special Studies

190. Honors Mathematics Seminar. (4) Seminar, three hours. Participating seminar on advanced topics in mathematics. Content varies from year to year. May be repeated for credit by petition.

199. Special Studies in Mathematics. (1 to 4) At discretion of chair and subject to availability of staff, individuals or groups may study topics suitable for undergraduate course credit but not specifically offered as separate courses. May be repeated for credit, but no more than one 199 course may be applied toward upper division courses required for a major offered by Mathematics Department.

Graduate Courses

Teacher Preparation

201A-201B-201C. Topics in Algebra and Analysis. (4-4-4) Preparation: bachelor's degree in mathematics. Designed for mathematics/education program students. 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 M.A. degree requirements.

202A-202B. Mathematical Models and Applications. (4-4) Preparation: bachelor's degree in mathematics. Designed for mathematics/education program students. 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 M.A. degree requirements.

Number Theory

205A-205B-205C. Number Theory. (4-4-4) Requisites: courses 210A, 246A. Topics from analytic algebraic and geometric number theory, including distribution of primes and factorization in algebraic number fields. Selected topics from additive number theory, Diophantine approximation, partitions, class-field theory, lattice point problems, valuation theory, etc.

206A-206B. Combinatorial Theory. (4-4) 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.

Algebra

210A-210B-210C. Algebra. (4-4-4) Requisites: courses 110A-110B, 110C. Students with credit for courses 110B and/or 110C cannot receive M.A. 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.

212. Homological Algebra. (4) Requisite: course 210A. Modules over a ring, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules.

213A-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-214B. Introduction to Algebraic Geometry. (4) Requisite: course 210A. Basic definitions and first properties of algebraic varieties in affine and projective space: irreducibility, dimension, singular and smooth points. More advanced topics, such as sheaves and their cohomology, or introduction to theory of Riemann surfaces, as time permits.

215A-215B. Commutative Algebra. (4-4) Requisite: course 210A. 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.

216. Further Topics in Algebraic Geometry. (4) Requisites: courses 214A-214B. Closer examination of areas of current research in algebraic geometry. Variable content may include algebraic surfaces, Abelian varieties, invariant theory, Hodge theory, or geometry over finite fields. May be repeated for credit by petition.

M217. 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.

Logic and Foundations

220A-220B-220C. Mathematical Logic and Set Theory. (4-4-4) Lecture, three hours. Requisite: course M112. Model theory: compactness theorem; Lowenheim/Skolem theorems; definability; ultraproducts; preservation theorems; interpolation theorems. Recursion function theory: thesis of Church; recursively enumerable sets; hierarchies; degrees. Formal proofs: completeness and incompleteness theorems; decidable and undecidable theories; quantifier elimination. Set theory: Zermelo/Fraenkel and von Neumann/Gödel axioms; cardinal and ordinal numbers; continuum hypothesis; constructible sets; independence results and forcing. S/U or letter grading.

222A-222B. Lattice Theory and Algebraic Systems. (4-4) 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.

223A. Model Theory. (4) Requisites: courses 220A-220B-220C. Topics include ultraproducts, preservation theorems, interpolation theorems, saturated models, omitting types, categoricity, two cardinal theorems, enriched languages, soft model theory, and applied model theory.

223B. Set Theory. (4) Requisites: courses 220A-220B-220C. Topics include constructibility theory, Cohen extensions, large cardinals, and combinatorial set theory.

223C. Recursion Theory. (4) Requisites: courses 220A-220B-220C. Topics include degrees of unsolvability, recursively enumerable sets, undecidable theories, inductive definitions, admissible sets and ordinals, and recursion in higher types.

223D. Descriptive Set Theory. (4) Requisites: courses 220A-220B-220C. Classical descriptive set theory: Borel and projective sets. Effective descriptive set theory. Consequences of strong set-theoretic hypotheses.

Geometry and Topology

225A. Differentiable Manifolds. (4) Lecture, three hours. Requisites: courses 121, 131A-131B. Smooth manifolds and maps, basic examples and properties, orientability, tangent and cotangent spaces, embeddings and immersions, Sard theorem and transversality, vector fields and integral curves, Lie brackets and Frobenius theorem, Lie derivative, tensors, differential forms and exterior derivative, Stokes theorem on manifolds.

225B. Introduction to Algebraic Topology. (4) Lecture, three hours. Requisite: course 225A. Elementary concepts of homotopy theory; covering spaces and fundamental group. Singular homology theory, axioms of homology, Mayer/Vietoris sequence, calculation of homology of standard spaces, applications, Betti numbers and Euler characteristic, cell complexes and cellular homology.

225C. Further Topics in Geometry and Topology. (4) Lecture, three hours. Requisites: courses 225A, 225B. Topics may include cohomology (singular, cellular, de Rham), duality theorems, de Rham theorem, degree theory, cup products, higher homotopy groups, transversality theory, Morse theory, Riemannian metric.

226A-226B-226C. Differential Geometry. (4-4-4) 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-227B. Algebraic Topology. (4-4) Lecture, three hours. Requisite: course 225B. CW complexes, fiber bundles, homotopy theory, cohomology theory, spectral sequences.

229A-229B-229C. Lie Groups and Lie Algebras. (4-4-4) 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-238B. Dynamical Systems. (4-4) 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.

Analysis and Differential Equations

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-245B-245C. Real Analysis. (4-4-4) Lecture, three hours. Requisites: courses 121, 131A-131B. Students with credit for former course 134 cannot receive M.A. degree credit for course 245A. 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-246B-246C. Complex Analysis. (4-4-4) Requisites: courses 131A-131B. Students with credit for course 132 cannot receive M.A. 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.

247A-247B. Classical Fourier Analysis. (4-4) 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-251C. Topics in Partial Differential Equations. (4-4) In-depth introduction to topics of current interest in partial differential equations or their applications.

252A-252B. Topics in Complex Analysis. (4-4) (Formerly numbered 252A-252B-252C.) 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-253B. Several Complex Variables. (4-4) Requisites: courses 245A-245B-245C, 246A-246B-246C. Introduction to analytic functions of several complex variables. The $\bar{\partial}$ -problem, Cousin problems, domains of holomorphy, complex manifolds.

254A-254B. Topics in Real Analysis. (4-4) 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.

Functional Analysis

255A. Functional Analysis. (4) Requisites: courses 245A-245B or 265A-265B, and 246A. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces including Hilbert spaces and $C(X)$.

255B-255C. Topics in Functional Analysis. (4-4) Requisite: course 255A. Topics include Banach algebras, operators on Banach spaces and Hilbert space, semigroups of operators, linear topological vector spaces, and other related areas.

256A-256B. Topological Groups and Their Representations. (4-4) (Formerly numbered 256A-256B-256C.) 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.

259A-259B. Operator Algebras in Hilbert Space. (4-4) Requisites: courses 255A, 255B-255C. Selected topics from theories of C^* and von Neumann algebras. Applications.

Applied Mathematics

260. Introduction to Applied Mathematics. (4) Requisite: course 142. Construction, analysis, and interpretation of mathematical models of problems which arise outside of mathematics.

M261. Game Theory. (4) (Same as Economics M214B and Political Science M208A.) Lecture, three hours. Designed for graduate economics, mathematics, and political science students. Bargaining theory, the core, the 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-265B. Real Analysis for Applications. (4-4) 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. Requisites: courses 131A-131B, 132, and 135A-135B 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-266C. Applied Partial Differential Equations. (4-4) Requisite: course 266A. 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-266E. Applied Differential Equations. (4-4) 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. Applied Functional Analysis. (4) Lecture, three hours. Requisites: courses 115A-115B, 131A-131B, 132. Topics may include Hilbert spaces, distributions, Fourier transforms, L^2 -space, the Laplacian, linear operators, spectrum and resolvent, self-adjoint and unitary operators, problems of evolution in Banach spaces, well-posed initial value problems, semigroups, applications to applied problems.

268B-268C. Topics in Applied Functional Analysis. (4-4) Requisite: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions, and partial differential equations.

269A-269B-269C. Advanced Numerical Analysis. (4-4-4) Lecture, three hours. Requisites: courses 115A, 135A, 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-270F. Mathematical Aspects of Scientific Computing. (4 each) Lecture, three hours. Requisites: courses 115A, 151A-151B, Program in Computing 10A. S/U or letter grading:

270A. Techniques of Scientific Computing. Mathematical modeling for computer applications, scientific programming languages, software development, graphics, implementation of numerical algorithms on different architectures, case studies.

270B-270C. Computational Linear Algebra. Direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, algebraic eigenvalue problem.

270D-270E. Computational Fluid Dynamics. Basic equations, finite difference, finite element, pseudospectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations.

270F. Parallel Numerical Algorithms. Requisites: courses 270B-270C. 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.

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) Preparation: prior knowledge of mechanics. Requisite: course 271A. Newtonian and Lagrangian equations. Hamilton principle. Principle of least action. Holonomic and non-holonomic systems. Hamilton canonical equations, contact transformations, applications.

271C. Introduction to Relativity. (4) Preparation: prior knowledge of mechanics. Requisite: course 271A. 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.

273. Optimization, Calculus of Variations, and Control Theory. (4) Application of abstract mathematical theory to optimization problems of calculus of variations and control theory. Abstract nonlinear programming and applications to control systems described by ordinary differential equations, partial differential equations, and functional differential equations. Dynamic programming.

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-274C. Perturbation Methods. (4-4) Lecture, three hours. Requisite: course 266A. Boundary layer theory, matched asymptotic expansions, WKB theory. Problems with several time scales: Poincaré method, averaging techniques, multiple-scale analysis. Application to eigenvalue problems, nonlinear oscillations, wave propagation, and bifurcation problems. Examples from various fields of science and engineering.

Probability and Statistics

275A-275B. Probability Theory. (4-4) Requisite: course 245A or 265A. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory.

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, Itô 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.

278F. Structural Equation and Graphical Models. (4) Lecture, three hours. Preparation: two quarters of graduate-level statistics, such as courses 276A-276B or equivalent sequence in another department. Statistical and causal dependencies. Linear structural equations, latent variables, categorical variable models, multilevel structures, hierarchical sampling plans. Conditional, unconditional statistical theory. Causal diagrams, directed acyclic graphs, conditional-independence models for continuous, categorical, mixed data. Parameter estimation, identification, model testing, policy analysis.

M282A-M282B. Applied Probability. (4-4) (Formerly numbered 282A-282B.) (Same as Statistics M220A-M220B.) Lecture, three hours. Requisite: course M170A or Statistics M100A. S/U or letter grading. **M282A.** Conditioning, Markov chains, Poisson process, Brownian motion, stationary processes, applications. **M282B.** Simulation, renewal theory, martingale, and selected topics from queuing, reliability, speech recognition, computational biology, mathematical finance, epidemiology.

Special Studies

285A-285N. Seminars. (4 each) (Formerly numbered 285A-285L.) Seminar, three hours. No more than two 285 courses may be applied toward M.A. 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:

285A. History and Development of Mathematics.

285B. Number Theory.

285C. Algebra.

285D. Logic.

285E. Geometry.

285F. Topology.

285G. Analysis.

285H. Differential Equations.

285I. Functional Analysis.

285J. Applied Mathematics.

285K. Probability.

285N. Dynamical Systems.

290. Seminar: Current Literature. (4) Designed for Ph.D. students. Readings and presentations of papers in mathematical literature under supervision of a staff member.

296A-296N. Participating Seminars. (1 to 4 each) (Formerly numbered 296A-296M.) Seminars and discussion by staff and students. S/U grading:

296A. History and Development of Mathematics.

296B. Number Theory.

296C. Algebra.

296D. Logic.

296E. Geometry.

296F. Topology.

296G. Analysis.

296H. Differential Equations.

296I. Functional Analysis.

296J. Applied Mathematics.

296K. Probability.

296M. Mathematics.

296N. Dynamical Systems.

330. Observation and Participation: Mathematics and Science Instruction. (1 to 2). Seminar, one hour; classroom observation and participation, two hours. Observation, participation, or tutoring in mathematics and science classes at middle school and secondary levels. May be repeated for credit. P/NP (undergraduates) or S/U (graduates) grading.

370A-370B. Teaching of Mathematics. (4-4) 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.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U 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 Ph.D. students. Special course for teaching assistants designed to deal with problems and techniques of teaching college mathematics. 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 M.A. examination. May be repeated for credit, but only two 596 courses (eight units) may be applied toward M.A. 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 Ph.D. candidacy. Study and research for Ph.D. dissertation. May be repeated for credit. S/U grading.

Program in Computing

Program in Computing 1 is designed for students who wish a broad, general introduction to the topic of computers and computation. It is

strongly recommended for those who wish to take course 3 or 10A, but who have no prior experience in computing.

Students who would like one course in programming should take either course 3 (uses FORTRAN) or 10A (uses C++), depending on the advice of their major department.

The sequence (courses 10A, 10B, 10C, 15, 30, 60) provides an extensive education in basic computer science. It is intended for Letters and Science majors who are completing a specialization in Computing and for those planning to take upper division coursework in computer science. These students should take all or part of the sequence, depending on the advice of their major department.

Lower Division Courses

1. Introduction to Computers and Computing. (4) Lecture, three hours; laboratory, one hour. Not open for credit to students with credit for course 1S or 10A; may not be taken concurrently with course 1S or 10A. Fundamentals of computers and computing; editors, spreadsheets, file manager; machine organization and computer hardware; Internet; software applications. P/NP or letter grading.

1S. Software Tools for Information Management. (1) Lecture, one hour; laboratory, two hours. Preparation: some familiarity with computers. Not open for credit to students with credit for course 1; may not be taken concurrently with course 1. May be taken by students with credit for more advanced courses. Introduction to spreadsheets and databases in a laboratory setting. P/NP grading.

3. Introductory FORTRAN Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Students with credit for course 10A receive only two units of credit for this course. Basic principles of programming, using FORTRAN as example language. Terminal course intended for physical sciences and engineering majors who need to use the extensive library of existing FORTRAN programs. Students who wish to take more advanced program in computing courses should take course 10A rather than this course.

10A. Introduction to Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Recommended requisite for students with no prior computing experience: course 1. Students with credit for course 3 receive only two units of credit for this course. 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. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Abstract data types and their implementation using the C++ class mechanism; dynamic data structures, including linked lists, stacks, queues, trees, and hash tables; applications; object-oriented programming and software reuse; recursion; algorithms for sorting and searching.

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.

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.

20. Programming for Internet in Java Language. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. 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.

30. Machine Organization and Assembly Language Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. Description of machine organization and operation. Representation of information, instruction sets and formats, addressing modes, memory organization and management, input/output (I/O) processing and interrupts.

40. Programming for Internet and Multimedia. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. HTML, Perl language, programming for Common Gateway Interface (CGI), other scripting languages, XML and its derivatives, programming for multimedia. P/NP or letter grading.

60. Data Structures and Algorithms. (4) Lecture, three hours; discussion, one hour; laboratory, five hours. Enforced requisites: course 10B, Mathematics 31A, 31B, 61. Review of basic data structures: arrays, stacks, queues, lists, trees. Advanced data structures: priority queues, heaps, balanced trees. Sorting, searching techniques. Corresponding algorithms.

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.

Upper Division Courses

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.

197. Advanced Topics in Programming. (2 to 4) Lecture, one to three hours; discussion, one to two hours. Variable topics in programming and the mathematics of programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Courses

285C-285L. Seminars. (4 each) Considered equivalent to Mathematics 285A-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.

285C. Computational Algebra.

285D. Logic and Theory of Computation.

285J. Scientific Computation.

285K. Randomness and Computation.

285L. Computational Statistics.

296. Participating Seminar: Logic and Theory of Computation. (1 to 4) Seminar and discussion by staff and students. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

MATHEMATICS/ ECONOMICS

*Interdepartmental Program
College of Letters and Science*

UCLA
6363 Math Sciences
Box 951555
Los Angeles, CA 90095-1555

(310) 825-4701
<http://www.math.ucla.edu/undergrad/mathecon.htm>

Robert F. Brown, Ph.D., *Chair*

Professors

Kirby A. Baker, Ph.D. (*Mathematics*)
Robert F. Brown, Ph.D. (*Mathematics*)
Bryan C. Ellickson, Ph.D. (*Economics*)
Jonathan D. Rogawski, Ph.D. (*Mathematics*)
William R. Zame, Ph.D. (*Economics*)

Scope and Objectives

In recent years economics has become increasingly dependent on mathematical methods, and the mathematical tools it employs have become more sophisticated. Mathematically competent economists, with bachelor's degrees and with advanced degrees, are needed in industry and government. Graduate programs in economics and finance programs in graduate schools of management require strong undergraduate preparation in mathematics for admission.

The B.S. degree program is designed to give students a solid foundation in both mathematics and economics, stressing those areas of mathematics and statistics that are most relevant to economics and the parts of economics that emphasize the use of mathematics and statistics.

Undergraduate Study

Mathematics/Economics B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1, 2, 11, Program in Computing 10A. Each course must be passed with a minimum grade of C-, and students must have a minimum overall grade-point average of 2.0 for the courses.

The Major

Required: Seven Mathematics Department courses, including Mathematics 110A or 117,

115A, 131A, 164, M170A or Statistics M100A or 110A, Statistics 100B or 110B, and one course from Mathematics 110A through 199 and Statistics M120A, M120B; six economics courses, including Economics 101, 102, and four additional upper division courses, with at least three from 105AH, 105BH, and 142 through 148. The seven Mathematics Department courses must be passed with an overall grade-point average of 2.0, as must the six courses from the Economics Department.

Honors Program

Students who wish to graduate with departmental honors should apply for admission to the honors program in the Mathematics Department Student Services Office. They may apply any time after completing the preparation for the major courses with an overall grade-point average of 3.5 or better.

To qualify for honors at graduation, students must (1) complete Mathematics 110B or 131B, (2) prepare a senior thesis acceptable to the departmental honors committee, (3) present the thesis in Economics 195H, and (4) complete the major requirements with at least a 3.5 GPA in the mathematics and economics courses. Highest honors are awarded at the discretion of the departmental honors committee based on grade-point average and quality of the senior thesis.

Computing Specialization

Students may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Mathematics 61 or 113, Program in Computing 10A, 10B, and two courses from 10C, 15, 30, 60, with a minimum grade of C- in each course and a combined grade-point average of at least 2.0, and (3) completing at least two courses from Mathematics 149 through 159. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Mathematics Department Student Services Office). Students graduate with a bachelor's degree in mathematics/economics and a specialization in Computing.

Vijay K. Dhir, Ph.D., *Chair*
Oddvar O. Bendiksen, Ph.D., *Vice Chair*
Robert E. Kelly, Sc.D., *Vice Chair*

Professors

Mohamed A. Abdou, Ph.D.
Satya M. Alturi, Sc.D.
Oddvar O. Bendiksen, Ph.D.
Ivan Catton, Ph.D.
Vijay K. Dhir, Ph.D.
Nasr M. Ghoniem, Ph.D.
James S. Gibson, Ph.D.
Vijay Gupta, Ph.D.
H. Thomas Hahn, Ph.D. (*Hughes Aircraft Company Professor of Manufacturing Engineering*)
Chih-Ming Ho, Ph.D.
Ann R. Karagozian, Ph.D.
Robert E. Kelly, Sc.D.
J. John Kim, Ph.D. (*Rockwell International Professor of Engineering*)
Adrienne G. Lavine, Ph.D.
Ajit K. Mal, Ph.D.
William C. Meecham, Ph.D.
Anthony F. Mills, Ph.D.
D. Lewis Mingori, Ph.D.
Jeff S. Shamma, Ph.D.
Owen I. Smith, Ph.D.
Jason Speyer, Ph.D.
Tsu-Chin Tsao, Ph.D.
Daniel C.H. Yang, Ph.D.

Professors Emeriti

Harry Buchberg, M.S.
Andrew F. Charwat, Ph.D.
Walter C. Hurty, M.S.
Cornelius T. Leondes, Ph.D.
Michel A. Melkanoff, Ph.D.
Peter A. Monkewitz, Ph.D.
Philip F. O'Brien, M.S.
David Okrent, Ph.D.
Russell R. O'Neill, Ph.D., *Dean Emeritus*
Lucien A. Schmit, Jr., M.S.
Chauncey Starr, Ph.D., *Dean Emeritus*
Richard Stern, Ph.D.
William T. Thomson, Ph.D.
Russell A. Westmann, Ph.D.

Associate Professors

Gregory Carman, Ph.D.
Gang Chen, Ph.D.
Chang-Jin (C-J) Kim, Ph.D.
Xiaolin Zhong, Ph.D.

Assistant Professors

Robert T. M'Closkey, Ph.D.
Zvi Shiller, Ph.D.

Senior Lecturers

C.H. Chang, M.S., *Emeritus*
Alexander Samson, Ph.D., *Emeritus*

Adjunct Professors

George E. Apostolakis, Ph.D.
Yoseph Bar-Cohen, Ph.D.
Frank E. Marble, Ph.D.
Rudolph X. Meyer, Ph.D., *Emeritus*

Adjunct Associate Professor

Sukumar Chakravarthy, Ph.D.

Because of the scope of the department, faculty research and teaching cover a wide range of technical disciplines. Research in thermal engineering emphasizes basic heat and mass transfer processes as well as thermal hydraulics. Topics in the area of design, dynamics, and control include robotics, mechanism design, control and guidance of aircraft and spacecraft, helicopter dynamics and aeromechanics, and dynamics and control of large space structures. Studies in structural mechanics range from fracture mechanics and wave propagation, structural dynamics and aeroelasticity of helicopters and jet engine blades, computational transonic aeroelasticity to structural optimization and synthesis, and mechanics of composite structures. In the area of fluid mechanics and acoustics, investigations are under way on combustion, flow instabilities, turbulence and thermal convection, aeroacoustics, and unsteady aerodynamics of turbomachines, helicopter rotors, and fixed-wing aircraft. Other areas of research include applied plasma physics, surface modification by plasma, fusion reactor design, experimental tokamak confinement physics; light water reactor safety; reliability and risk assessment methodology; societal risk management; and nuclear materials. The department also has research activity in computer-aided design and manufacturing.

At the undergraduate level, the department offers accredited programs leading to Bachelor of Science degrees in Aerospace Engineering and in Mechanical Engineering. The former includes opportunity to emphasize propulsion, aerodynamics, preliminary design, dynamics and control, or structures and space technology, while the latter includes opportunity to emphasize design and manufacturing, dynamics and control, or fluids and thermal engineering.

At the graduate level, the department offers programs leading to M.S. and Ph.D. degrees in Mechanical Engineering and in Aerospace Engineering. An M.S. in Manufacturing Engineering is also offered.

Undergraduate Study

Aerospace Engineering B.S.

The ABET-accredited aerospace engineering program is concerned with the design and construction of various types of fixed-wing and rotary-wing (helicopters) aircraft used for air transportation and national defense. It is also concerned with the design and construction of spacecraft, the exploration and utilization of space, and related technological fields.

Aerospace engineering is characterized by a very high level of technology. The aerospace engineer is likely to operate at the forefront of scientific discoveries, often stimulating these discoveries and providing the inspiration for the creation of new scientific concepts. Meeting these demands requires the imaginative use of many disciplines, including fluid mechanics and aerodynamics, structural mechanics, ma-

MECHANICAL AND AEROSPACE ENGINEERING

School of Engineering and Applied Science

UCLA
48-121 Engineering IV
Box 951597
Los Angeles, CA 90095-1597

(310) 825-2281
<http://www.mae.ucla.edu/>

Scope and Objectives

The Mechanical and Aerospace Engineering Department encompasses professional disciplines that are often divided into separate departments at other engineering schools. Curricula in aerospace engineering and mechanical engineering are offered on both the undergraduate and graduate levels. The Gorman Report ranked UCLA's mechanical engineering program tenth in the nation for undergraduate programs. The aerospace program is the only accredited aerospace program in the University of California system.

materials and aeroelasticity, dynamics, control and guidance, propulsion, and energy conversion.

The Major

Course requirements are as follows (189 minimum units required):

(1) Ten department core courses: Civil and Environmental Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical and Aerospace Engineering 20, 102, 103, M105A, 105D, 157, 192A.

(2) Twelve aerospace engineering core courses: Electrical Engineering 102; Mechanical and Aerospace Engineering 150A, 150B, 150P, 154A, 154B, 154S, 157A, 161A or 169A, 166A, 171A; one mathematics elective from Mechanical and Aerospace Engineering 191A, 192B, 192C, Electrical Engineering 103, 131A.

(3) Sixteen technical elective units (which should contain enough design units to satisfy the overall program requirement of at least 24 design units) selected from Mechanical and Aerospace Engineering 131A/131AL, 132A, 133A/133AL, 150C, 150R (heat and mass transfer, thermodynamics, combustion/propulsion); 153A (acoustics); 155, 163A, 164, 169A (unless taken as part of the core), Civil and Environmental Engineering 137L, Electrical Engineering 142 (dynamics and control); Mechanical and Aerospace Engineering 156B, 166C, 168, 193, Civil and Environmental Engineering 130F (structural and solid mechanics); Mechanical and Aerospace Engineering 161A (unless taken as part of the core), 161B, 161C, 161D (space technology); 162A, 162C, M192F (design and mechanisms); Materials Science and Engineering 143A.

(4) Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

Mechanical Engineering B.S.

The ABET-accredited mechanical engineering program is designed to provide a basic knowledge in thermodynamics, fluid mechanics, heat transfer, solid mechanics, mechanical design, dynamics, control, mechanical systems, manufacturing, and materials. The program includes fundamental subjects important to all mechanical engineers, with options in design and manufacturing, dynamics and control, and fluids and thermal engineering.

The Major

Course requirements are as follows (191 minimum units required):

(1) Ten department core courses: Civil and Environmental Engineering 108, Electrical Engineering 100 (also 110L — see item 2 below),

Materials Science and Engineering 14, Mechanical and Aerospace Engineering 20, 102, 103, M105A, 105D, 157, 192A.

(2) Ten mechanical engineering core courses: Electrical Engineering 110L (may be taken concurrently with 100), Mechanical and Aerospace Engineering 131A, 133A, 156A, 162A, 162B, 162M, 169A, 171A, 193.

(3) Twenty technical elective units, to be selected from the three subject areas listed below, of which at least 12 units (including at least four laboratory units) should be from a single subject area:

(a) *Design and Manufacturing*: Materials Science and Engineering 143A, Mathematics 120A, Mechanical and Aerospace Engineering 155, 162C, 163A, 163C, 164, 168, 172, 174, 180, 194, 195.

(b) *Dynamics and Control*: Civil and Environmental Engineering 130F, 137L, Electrical Engineering 102, 103, 131A, 131B, Materials Science and Engineering 143A, Mathematics 115A, 115B, 131A, 131B, Mechanical and Aerospace Engineering 155, 156B, 163A, 163C, 164, 168, 172, 174, 191A.

(c) *Fluids and Thermal Engineering*: Electrical Engineering 103, Mechanical and Aerospace Engineering 131AL, 132A, 133AL, 134, 135, 136, 150A, 150B, 150C, 150P, 150R, 153A, 157A, 161A, 161B, 174, 192B, 192C.

(4) Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Mechanical and Aerospace Engineering 94; Physics 1A, 1B, 1C, 4AL, 4BL.

(5) SEAS general education (GE) course requirements. See Curricular Requirements in the College and Schools section of this catalog for details.

(6) Four free technical elective units selected from upper division courses offered by the department; students are strongly encouraged to consult their adviser.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Mechanical and Aerospace Engineering Department offers Master of Science (M.S.) degrees in Aerospace Engineering, Mechanical Engineering, and Manufacturing Engineering.

Aerospace Engineering and Mechanical Engineering

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the M.S. program in Aerospace Engineering or in Mechanical Engineering are required to take the General Test of the Graduate Record Examination (GRE). Applicants who expect to hold F1 or J1 visas are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Application forms, including a departmental supplement to the application, may be obtained at <http://www.mae.ucla.edu/>. Forms are also available by writing to the Mechanical and Aerospace Engineering Department, UCLA, 48-121 Engineering IV, Box 951597, Los Angeles, CA 90095-1597, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601.

Areas of Study

Dynamics; fluid mechanics; heat and mass transfer; microelectromechanical systems; structural and solid mechanics; systems and control.

Course Requirements

At least nine courses are required, of which at least five must be graduate courses. In the thesis plan, seven of the nine must be formal courses, including at least four from the 200 series. The remaining two may be 598 courses involving work on the thesis. In the comprehensive examination plan, no units of 500-series courses may be applied toward the minimum course requirement. The courses should be chosen so that the breadth requirements and the requirements at the graduate level are met. The breadth requirements are only applicable to students who do not have a B.S. degree from an ABET-accredited aerospace or mechanical engineering program.

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Aerospace Engineering

Breadth Requirements. Students are required to take at least three courses from the following four categories: (1) Mechanical and Aerospace Engineering 154A or 154B or 154S; (2) 150B

or 150P; (3) 155A or 166A or 169A; (4) 161A or 171A.

Graduate-Level Requirement. Students are required to take at least one course from the following: Mechanical and Aerospace Engineering 250D, 253B, 254A, 254B, 255B, 256F, 263B, 269D, or 271B. The remaining courses can be taken to gain depth in one or more of the several specialty areas covering the existing major fields in the department.

Mechanical Engineering

Breadth Requirements. Students are required to take at least three courses from the following four categories: (1) Mechanical and Aerospace Engineering 162A or 169A or 171A; (2) 150A or 150B; (3) 131A or 133A; (4) 156A or 156B.

Graduate-Level Requirement. Students are required to take at least one course from the following: Mechanical and Aerospace Engineering 231A, 231B, 231C, 250A, 255A, 256A, M256B, M269A, or 271A. The remaining courses can be taken to gain depth in one or more of the several specialty areas covering the existing major fields in the department.

Comprehensive Examination Plan

The comprehensive examination, which is offered every quarter, must be in written form. The comprehensive examining committee may conduct an oral examination after review of the written examination. Students may, in consultation with the adviser and the major field chair, choose to take the first part of the Ph.D. written qualifying examination (formerly referred to as the preliminary examination) as the comprehensive examination. In case of failure, students may be reexamined once with the consent of the graduate adviser.

Thesis Plan

The thesis must describe some original piece of research that has been done under the supervision of the thesis committee. Students would normally start to plan the thesis at least one year before the award of the M.S. degree is expected. There is no examination under the thesis plan.

Manufacturing Engineering

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science degree in Manufacturing Engineering are required to take the General Test of the Graduate Record Examination (GRE). Applicants who expect to hold F1 or J1 visas are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area.

Applicants not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which would not be applicable toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

For requirements for the Graduate Certificate of Specialization, see Engineering Schoolwide Programs.

Admission forms, including a departmental supplement to the application, may be obtained at <http://www.mae.ucla.edu>. Forms are also available by writing to the Mechanical and Aerospace Engineering Department, UCLA, 48-121 Engineering IV, Box 951597, Los Angeles, CA 90095-1597 or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Areas of Study

Consult the department.

Course Requirements

At least nine courses are required, of which at least five must be graduate courses. In the thesis plan, seven of the nine must be formal courses, including at least four from the 200 series. The remaining two may be 598 courses involving work on the thesis. In the comprehensive examination plan, no units of 500-series courses may be applied toward the minimum course requirement. Choices may be made from the following major areas:

Undergraduate Courses. No lower division courses may be applied toward graduate degrees. In addition, the following upper division courses are not applicable toward graduate degrees: Chemical Engineering M105A, 199; Civil Engineering 106A, 108, 199; Computer Science M152A, M152B, 171L, 199; Electrical Engineering 100, 101, 102, 103, 110L, M116D, M116L, 199; Materials Science and Engineering 110, 120, 130, 131, 131L, 132, 150, 160, 161L, 190, 191L, 199; Mechanical and Aerospace Engineering 102, 103, M105A, 105D, 199.

Upper Division Courses. Students are required to take at least three courses from the following: Mechanical and Aerospace Engineering 163A, 163C, 168, 174, 193, 194, 195.

Graduate Courses. Students are required to take at least three courses from the following: Mechanical and Aerospace Engineering 263A, 263C, 263D, 280, 293, 294, 295, 296A, 296B, 297.

Additional Courses. The remaining courses may be taken from other major fields of study in the department or from the following: Architecture and Urban Design 226B, M227B, 227D; Computer Science 241A, 241B; Management 240A, 240B, 240C, 240D, 241A, 241B, 242A, 242B, 243A, 243B, 243C; Mathematics 120A, 120B.

Comprehensive Examination Plan

The comprehensive examination, which is offered every quarter must be in written form. The comprehensive examining committee may conduct an oral examination after review of the written examination. In case of failure, students

may be reexamined once with the consent of the graduate adviser.

Thesis Plan

The thesis must describe some original piece of research that has been done under the supervision of the thesis committee. Students would normally start to plan the thesis at least one year before the award of the M.S. degree is expected. There is no examination under the thesis plan.

Doctoral Degrees

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. degrees in Aerospace Engineering and in Mechanical Engineering are required to take the General Test of the Graduate Record Examination (GRE). Applicants who expect to hold F1 or J1 visas are also required to take the GRE Subject Test in Engineering, Mathematics, or a related area.

Applicants to the Ph.D. program normally should have completed the requirements for the master's degree with at least a 3.25 grade-point average and have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having the M.S. degree.

Applicants not having adequate preparation may be admitted provisionally and may be required to undertake certain remedial coursework which cannot be applied toward the degree. On arrival at UCLA, an adviser helps the student plan a program which can remedy any such deficiencies.

For information on completing the Engineer degree, see Engineering Schoolwide Programs.

Admission forms, including a departmental supplement to the application, may be obtained at <http://www.mae.ucla.edu>. Forms are also available by writing to the Mechanical and Aerospace Engineering Department, UCLA, 48-121 Engineering IV, Box 951597, Los Angeles, CA 90095, or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951601, Los Angeles, CA 90095-1601. Students are encouraged to apply online.

Major Fields or Subdisciplines

Dynamics; fluid mechanics; heat and mass transfer; manufacturing and design (mechanical engineering only); microelectromechanical and solid mechanics; systems and control.

Ph.D. students may propose ad hoc major fields, which must differ substantially from established major fields and satisfy one of the following two conditions: (1) the field is interdisciplinary in nature; (2) the field represents an important research area for which there is no established major field in the department (condition 2 most often applies to recently evolving

research areas or to areas for which there are too few faculty to maintain an established major field).

Students in an ad hoc major field must be sponsored by at least three faculty members, at least two of whom must be from the department.

Course Requirements

The basic program of study for the Ph.D. degree is built around major and minor fields. The established major fields are listed above, and a detailed syllabus describing each Ph.D. major field can be obtained from the Student Affairs Office.

The program of study for the Ph.D. requires students to perform original research leading to a doctoral dissertation and to master a body of knowledge that encompasses material from the student's major field and breadth material from outside the major field. The body of knowledge should include (1) six major field courses, at least four of which must be graduate courses; (2) one minor field; (3) any three additional courses, at least two of which must be graduate courses that enhance the study of the major or minor field.

The major field syllabus advises students as to which courses contain the required knowledge, and students usually prepare for the written qualifying examination (formerly referred to as the preliminary examination) by taking these courses. However, students can acquire such knowledge by taking similar courses at other universities or even by self-study.

The minor field embraces a body of knowledge equivalent to three courses, at least two of which must be graduate courses. Minor fields are often subsets of major fields, and minor field requirements are then described in the syllabus of the appropriate major field. Established minor fields with no corresponding major field can also be used such as applied mathematics, and applied plasma physics and fusion engineering. Also, an ad hoc field can be used in exceptional circumstances, such as when certain knowledge is desirable for a program of study that is not available in established minor fields.

Grades of B– or better, with a grade-point average of at least 3.33 in all courses included in the minor field, and the three additional courses mentioned above are required. If the student fails to satisfy the minor field requirements through coursework, a minor field examination may be taken (once only).

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the major field, students take a written qualifying (preliminary) examination covering this knowledge. Students must have been formally admitted to the Ph.D. program or admitted subject to completion of the M.S. degree by the end of the quarter following the quarter in which the examination is given. The examina-

tion must be taken within the first two calendar years from the time of admission to the Ph.D. program. Students must be registered during the quarter in which the examination is given and be in good academic standing (minimum GPA of 3.25). The student's major field proposal must be completed prior to taking the examination. Students may not take an examination more than twice. Students in an ad hoc major field must pass a written qualifying examination that is approximately equivalent in scope, length, and level to the written qualifying examination for an established major field.

After passing the written qualifying examination, students must take the University Oral Qualifying Examination within four calendar years from the time of admission to the Ph.D. program. The nature and content of the University Oral Qualifying Examination are at the discretion of the doctoral committee but include a review of the dissertation prospectus. The examination may include a broad inquiry into the student's preparation for research.

Note: Doctoral Committees. A doctoral committee consists of a minimum of four members. Three members, including the chair, are "inside" members and must hold appointments at UCLA in the student's major department in the School of Engineering and Applied Science. The "outside" member must be a UCLA faculty member who does not hold an appointment in the student's department.

Mechanical and Aerospace Engineering

Lower Division Courses

20. FORTRAN Programming with Numerical Methods Applications. (4) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisites: Mathematics 31A, 31B. Introduction to programming with FORTRAN. Applications to numerical methods used in engineering. 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 on-line computer systems to design and display various objects. Letter grading.

Upper Division Courses

102. Mechanics of Particles and Rigid Bodies. (4) Lecture, three hours; recitation, two hours; outside study, seven hours. Requisites: Mathematics 33A, Physics 1A. Newtonian mechanics (statics and dynamics) of particles and rigid bodies. Fundamental concepts of mechanics. Statics, kinematics, and kinetics of particles and rigid bodies. Impulse/momentum and work/energy relationships. Applications. Letter grading.

103. Elementary Fluid Mechanics. (4) Lecture, three hours; recitation, two hours; outside study, seven 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.

M105A. Introduction to Engineering Thermodynamics. (4) (Same as Chemical Engineering M105A.) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: Mathematics 32B, Physics 1B. 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; recitation, one hour; outside study, seven hours. Requisites: course 103, Mathematics 32B, 33A, Physics 8B. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Letter grading.

131A. Intermediate Heat Transfer. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 20, 105D, 192A. 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.

131AL. Thermodynamics and Heat Transfer Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 131A, 157. Experimental study of physical phenomenon and engineering systems using modern data acquisition and processing techniques. Experiments include studies of heat transfer phenomena and testing of a cooling tower, heat exchanger, and internal combustion engine. Students take and analyze data and discuss physical phenomena. Letter grading.

132A. Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Principles of mass transfer by diffusion and convection. Simultaneous heat and mass transfer. Analysis of evaporative and transpiration cooling, combustion, and catalysis. Mass exchangers, including automobile catalytic converters, precipitators, filters, scrubbers, humidifiers, and cooling towers. Letter grading.

133A. Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 103, M105A, 105D. Applications of thermodynamic principles to engineering processes. Energy conversion systems. Rankine cycle and other cycles, refrigeration, psychrometry, reactive and nonreactive fluid flow systems. Letter grading.

133AL. Power Conversion Thermodynamics Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 133A, 157. Experimental study of power conversion and heat transfer systems using state-of-the-art plant process instrumentation and equipment. Experiments include studies of thermodynamic operating characteristics of an actual Brayton cycle, Rankine cycle, compressive refrigeration unit, and absorption refrigeration unit. Letter grading.

134. Design and Operation of Thermal Hydraulic Power Systems. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: courses 133A, 133AL. Thermal hydraulic design, maintenance and operation of power systems, gas turbines, steam turbines, centrifugal refrigeration units, absorption refrigeration units, compressors, valves and piping systems, and instrumentation and control systems. Letter grading.

135. Fundamentals of Nuclear Power. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Introduction to nuclear engineering; nuclear physics, neutron cross sections, nuclear fission and fusion; elementary analysis and design of reactors. Criticality, one-group neutron diffusion theory, heat removal, and heterogeneous effects. Letter grading.

136. Thermal Hydraulic Design of Nuclear and Other Power Systems. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Designed for seniors. Thermal hydraulic design of nuclear and other power systems, power generation and heat removal, power cycle, thermal hydraulic component design, overall plant design, steady state and transient operation. Letter grading.

M140. Introduction to Biomechanics. (4) (Same as Biomedical Engineering M140.) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 156A. 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. Letter grading.

150A. Intermediate Fluid Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 20, 103, 192A. 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; outside study, eight hours. Requisites: courses 103, 150A. Advanced aspects of potential flow theory. Incompressible flow around thin airfoils (C_l , C_m) 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. Requisites: courses 103, M105A, 105D. 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.

150P. Aircraft Propulsion Systems. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Requisites: courses M105A, 150A. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics. Letter grading.

150R. Rocket Propulsion Systems. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: courses M105A, 150A. Recommended: course 150P. Rocket propulsion concepts, including chemical rockets (liquid, gas, and solid propellants), hybrid airbreathing-rocket engines, electric (ion plasma) rockets, nuclear rockets, and solar-powered vehicles. Current issues in launch vehicle technologies. Letter grading.

153A. Engineering Acoustics. (4) Lecture, four hours; outside study, eight hours. Designed for junior/senior engineering majors. Fundamental course in acoustics; propagation of sound; sources of sound. Design of field measurements. Estimation of jet and blade noise with design aspects. Letter grading.

154A. Preliminary Design of Aircraft. (4) Lecture, four hours; outside study, eight hours. Requisite: course 154S. Classical preliminary design of an aircraft, including weight estimation, performance and stability, and control consideration. Term assignment consists of preliminary design of a 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; outside study, eight hours. Requisites: courses 150A, 150B. Aircraft performance, flight mechanics, stability, and control; some basic ingredients needed for design of an aircraft. Effects of airplane flexibility on stability derivatives. Letter grading.

155. Intermediate Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102. Axioms of Newtonian mechanics, generalized coordinates, Lagrange equation, variational principles; central force motion; kinematics and dynamics of a rigid body. Euler equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations. Letter grading.

156A. Strength of Materials. (4) Lecture, four hours; recitation, one hour; outside study, seven hours. Requisites: course 192A, Civil Engineering 108. Concepts of stress, strain, and material behavior. Stresses in loaded beams with symmetric and asymmetric cross sections. 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.

156B. Introduction to Elasticity. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 156A, 192A. Kinematics of deformation, strain displacement relations. Balance laws, stress tensor, principal stresses, equilibrium equations. Conservation of energy, strain energy function. Generalized Hook's law, thermoplasticity and viscoelasticity. Stress calculation in cylinders and spheres. Plane elasticity, Airy's stress function. Stress concentration problems at holes, corners, and crack tips. Letter grading.

157. Basic Mechanical Engineering Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 103, M105A, 105D, Civil Engineering 108, Electrical Engineering 100. Methods of measurement of basic quantities and performance of basic experiments in heat transfer, fluid mechanics, structures, and thermodynamics. Primary sensors, transducers, recording equipment, signal processing, and data analysis. Letter grading.

157A. Fluid Mechanics and Aerodynamics Laboratory. (4) Laboratory, eight hours. Requisites: courses 150A, 150B, 157. 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 the field. Letter grading.

161A. Introduction to Astronautics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102. Recommended: course 192A. Space environment of Earth, trajectories and orbits, step rockets and staging, two-body problem, orbital transfer and rendezvous, problem of three bodies, elementary perturbation theory, influence of Earth's oblateness. Letter grading.

161B. Introduction to Space Technology. (4) Lecture, four hours; outside study, eight hours. Recommended preparation: courses 102, 105D, 150P, 161A. Propulsion requirements for typical space missions, thermochemistry of propellants, internal ballistics, regenerative cooling, liquid propellant feed systems, POGO instability. Electric propulsion. Multistage rockets, separation dynamics. Satellite structures and materials, loads and vibrations. Thermal control of spacecraft. Letter grading.

161C. Spacecraft Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 161B. Coverage of preliminary design, by students, of a small spacecraft carrying a lightweight scientific payload with modest requirements for electric power, lifetime, and attitude stability. Students work in groups of three or four, with each student responsible primarily for a subsystem and for integration with the whole. Letter grading.

161D. Space Technology Hardware Design. (4) Lecture, two hours; laboratory, three hours; outside study, seven hours. Recommended requisite or corequisite: course 161B. Design, by students, of hardware with applications to space technology. Designs are then built by SEAS professional machine shop and tested by the students. New project carried out each year. Letter grading.

162A. Introduction to Mechanisms and Mechanical Systems. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Requisites: courses 20, 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.

162B. Mechanical Product Design. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 94, 156A, 162A, 193, Electrical Engineering 110L. Lecture and laboratory (design) course involving modern design theory and methodology for development of mechanical products. Economics, marketing, manufacturability, quality, and patentability. Design considerations taught and applied to hands-on design project. Letter grading.

162C. Electromechanical System Design Laboratory. (4) Lecture, one hour; laboratory, eight hours; outside study, three hours. Requisite: course 162B. Laboratory and design course consisting of design, development, construction, and testing of complex mechanical and electromechanical systems. Assembled machine is instrumented and monitored for operational characteristics. Letter grading.

162M. Senior Mechanical Engineering Design. (4) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 131A, 133A, 162B, 169A, 171A. Must be taken in last two academic terms of students' programs. Analytical design course of a large engineering system culminating in its computer simulation. Design factors include efficiency, economy, safety, reliability, and social impact. Final report of engineering specifications and drawings to be presented by design teams. Letter grading.

163A. Introduction to Computer-Controlled Machines. (4) Lecture, four hours; outside study, eight hours. Requisite: course 171A (may be taken concurrently). Modeling of computer-controlled machines, including electrical and electronic elements, mechanical elements, actuators, sensors, and overall electromechanical systems. Motion and command generation, servo-controller design, and computer/machine interfacing. Letter grading.

163C. Robotics and Motion Control Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisite: course 171A. Hands-on experience with robotic devices and articulated machines, with emphasis on motion planning and control. Design and implementation of servo control of DC motors, gear trains, multi-axis coordination, programming of industrial robots. Final project required. Letter grading.

164. Digital Control of Physical Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 171A or Electrical Engineering 141. Analysis and design of digital control systems. Discrete-time transfer functions for physical systems. Design using classical methods: performance specifications, frequency response, root locus; compensation. Design using state-space methods: control laws, estimators. Practical considerations: roundoff, sample rate selection, computer implementation. Letter grading.

166A. Analysis of Flight Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: Civil Engineering 108. 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; outside study, eight hours. 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 Technology. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 20, Civil Engineering 108, Mathematics 33A. Recommended: courses 94 or 194, 166A. Introduction to finite element method (FEM) and its matrix formulation of computer implementation of FEM concepts; practical use of FEM codes. Preprocessing and postprocessing techniques; graphics display capabilities; geometric and analysis modeling; interactive engineering systems; links with computer-aided design. Recent trends in FEM technology; design optimization. Term projects using FEM computer codes. Letter grading.

169A. Introduction to Mechanical Vibrations. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 102, 192A, Civil Engineering 108. Recommended: Electrical Engineering 102. 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; outside study, eight hours. Requisite: course 191A or 192A or Electrical Engineering 102. 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.

172. Control System Design Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisite: course 171A. Application of frequency domain design techniques for control of mechanical systems. Successful controller design requires students to formulate performance measures for control problem, experimentally identify mechanical systems, and develop uncertainty descriptions for design models. Exploration of issues concerning model uncertainty and sensor/actuator placement. Students implement control designs on flexible structures, rate gyroscope, and inverted pendulum. Detailed reports required. Letter grading.

174. Probability and Its Applications to Risk, Reliability, and Quality Control. (4) Lecture, four hours; outside study, eight hours. 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.

180. Introduction to Micromachining. (4) Lecture, four hours; outside study, eight hours. Physical phenomena in microscale. Photolithography and etching. Basics of silicon processing. Fundamentals of bulk micromachining and examples. Thin film formation. Surface micromachining and examples. Microplating, including LIGA. Nonlithographic micromachining. Letter grading.

191A. Complex Analysis and Integral Transforms. (4) Lecture, four hours; outside study, eight hours. Requisite: course 192A. 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.

192A. Mathematics of Engineering. (4) Lecture, four hours; recitation, two hours; outside study, six hours. Requisites: Mathematics 33A, 33B. Methods of solving ordinary differential equations in engineering. Review of matrix algebra. Solutions of systems of first- and second-order ordinary differential equations. Introduction to Laplace transforms and their application to ordinary differential equations. Introduction to boundary value problems. Letter grading.

192B. Mathematics of Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 192A. 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.

192C. Numerical Methods for Engineering Applications. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 20, 192A. Recommended: Electrical Engineering 103. 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.

M192F. Numerical Optimization Methods for Engineering Design. (4) (Same as Civil Engineering M140.) Lecture, four hours; outside study, eight hours. Requisites: course 20 or Civil Engineering 15, Mathematics 32A, 33A. Recommended: Mathematics 115A. Systematic presentation of numerical optimization methods for engineering design; one-dimensional minimization, unconstrained minimization, linearly constrained minimization, general nonlinear problems, approximation concepts, duality. Optimization problem statements. Advantages and limitations of numerical optimization. Applications. Letter grading.

193. Introduction to Manufacturing Processes. (4) (Formerly numbered Materials Science 147B.) Lecture, four hours; outside study, eight hours. Requisite: Materials Science 14. Mechanical behavior of materials. Manufacturing properties of metals. Surfaces of materials. Metal cutting, deformation processes, and casting. Joining and fastening. Nonconventional material-removal processes. Polymers, ceramics, and composites. Letter grading.

194. Introduction to CAD/CAM Systems: Design and Implementation. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 20, 94. Hands-on experience with CAD/CAM systems design and implementation, with special emphasis on theory of parametric curves and surfaces and their computer interactive graphics implementation. Letter grading.

195. Computer Numerical Control and Applications. (4) Laboratory, eight hours; outside study, four hours. Designed for juniors/seniors. Fundamentals of numerical control (NC) technology. Programming of computer numerical control (CNC) machines in NC codes and APT language and with CAD/CAM systems. NC postprocessors and distributed numerical control. Operation of CNC lathe and milling machines. Programming and machining of complex engineering parts. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to seniors. Individual investigation of selected topic to be arranged with a faculty member. Enrollment request forms available in department office. Occasional field trips may be arranged. May be repeated for credit. Letter grading.

Graduate Courses

231A. Convective Heat Transfer Theory. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 192B. 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. S/U or letter grading.

231B. Radiation Heat Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Radiant intensity and flux. Radiation properties of walls, gases, and particulates. Heat transfer by combined conduction, convection, and radiation in nonabsorbing and absorbing media. Applications to industrial, aerospace, energy conversion, and environmental problems. S/U or letter grading.

231C. Boiling and Condensation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Phenomenological theories of boiling. Hydrodynamic instability of liquid-vapor interfaces and their application to predict maximum and minimum heat fluxes. Forced flow boiling and boiling crisis in pipes. Pool and forced flow boiling of liquid metals. Film and dropwise condensation. S/U or letter grading.

231D. Application of Numerical Methods to Transport Phenomena. (4) Lecture, four hours; outside study, eight hours. Requisite: course 132A. Numerical techniques for solving selected problems in heat and mass transfer. Applications include free convection, boundary layer flow, two-phase flow, separated flow, flow in porous media. Effects of concentration and temperature gradients, chemical reactions, radiation, electric and magnetic fields. S/U or letter grading.

231E. Two-Phase Flow Heat Transfer. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Generalized constitutive equations for various two-phase flow regimes. Interfacial heat and mass transfer. Equilibrium and nonequilibrium flow models. Two-phase flow instability. One-dimensional wave propagation. Two-phase heat transfer applications: convective boiling, pressure drop, critical and oscillatory flows. S/U or letter grading.

231F. Advanced Heat Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 231A. Advanced topics in heat transfer from current literature. Linear and nonlinear theories of thermal and hydrodynamic instability; variational methods in transport phenomena; phenomenological theories of turbulent heat and mass transport. S/U or letter grading.

232B. Advanced Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 132A. Formulation of general convective heat and mass transfer problem, including equilibrium and nonequilibrium chemistry. Similar and nonsimilar solutions for laminar flows; solution procedures for turbulent flows. Multicomponent diffusion. Application to hypersonic boundary layer, ablation and transpiration, cooling combustion. S/U or letter grading.

235A. Nuclear Reactor Theory. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 135, 192A. Underlying physics and mathematics of nuclear reactor (fission) core design. Diffusion theory, reactor kinetics, slowing down and thermalization, multigroup methods, introduction to transport theory. S/U or letter grading.

236A. Nuclear Materials Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: course 135, Materials Science 143A. Materials requirements for nuclear technologies; radiation effects on mechanical properties, void swelling and creep, fuel and solid breeder swelling and restructuring, gas release, computer codes for swelling and gas release, structural analysis of fission and fusion materials including radiation effects. S/U or letter grading.

M237B. Fusion Plasma Physics and Analysis. (4) (Same as Electrical Engineering M287.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering M185. 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. S/U or 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.

239B. Seminar: Current Topics in Transport Phenomena. (2 to 4) (Formerly numbered 239BA-239BZ.) Seminar, 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.

239D. Seminar: Current Topics in Nuclear Engineering. (2 to 4) (Formerly numbered 239DA-239DZ.) Seminar, 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 nuclear engineering. May be repeated for credit. S/U grading.

239F. Special Topics in Transport Phenomena. (2 to 4) (Formerly numbered 239FA-239FZ.) 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) (Formerly numbered 239GA-239GZ.) 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) (Formerly numbered 239HA-239HZ.) Seminar, 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.

250A. Foundations of Fluid Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Corequisite: course 192B. 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. S/U or 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. S/U or letter grading.

250D. Computational Aerodynamics. (4) Lecture, eight hours. Requisites: courses 150A, 150B, 192C. Introduction to useful methods for computation of aerodynamic flow fields. Coverage of potential, Euler, and Navier/Stokes equations for subsonic to hypersonic speeds. S/U or letter grading.

250E. Spectral Methods in Fluid Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 192A, 192B, 192C, 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.

251A. Stratified and Rotating Fluids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Fundamentals of fluid flows with density variations or rotation, illustrated by examples with environmental, geophysical, or technical importance. Linear and finite amplitude wave motion. Flow past bodies; blocking phenomena. Viscous effects. Instabilities. Turbulent shear flows, wakes, plumes, and gravity currents. S/U or 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. S/U or letter grading.

252B. Statistical Theory of Turbulence. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Development of statistical methods of wide utility in engineering applied to turbulent flows. Topics include stochastic processes, kinematics of turbulence, energy decay. Kolmogorov similarity, analytical theories, and origins of Reynolds stress. S/U or 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. S/U or letter grading.

252D. Combustion Rate Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 252C. Basic concepts in chemical kinetics: molecular collisions, distribution functions and averaging, semiempirical and ab initio potential surfaces, trajectory calculations, statistical reaction rate theories. Practical examples of large-scale chain mechanisms from combustion chemistry of several elements, etc. Letter grading.

253A. Advanced Engineering Acoustics. (4) Lecture, four hours; outside study, eight hours. Advanced studies in engineering acoustics, including three-dimensional wave propagation; propagation in bounded media; Ray acoustics; attenuation mechanisms in fluids. S/U or letter grading.

253B. Fundamentals of Aeroacoustics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Detailed discussion of plane waves, point sources. Nonlinearity, layered and moving media, multiple reflections. Inhomogeneous wave equation. Monopole, dipole, quadrupole source fields from scattering inhomogeneities and turbulence; Lighthill theory; moving sources. Similarity methods. Selected detailed applications. S/U or letter grading.

254A. Special Topics in Aerodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B, 192A, 192B, 192C. Special topics of current interest in advanced aerodynamics. Examples include transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics. S/U or letter grading.

254B. Helicopter Dynamics and Aeromechanics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 166A, 169A. Recommended: course 150B. Overview of helicopter dynamics and aeromechanics. Topics include rotor configurations and control systems, rotor aerodynamics and performance, blade flapping dynamics, helicopter rotor aeroelasticity, coupled rotor/fuselage dynamics, and control of aeromechanical problems. 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. S/U or 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 Liapunov direct method; the Hamiltonian as a Liapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems. S/U or letter grading.

256A. Mechanics of Deformable Solids. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 156B, 166A. Kinematics of deformation, strain, tensors, invariance, compatibility; conservation laws; stress tensors; equations of motion; boundary conditions; constitutive equations: general theory, linearization, anisotropy; reciprocity linear isotropic elastic problems, plane and generalized plane problems; dynamic problems. S/U or letter grading.

M256B. Elasticity. (4) (Same as Civil Engineering M230.) Lecture, four hours; outside study, eight hours. Requisite: course 256A. Equations of linear elasticity; uniqueness of solution; Betti/Rayleigh reciprocity; Saint-Venant's principle; simple problems involving spheres and cylinders; special techniques for plane problems. Airy's stress function, complex variable method, transform method; three-dimensional problems, torsion, entire space and half-space problems; boundary integral equations. Letter grading.

M256C. Plasticity. (4) (Formerly numbered 256C.) (Same as Civil Engineering M239.) Lecture, four hours; outside study, eight hours. Requisites: courses 256A, 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. Requisites: course 156A, 156B, or 166A, and Materials Science 243A. 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. S/U or letter grading.

M257A. Elastodynamics. (4) (Same as Earth and Space Sciences M224A.) Lecture, four hours; outside study, eight hours. Requisites: courses 256A, 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.

258. Experimental Techniques in Fluid Mechanics and Thermal Science. (4) Lecture, four hours; outside study, eight hours. Survey of wind tunnels and other facilities for research in fluid mechanics, aerodynamics, and heat transfer; analysis of their critical design features. Modern sensors, instruments, and measurement techniques. Signal processing and storage by analog and digital methods. S/U or 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). S/U or 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. S/U or letter grading.

260. Current Topics in Mechanical Engineering. (2 to 4) (Formerly numbered 260AA-260ZZ.) 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 or letter grading.

261A. Energy and Variational Principles in Structural Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 156A or 156B or 166A. Theory of linear elasticity. Calculus of variations. Principles of minimum potential energy and complementary energy. Stationary variational principles. Energy theorems. Matrix methods of structural analysis, with application to truss and frame problems. Variational principles as basis of finite element methods. S/U or letter grading.

261B. Methods of Computational Mechanics I. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 168, 261A. Weighted residual methods, weak forms, local trial and test functions, primal finite element method, multifield finite elements, high-performance elements and avoidance of locking, integral equation and field boundary element methods, finite volume methods, meshless methods, term projects using digital computers. Applications to aerospace and mechanical engineering structural and solid mechanics, incompressible fluid flow, and heat transfer. Letter grading.

262. Mechanics of Intelligent Material Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 156B. Recommended: 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, inch-worm, and bimorph. Letter grading.

263A. Electromechanics of Computer-Controlled Machines. (4) Lecture, four hours; outside study, eight hours. Requisite: course 171A. Recommended: courses 163A, 163B, 163C. Mechanics and control problems of computer-controlled electromechanical systems, with special emphasis on analysis of energy flow between mechanical, electrical, and control components when applied to electromagnetic and piezoelectric actuators and control systems with mechanical flexibilities. S/U or letter grading.

263B. Spacecraft Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 255A. Recommended: course 255B. Modeling, dynamics, and stability of spacecraft; spinning and dual-spin spacecraft dynamics; spinup through resonance, spinning rocket dynamics; environmental torques in space, modeling and model reduction of flexible space structures. Letter grading.

263C. Mechanics and Trajectory Planning of Industrial Robots. (4) Lecture, four hours; outside study, eight hours. Requisite: course 163A. Theory and implementation of industrial robots. Design considerations. Kinematic structure modeling, trajectory planning, and system dynamics. Differential motion and static forces. Individual student study projects. S/U or letter grading.

263D. Advanced Robotics. (4) Lecture, four hours; outside study, eight hours. Recommended preparation: courses 155, 163C, 171A, 263C. Motion planning and control of articulated dynamic systems: nonlinear joint control, experiments in joint control and multi-axes coordination, multibody dynamics, trajectory planning, motion optimization, dynamic performance and manipulator design, kinematic redundancies, motion planning of manipulators in space, obstacle avoidance. Letter grading.

M267A. Optimum Structural Design. (4) (Same as Civil Engineering M240.) Lecture, four hours; outside study, eight hours. Requisite: course 261A or Civil Engineering 235A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures. S/U or letter grading.

268B. Failure of Structural Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: Civil Engineering 135B. Exploration of a current area of research in depth. S/U or letter grading.

M269A. Dynamics of Structures. (4) (Same as Civil Engineering M237A.) Lecture, four hours; outside study, eight hours. Requisite: course 169A. 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. S/U or 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. S/U or 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. S/U or letter grading.

M270A. Linear Dynamic Systems. (4) (Formerly numbered 270A.) (Same as Chemical Engineering M280A and Electrical Engineering M240A.) Lecture, four hours; outside study, eight hours. Requisite: course 171A or Electrical 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.

M270C. Optimal Control. (4) (Formerly numbered 270C.) (Same as Chemical Engineering M280C and Electrical 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.

271A. Stochastic Processes in Dynamical Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 171A, 174. Probability space, random variables, stochastic processes, Brownian motion, Markov processes, stochastic integrals and differential equations, power spectral density, and Kolmogorov equations. Letter grading.

271B. Stochastic Estimation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 271A. 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. S/U or letter grading.

M272A. Nonlinear Dynamic Systems. (4) (Same as Chemical Engineering M282A and Electrical Engineering M242A.) Lecture, four hours; outside study, eight hours. Requisite: course M270A or Chemical Engineering M280A or Electrical Engineering M240A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Liapunov 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.

274. Methods of Probabilistic Safety Assessment. (4) Lecture, four hours; outside study, eight hours. Requisite: course 174. Methods for evaluation of risk from large technological systems; advanced statistical methods for data analysis; models of dependent failures; elicitation and use of expert opinions; human reliability models; propagation of uncertainties in physical models; applications to nuclear power plants, waste repositories, and space systems. Letter grading.

280. Microelectromechanical Systems (MEMS). (4) Lecture, four hours; outside study, eight hours. Requisite: Materials Science 14. Introduction to microscopical world and MEMS; basics of integrated circuit (IC) manufacturing; bulk micromachining; directional etching and etch-stops; surface micromachining: deposition, selective wet etching, and dry etching; mechanical behavior of thin film-based structures; applied micromachining: polymer film, electroplating, and nonlithography machining; transducing fundamentals. Letter grading.

280L. Microelectromechanical Systems (MEMS) Laboratory. (4) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisite: course 180. Hands-on micromachining. Mask layout, clean room procedure, lithography, oxidation, LPCVD coatings, evaporation, wet etchings (both isotropic and anisotropic), dry etchings, process monitoring. Students fabricate simple micromechanical devices by both surface and bulk micromachining and test and characterize them. Letter grading.

281. Microsciences. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Basic science issues in micro domain. Topics include micro fluid science, microscale heat transfer, mechanical behavior of microstructures, as well as dynamics and control of micro devices. Letter grading.

283. Experimental Mechanics for Microelectromechanical Systems (MEMS). (4) Lecture, four hours; outside study, eight hours. Methods, techniques, and philosophies being used to characterize microelectromechanical systems for engineering applications. Material characterization, mechanical/material properties, mechanical characterization. Topics include fundamentals of crystallography, anisotropic material properties, and mechanical behavior (e.g., strength/fracture/fatigue) as they relate to microscale. Considerable emphasis on emerging experimental approaches to assess design-relevant mechanical properties. 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.

287. Advanced Microelectromechanical Systems (MEMS). (4) Lecture, four hours; outside study, eight hours. Requisite: course 280 or Electrical Engineering 250A. Silicon micromachining, nonsilicon micromachining, nonlithographic processes. Mechanical issues of MEMS structures. Driving mechanisms for microactuators, including electrostatic, electromagnetic, thermal, and fluidic actuation. Applications to mechanical and aerospace areas. Studies of MEMS products and state-of-the-art research. Letter grading.

290A. Structural Integrity and Durability. (4) Lecture, four hours; outside study, eight hours. Fundamental concepts of structural integrity, damage tolerance, and longevity; linear elastic and elastic-plastic fracture mechanics; interfacial fracture mechanics; computational methods in fracture; damage tolerance, integrity, and durability of built-up metallic structures; aging aircraft problems; widespread fatigue damage thresholds; life enhancement; integrity of built-up composite structures. Letter grading.

M291A. Analytical Methods of Engineering I. (4) (Same as Electrical Engineering M208A.) Lecture, four hours; outside study, eight hours. Requisites: Mathematics 131A, 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration, L_2 theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering. S/U or letter grading.

M291B. Analytical Methods of Engineering II. (4) (Same as Electrical Engineering M208B.) Lecture, four hours; outside study, eight hours. Requisite: course M291A or Electrical Engineering M208A. Application of modern mathematical methods to engineering problems. Review of spectral theory. Green's functions and eigenvalue problems for second-order ordinary differential equations and their adjoints. Discrete and continuous spectra for ordinary and partial differential equations. Initial and boundary value problems. S/U or letter grading.

291C. Integral Equations in Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: Mathematics 250B. Introduction to generalized function theory and Green's functions. Conversion of partial equations to integral equations and classification of integral equations. Solution to integral equations with degenerate kernels; discussions of successive approximations and Fredholm and Hilbert/Schmidt theory. S/U or letter grading.

293. Quality Engineering in Design and Manufacturing. (4) Lecture, four hours; outside study, eight hours. Requisite: course 174. Quality engineering concepts and approaches. Taguchi methods of robust technology development and off-line control. Quality loss function, signal-to-noise ratio, and orthogonal arrays. Parametric design of products and production processes. Tolerance design. On-line quality control systems. Decision making in quality engineering. Letter grading.

294. Advanced CAD/CAM Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 194. CAD/CAM systems design, with special emphasis on computational geometry, path to trajectory conversion, command generation, controller and interpolator design, and current research topics in CAD/CAM systems. Letter grading.

295. Computer-Aided Manufacturing. (4) (Formerly numbered 295A, 295B.) Lecture, four hours; outside study, eight hours. Preparation: one course from 163A, 163C, 195. Requisite: course 94. Concepts, methods, and elements of computer-aided manufacturing. Planning and control of manufacturing systems. Group technology and computer-aided process planning. Design and modeling of flexible manufacturing systems. Computer-aided manufacturing. Letter grading.

296A. Damage and Failure of Materials in Mechanical Design. (4) Lecture, four hours; outside study, eight hours. Requisites: course 156A, Materials Science 143A. Role of failure prevention in mechanical design and case studies. Mechanics and physics of material imperfections: voids, dislocations, cracks, and inclusions. Statistical and deterministic design methods. Plastic, fatigue, and creep damage. Letter grading.

296B. Thermochemical Processing of Materials. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 132A, 193. Thermodynamics, heat and mass transfer, principles of material processing: phase equilibria and transitions, transport mechanisms of heat and mass, moving interfaces and heat sources, natural convection, nucleation and growth of microstructure, etc. Applications with chemical vapor deposition, infiltration, etc. Letter grading.

297. Composites Manufacturing. (4) 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. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

474B. Concurrent Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: Materials Science 474A. Product design, CAD/CAM, engineering analysis integration, project management. Letter grading.

474C. Total Quality Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 474B. Total quality management, statistics, probability, off-line quality control, on-line quality control, quality inspection. Letter grading.

475B. Automation. (4) Lecture, four hours; outside study, eight hours. Requisite: Materials Science 475A. Automatic control of single devices and processes for manufacturing automation. Integrated automation design. Introduction to control, digital control, and rule-based systems. Sensors and actuators used in manufacturing processes. Robotics and multi-axis machine tools. Integration of computer-controlled systems and control hardware. Letter grading.

476. Integrated Manufacturing Engineering (IME) Seminar Series. (1) Lecture, one hour. Lectures by engineers in executive positions to provide management perspectives in manufacturing enterprises. Current manufacturing techniques and integrated product development efforts by industry experts. S/U grading.

478. Integrated Manufacturing Engineering (IME) Group Project Studies. (1 to 12) Lecture, one hour; group projects, one to 12 hours. Teams of students perform detailed analyses to address problems presented and implement manufacturing solutions within industrial settings. S/U grading.

497A-497B. Field Project in Manufacturing Engineering. (4-4) Lecture, two hours. Teams of students perform detailed system analysis and plan design of manufacturing engineering systems at various manufacturing plants. In Progress and S/U or letter 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 M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. S/U grading.

597C. Preparation for Ph.D. 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 M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. 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

School of Medicine

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Chairs

Alan M. Fogelman, M.D. (*Castera Professor*),

Executive Chair

Jan H. Tillisch, M.D., *Executive Vice Chair*

Mary C. Territo, M.D., *Executive Vice Chair, Academic Affairs*

Robert K. Oye, M.D., *Executive Vice Chair, Clinical Services*

Dennis J. Slamon, M.D., *Executive Vice Chair, Research*

Scope and Objectives

The principal goal of the Department of Medicine is to educate students in the expert diagnosis and compassionate management of human illness. Building on the biochemical, physiological, and behavioral foundations of the preclinical experience, students are taught *information acquisition* through history taking, physical examination, and laboratory evaluation; *information synthesis* through achieving a differential diagnosis and evaluative plan; and *medical decision making* for continued evaluation and therapy. Students are encouraged and guided in developing a caring physician/patient relationship.

Instruction in the department is provided in the second, third, and fourth years of medical school, with the third and fourth years constituting a continuum of clinical experience. Students become integrated into a ward team and have significant ambulatory care experiences. They apply and extend their clinical skills, medical knowledge, and judgment in the care of patients assigned to them under the immediate supervision of house officers and attending staff.

The department offers a broad range of advanced clinical clerkships in general and subspecialty ambulatory and hospital-based internal medicine at all the major affiliated centers.

For further details on the Department of Medicine and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

Medicine

Upper Division Courses

M190A. Health Outreach Issues and Interventions for At-Risk Populations: Prefield Course. (4) (Same as Psychiatry M192A.) Lecture, two hours; discussion, two hours; possible field observations. Preparation: application and interview. First in series of courses to explore prevention of disease in at-risk populations, clinical services for disadvantaged, medical and psychological issues of homelessness, and effects of low socioeconomic status on parenting. Lectures from expert faculty and practitioners in the field, with visits to shelters and facilities where homeless are provided with health care. P/NP or letter grading.

M190B. Field Studies Seminar: Health Outreach Issues and Interventions. (2 or 4) (Same as Psychiatry M192B.) Discussion, two hours; fieldwork, three to four hours (two-unit course) or six to eight hours (four-unit course). Requisite: course M190A. Dynamics of multidisciplinary approaches to preventive health education for at-risk populations by student delivery of needed services to homeless families, under supervision of professional staff. P/NP or letter grading.

M196B. Modeling and Simulation of Biological Systems. (5) (Same as Computer Science M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, eight hours. Requisite: Electrical Engineering 102 or Mathematics 115A. Introduction to dynamic system modeling, compartmental modeling, and computer simulation methods for studying biomedical systems. Basics of numerical simulation algorithms, translating biomodeling goals and data into mathematic models and implementing them for simulation and analysis. Modeling software exploited for class assignments in PC laboratory. Letter grading.

199. Special Studies. (2 to 8) Individual projects carried out under direction of a faculty member. Special studies in medicine with appropriate objectives, readings, laboratory work, or other assignments designed for proper training of students. P/NP or letter grading.

Graduate Courses

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Microbiology and Immunology M215, 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.

M235. Neuroactive Peptides: Molecular Biology to Function. (2) (Same as Neurobiology M235 and Neuroscience M246.) Presentation of current knowledge of gut and brain peptides by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides. Review of current information about each of the major gut and brain peptides. S/U or letter grading.

M260A-M260B. Methodology in Clinical Research I, II. (6-6) (Same as Biomathematics M260A-M260B.) Lecture, three hours; discussion, two hours. Recommended preparation: M.D., Ph.D., 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.

M270C. Modeling Methodology for Biomedical Systems. (4) (Same as Computer Science M296A.) Lecture, four hours; outside study, eight hours. Recommended preparation: course M196B, some intermediate knowledge of linear systems analysis or linear algebra (e.g., Mathematics 115A, Electrical Engineering 141, 142, Mechanical and Aerospace Engineering 171A). Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems, including dynamic system experiment/model development, 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. S/U or letter grading.

M270D. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Biomathematics M270 and Computer Science M296B.) Lecture, four hours; outside study, eight hours. Requisite: course M270C. Estimation methodology and model parameter estimation algorithms for quantifying (fitting) dynamic system models to real-world data. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on data sampling schedule design. Exploration in PC laboratory of applications software for model building and optimal experiment design. S/U or letter grading.

M270E. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Computer Science M296C.) Lecture, four hours; outside study, eight hours. Requisite: course M270C. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of the literature. Research problem searching and formulation. Approaches to solutions. Individual M.S.- and Ph.D.-level project training. S/U or letter grading.

M290A-M290B. Child Abuse and Neglect. (2-2) (Same as Community Health Sciences M245A-M245B, Dentistry M300.5A-M300.5B-M300.5C, Education M217G-M217H-M217I, Law M281A-M281B, Nursing M290A-M290B-M290C, and Social Welfare M290E-M290F-M290G.) Lecture, two hours. Course M290A is requisite to M290B. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. S/U or letter grading.

MICROBIOLOGY AND IMMUNOLOGY

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Benjamin Bonavida, Ph.D.

Irvin S.Y. Chen, Ph.D.

Asim Dasgupta, Ph.D.

Frederick A. Eiserling, Ph.D.

John L. Fahey, M.D.

Sydney M. Finegold, M.D., *in Residence*

C. Fred Fox, Ph.D.

Robert P. Gunsalus, Ph.D.

Marcus A. Horwitz, M.D.

Patricia J. Johnson, Ph.D.

H. Ronald Kaback, M.D.

Michael Lovett, M.D., Ph.D.

Jeffery F. Miller, Ph.D.

Robert L. Modlin, M.D.

Sherie L. Morrison, Ph.D. (*M. Philip Davis Professor of Microbiology and Immunology*)

Debi P. Nayak, B.V.Sc., Ph.D.

Larry Simpson, Ph.D.

Stephen T. Smale, Ph.D.

Karl Stetter, Ph.D.

Ronald H. Stevens, Ph.D.

Fuyuhiko Tamanoi, Ph.D.

Jerrold A. Turner, M.D., D.T.M.H.

Randolph Wall, Ph.D.

Bernadine J. Wisnieski, Ph.D.

Owen N. Witte, M.D. (*President's Professor of Developmental Immunology*)

Professors Emeriti

Dexter H. Howard, Ph.D.
James N. Miller, Ph.D.
Felix O. Wettstein, Ph.D.

Associate Professors

Douglas L. Black, Ph.D.
David A. Campbell, Ph.D.
Lawrence T. Feldman, Ph.D.
Otoniel Martinez-Maza, Ph.D.
Olaf Schneewind, M.D., Ph.D.
Robert W. Simons, Ph.D.
Jerome Zack, Ph.D.

Assistant Professors

David Chang, M.D., Ph.D.
Genhong Cheng, Ph.D.
M. Carrie Miceli, Ph.D.
Dominique Missiakas, Ph.D.
Kohnosuke Mitani, Ph.D.

Adjunct Professor

Lawrence M. Souza, Ph.D.

Adjunct Associate Professor

David Blanco, Ph.D.

Adjunct Assistant Professor

Peggy Cotter, Ph.D.

Scope and Objectives

The desire to explain natural phenomena, including disease, is the basis for most students' interest in biological sciences. The Microbiology and Immunology Department in the UCLA School of Medicine is disease oriented. The emphasis is on pathogenesis of infection, malignancy, and immunological response of the host to these changes of immunological dysfunction. All tools available from molecular biology to morphological methods are applied to these problems.

Microbiology and immunology are interwoven disciplines. Microbiology has played a central role in all aspects of biological sciences, including morphogenesis, genetics, developmental biology, physiology, biochemistry, and cell biology. An understanding of microbiology is thus fundamental to biological research. Immunology, once a branch of microbiology, is now a major biological discipline and a basic component of disease-oriented microbiology.

The graduate program in microbiology and immunology is closely associated with advanced (postdoctoral) training in research, clinical and public health diagnostic work, and industrial applications. Careers in microbiology and immunology include industrial appointments and clinical laboratory supervision in both government agencies and private enterprises, and academic positions.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are sub-

ject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The department does not accept students whose sole objective is the Master of Science degree in Microbiology and Immunology.

Areas of Study

See Doctoral Degree.

Course Requirements

The department does not have specific requirements for the master's degree, as it rarely confers the degree. However, nine courses, at least five of which must be graduate-level courses, and the successful completion of both the written and oral qualifying examinations are necessary to be considered for a terminal master's degree by the Graduate Affairs Committee. Eight units of 500-series courses may be applied toward the total course requirement of which four units may be applied to the graduate-level course requirement.

Comprehensive Examination Plan

Students must pass both the doctoral written and oral qualifying examinations.

Thesis Plan

None.

Doctoral Degree

Admission

Students are admitted to the program leading to the Ph.D. degree in Microbiology and Immunology through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051. For information and applications contact the ACCESS Program Office directly.

Under very special circumstances, prospective students may obtain permission to apply directly to the department. Information is available from the graduate adviser.

Major Fields or Subdisciplines

Students are expected to be competent in both microbiology and immunology. However, thesis work must be done in one of the following divisions: immunology, medical microbiology, or virology.

Course Requirements

- (1) Biological Chemistry CM253
- (2) One of the following three courses: Neurobiology M209A, Microbiology and Immunology M229, and Biological Chemistry CM267.
- (3) Two seminar courses related to cell and molecular biology.

To be completed by the end of the second year:

(1) One of the following three courses is also required: Microbiology and Immunology M208, M227, M261.

(2) One additional lecture course in the field of molecular life sciences.

Written and Oral Qualifying Examinations

Written Qualifying Examination. The departmental written examination is to be taken at the end of the first year of study and no later than the Fall Quarter of the second year. The examination is in the form of a "mini" grant proposal and focuses on one or a few specific questions asked by the student's current research project. The examination is graded on a pass/fail/revise and resubmit basis. Students who do not pass the examination on the first attempt must pass it within three months of the original submission date.

Oral Qualifying Examination. The University Oral Qualifying Examination is to be taken within three years (nine quarters) of entrance into the program. Advancement to candidacy is awarded on successful completion of this examination. If inadequacies are encountered, students may be required to repeat the examination. The examination consists of three parts.

Research Proposal. Students must prepare a written research proposal and present the proposal orally to their dissertation committee. The topic of the proposal must be in an area different from that of the thesis project. The topic should be within the fields of interest in the department (i.e., immunology, bacteriology, virology, molecular biology, mycology, and parasitology). The proposal must utilize an approach different from that employed in the student's own research. That is, students should not apply their own methodology to another system. The proposal should follow a standard grant format but not necessarily a National Institutes of Health (NIH) grant format. This is decided between the student and the student's preceptor.

Student Research. Students should be able to discuss their own research plans and results to date.

General Scientific Background. Students are also examined on general knowledge of microbiology and immunology.

Dissertation Seminar. Once students have completed the dissertation, they are required to present an overview of their dissertation work in an open seminar at which their committee is present.

Microbiology and Immunology

Upper Division Courses

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

M185A. Immunology. (5) (Same as Microbiology M185A and Molecular, Cell, and Developmental Biology M185A.) Lecture, three hours; discussion, 90 minutes; outside study, 11.5 hours. Requisites: Life Sciences 3, 4. Recommended requisites or corequisites: Chemistry 153A, 153L, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Not open for credit to students with credit for course M261 or Molecular, Cell, and Developmental Biology C180. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions.

199. Directed Individual Research Studies in Microbiology and Immunology. (2 to 8) Preparation: submission of written research proposal. Limited to seniors. Individual research projects carried out under direction of a professor.

199H. Honors Thesis (4 or 8 units). Tutorial, to be arranged. Limited to microbiology and molecular genetics honors program students. Directed individual research for departmental honors; students must have a faculty sponsor. Three sequential 199H terms required. Progress report must be submitted to faculty sponsor at end of each of the first two terms, with honors thesis submitted at end of final term. Maximum of four units may be applied toward the microbiology and molecular genetics major. P/NP or letter grading.

Graduate Courses

201. Microbiology and Immunology. (8) Lecture/laboratory. Limited to medical students. Study of infectious agents of human disease, with emphasis on host/parasite relationships and immunologic phenomena in immunity and disease, including identification of bacteria, fungi, animal parasites, and viruses, and principles of prevention, treatment, and laboratory diagnosis.

202A. Fundamentals of Immunology. (2) Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cell-mediated immune functions.

202B. Medical Bacteriology. (2) Characteristics of bacteria rickettsiae and chlamydiae associated with diseases of humans; host/parasite interactions and immunity; identification and laboratory diagnosis; principles of prevention and treatment; introduction to microbial genetics as it pertains to pathogenicity.

202C. Medical Virology. (2) Biological properties of animal viruses; replication; methods of detection; interactions with host cells and multicellular hosts, introduction to tumor viruses.

202D. Medical Mycology and Parasitology. (2) Morphology, physiology, and pathogenicity of fungi which cause human and animal diseases. Study of morphology, biology, host/parasite relationship, public health problems, and control of protozoa, helminths, and arthropods parasitic in and on humans and animals.

M208. Molecular Biology of Animal Viruses. (Formerly numbered 208.) (Same as Molecular, Cell, and Developmental Biology CM279.) Lecture, three hours. Preparation: courses in general biochemistry and general microbiology, including virology. Recommended for advanced undergraduate students with a major in public health, biology, or microbiology and for graduate students with interest in any field of biology or chemistry. Overview of animal viruses, including viral structure, virus cell interaction, virus replication, and viral oncogenesis. Special emphasis on understanding the molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host.

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215, 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.

M217. Basic Science and Strategies of Gene Therapy. (2) (Same as Microbiology M217 and Molecular, Cell, and Developmental Biology M217.) Preparation: basic knowledge of virology. Basic science and viral vector systems utilized for gene therapy. S/U grading.

M223. Membrane Research Seminar. (2) (Same as Microbiology M223.) Critical discussions of current literature in membrane research, with emphasis on relationship between structure and function in lipid bilayers. May be repeated for credit.

M226A-M226B. Principles of Microbial Pathogenesis. (4-4) (Same as Microbiology M226A-M226B and Molecular, Cell, and Developmental Biology M226A-M226B.) Lecture, one hour; discussion, three hours. Requisites: courses 202A, 202B, 202C, 202D. Lecture/discussion format designed to analyze basic pathogenesis of infections. Emphasis on molecular and cellular approaches to understand host-microbial interaction. **M226A.** Bacterial and Mycotic Infections; **M226B.** Parasitic and Viral Infections.

M227. Molecular Genetics of Bacteria and Phage. (4) (Same as Chemistry M227, Microbiology M227, and Molecular, Cell, and Developmental Biology CM207.) Lecture, three hours; discussion, one hour. Requisite: Biological Chemistry CM253 or Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages.

M229. Cellular Biology of Host/Pathogen Interactions. (6) (Same as Microbiology M229 and Molecular, Cell, and Developmental Biology M226A-M226B.) Lecture, four hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and hosts.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

M234. Ethics and Accountability in Biomedical Research. (2) (Same as Microbiology CM234.) Designed for graduate students and undergraduates who have credit for a 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. S/U grading.

M240. Cytokines and Reproductive Biology. (2) (Same as Microbiology M240 and Molecular, Cell, and Developmental Biology M240.) Lecture, 90 minutes; discussion, one hour. Overview of current progress on research in cytokines and other immune system molecules in reproductive biology. S/U or letter grading.

M241. Use of the Computer in Biology. (2) (Same as Human Genetics M201 and Molecular, Cell, and Developmental Biology M201.) Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

M246. Computer Analysis of Genetic Organization. (4) (Same as Microbiology M246 and Molecular, Cell, and Developmental Biology M246.) Lecture, two hours; laboratory, six hours. Requisite: Life Sciences 4 or Microbiology C159. Lectures and laboratory instruction in contemporary procedures for analysis of nucleic acid and protein sequence data with the computer. No prior computer experience necessary; students gain both general and specialized facility with IBM PC and Digital VAX computers.

250. Cell and Molecular Biology. (4) Lectures and student seminar presentations. Review of selected current topics in molecular and cellular biology. Topics include recent experimental results on organization, expression, and regulation of genes in eukaryotic cells. S/U or letter grading.

M252. Seminar: Microbial Pathogenesis. (2) (Same as Microbiology M252.) Limited to 10 students. Student presentations and critical discussion of current literature on various aspects of microbial pathogenesis. May be repeated for credit. S/U or letter grading.

M256. Seminar: Viral Oncology. (2) (Same as Pathology M256.) Advanced research seminar designed to consider current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

M260. Immunology Forum. (2) (Same as Microbiology M260.) Requisite: course M185A. Broad range of current topics in immunology presented and discussed at advanced frontier level. Continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. S/U grading.

M261. Molecular and Cellular Immunology. (6) (Same as Microbiology M261 and Molecular, Cell, and Developmental Biology CM261.) Lecture, four and one-half hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Oral presentation required. S/U or letter grading.

M262A. Seminar: Current Topics in Immunobiology of Cancer. (2) (Same as Microbiology M262A.) 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.

M262D. Selected Topics in Immunology. (2) (Same as Microbiology M262D.) Student participation in discussions related to various topics in immunology. May be repeated for credit. S/U or letter grading.

M263. Molecular and Cellular Immunology Seminar. (2) (Same as Microbiology M263.) Critical discussions of current literature in T and B cell immunology, with emphasis on molecular mechanisms.

M268. Molecular Parasitology. (4) (Same as Microbiology CM268 and Molecular, Cell, and Developmental Biology CM268.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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.

271. Immunology Overview. (2) Lecture, two hours; discussion, one hour. Designed for graduate students. Identification of major components of immune system, their modes of active maturation and regulation, cytokine signaling systems, principal effector mechanisms, and immune contributions to autoimmunity and hypersensitivity.

274. Interactions of Immune System and Nervous System. (2) Lecture, one hour; discussion, one hour. Designed for 10 graduate and postdoctoral immunology, behavioral sciences, and neurosciences students. Study of existing knowledge of interrelationships between central and peripheral nervous system and immune system. Review of research on central nervous system effects on immune function and vice versa, as well as human and animal studies linking stress to immune changes.

M275. Biology of HIV. (4) (Same as Epidemiology M228.) Lecture, three hours. Preparation: two biology courses. Requisites: Biostatistics 100A, Epidemiology 100. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in the laboratory. Letter grading.

M285. Intermediate Immunology. (4) (Same as Microbiology CM285 and Molecular, Cell, and Developmental Biology CM285.) Lecture, three hours; discussion, one hour. Requisite: course M185A or Molecular, Cell, and Developmental Biology C180. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A.

M293. Major Concepts in Oncology. (4) (Same as Oral Biology M293 and Pathology M293.) Lecture, three hours. Designed for graduate students contemplating research in oncology. Topics include cancer pathophysiology, genetics, membranes, macromolecular synthesis and control, cell cycle, growth control; physical, chemical, and viral oncogenesis, epidemiology of cancer; tumor immunology; principles of cancer surgery, radiation therapy, and chemotherapy. S/U or letter grading.

M294. Molecular Basis of Cancer. (4) (Same as Pathology M294.) Lecture, three hours. Requisites: course M229, Biological Chemistry CM253, CM267, Neurobiology M209A. Fundamental biological, genetic, and molecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer.

M294L. Cancer Histopathology Laboratory. (2) (Same as Microbiology M294L and Pathology M294L.) Lecture, one hour; laboratory, two hours. Requisites: courses M229 or Neurobiology M209A, M294 (preferred) or M293, Biological Chemistry CM253, CM267. Histopathological approaches to cellular or tissue alterations commonly observed in tumor progression. Introduction to characteristics that clearly distinguish between benign and malignant neoplasia, precancerous stages, carcinoma in situ, and frankly invasive and metastatic neoplasia.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Laboratory, to be arranged. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 6) Tutorial, to be arranged.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Research on an original problem in the field of microbiology and immunology to be selected by graduate student with advice of adviser. Fields of study may be in bacteriology, immunology, mycology, parasitology, virology, tumor biology, or cell biology.

MICROBIOLOGY AND MOLECULAR GENETICS

College of Letters and Science

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(310) 825-8482
<http://www.lifesci.ucla.edu/mmg>

Sherie L. Morrison, Ph.D., *Chair*

Professors

Arnold J. Berk, M.D.
Benjamin Bonavida, Ph.D.
Irvin S.Y. Chen, Ph.D.
Asim Dasgupta, Ph.D.
Frederick A. Eiserling, Ph.D.
John L. Fahey, Ph.D.
Sydney M. Finegold, M.D.
C. Fred Fox, Ph.D.
Robert P. Gunsalus, Ph.D.
Marcus Horwitz, M.D.
Patricia J. Johnson, Ph.D.
H. Ronald Kaback, M.D.
Aldons J. Lusis, Ph.D.
Jeffery F. Miller, Ph.D.
Jeffrey H. Miller, Ph.D.
Robert L. Modlin, M.D.
Sherie L. Morrison, Ph.D. (*M. Philip Davis Professor of Microbiology and Immunology*)
Debi P. Nayak, B.U.Sc., Ph.D.
Larry Simpson, Ph.D.
Stephen Smale, Ph.D.
Ronald H. Stevens, Ph.D.
Fuyuhiko Tamanoi, Ph.D.
T. Randolph Wall, Ph.D.
Bernadine J. Wisniewski, Ph.D.

Owen N. Witte, M.D. (*President's Professor of Developmental Immunology*)

Professors Emeriti

June Lascelles, Ph.D.
Rafael J. Martinez, Ph.D.
Donald P. Nierlich, Ph.D.
William R. Romig, Ph.D.
Eli E. Sercarz, Ph.D.
Jack G. Stevens, D.V.M., Ph.D. (*M. Philip Davis Professor Emeritus of Microbiology and Immunology*)

Associate Professors

Douglas L. Black, Ph.D.
David A. Campbell, Ph.D.
Lawrence T. Feldman, Ph.D.
Otoniel Martinez-Maza, Ph.D.
Olaf Schneewind, M.D., Ph.D.
Robert W. Simons, Ph.D.
Jerome Zack, Ph.D.

Assistant Professors

David D. Chang, M.D. Ph.D.
Genhong Cheng, Ph.D.
M. Carrie Miceli, Ph.D.
Dominique M. Missiakis, Ph.D.
Kohnosuke Mitani, Ph.D.

Adjunct Associate Professor

David Blanco, Ph.D.

Adjunct Assistant Professors

Peggy Cotter, Ph.D.
Ralph Robinson, Ph.D.
Imke Schroder, Ph.D.

Scope and Objectives

Microbiology at UCLA is a diverse science that includes bacteriology, virology, genetics, molecular biology, and the study of single cells. The science has its roots in the fundamental human needs of health, nutrition, and environmental control, and it provides opportunities for study in the basic biological fields of genetics and cellular and molecular biology.

Undergraduate students majoring in Microbiology and Molecular Genetics prepare for careers in biomedical research, medicine or dentistry, biotechnology and genetic engineering, industrial microbiology, and agricultural or environmental sciences, among others. The courses presented by the department lead to a Bachelor of Science degree and depend heavily on preparation in the biological sciences, chemistry, physics, and mathematics. They provide preparation for careers in microbiology or for further advanced study leading to the doctorate.

The graduate program emphasizes the areas of molecular genetics, cell biology, immunology, cell and virus structure and morphogenesis, animal virology, general bacteriology and physiology, host/parasite relationships, medical microbiology, microbial genetics, and recombinant DNA research. Students are prepared for creative research careers in all of these fields. The objective of the department is to provide breadth in microbiology at the undergraduate level and depth and training in independent study and research for graduate students.

Note: Several upper division and graduate courses in this department are multiple-listed with those in the Microbiology and Immunology Department in the UCLA School of Medicine.

Students interested in a fundamentally disease-oriented approach to microbiology should see the Microbiology and Immunology Department description.

Undergraduate Study

Microbiology and Molecular Genetics B.S.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 140, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Microbiology and Molecular Genetics majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Students intending to major in Microbiology and Molecular Genetics may seek counseling and petition to enter the major in the Student Affairs Office, 1602B Molecular Sciences.

The Major

Required: Microbiology and Molecular Genetics 101, 101L, 102, 102L, C106, C159, M185A; Chemistry and Biochemistry 153A, 153C, 153L; four additional upper division courses from the departmental list or from related departments selected with approval of the faculty adviser. All major courses must be taken for a letter grade, with a minimum overall 2.0 grade-point average in the major. A maximum of four units of Microbiology and Molecular Genetics 199 or Microbiology and Immunology 199, taken for a letter grade, may be applied toward the major. Credit for 199 courses from other departments may not be applied.

Honors Program

Overall grade-point averages of 3.2 and 3.5 in the preparation for the major and major respectively are required to apply for departmental honors. In addition students must have junior standing and the sponsorship of a faculty adviser from the Department of Microbiology

and Molecular Genetics or the Department of Microbiology and Immunology. The core of the program consists of three terms (minimum) of Microbiology and Molecular Genetics 199H research, culminating in a thesis. If the thesis is accepted by the honors committee, students are awarded the bachelor's degree with departmental honors. The department also offers an honors seminar course each Spring Quarter for the elective program. For further information, contact the Student Affairs Office, 1602B Molecular Sciences.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

Applicants for the program leading to the Master of Arts degree in Microbiology and Molecular Genetics must obtain faculty sponsorship before submitting an application and, in addition to the other application materials (see Ph.D. application procedures), must submit a five-page research proposal describing the thesis problem. Information and the proposal format are available from the graduate adviser's office.

The department accepts relatively few students whose objective is a master's degree and does not encourage application.

Areas of Study

Consult the department.

Course Requirements

A total of nine courses is required for the M.A. degree, and five courses must be at the graduate level. Required courses are specified on an individual basis by the initial advisory committee (three faculty members) which generally becomes the thesis committee.

There is no limit to the number of times Microbiology and Molecular Genetics 598 may be repeated. It is graded S/U only and can be taken for two to 12 units per quarter. A maximum of two courses (eight units) in the 500 series may apply to the nine-course (36 units) M.A. degree requirements, with only one course (four units) applying toward the five-course (20 units) graduate course requirement.

Comprehensive Examination Plan

None.

Thesis Plan

The thesis committee is established shortly after admission to the program. A committee member outside the department is not required but highly recommended. The department offers only a thesis plan for the master's degree.

Doctoral Degree

Admission

Admission to the program leading to the Ph.D. degree in Microbiology and Molecular Genetics is through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

Under special circumstances, new Ph.D. students may be admitted directly. The following criteria apply for new Ph.D. students admitted directly to the program

Applicants must have completed an undergraduate major in microbiology or a related field with superior scholastic achievement and should have preparation in calculus, physics, biology, genetics, physical, organic and biochemistry, and microbiology. In certain cases, on recommendation of the graduate adviser and the departmental admissions committee, background deficiencies may be remedied concurrently with graduate studies. The Graduate Record Examination (GRE) General Test is required for admission, and the Subject Test in Biochemistry, Cell and Molecular Biology, Chemistry, or Biology is recommended. Three letters of recommendation from individuals who can provide direct knowledge of both the applicant's academic record and potential for superior achievement in independent research are required. The GRE scores and letters should be submitted directly to the department. The department generally accepts students in Fall Quarter only. Under exceptional circumstances the Graduate Admissions Committee may agree to admit a student in Winter or Spring Quarter. Completion of a master's degree is not normally required.

Major Fields and Subdisciplines

The graduate program emphasizes the areas of molecular genetics, cell biology, immunology, cell and virus structure and morphogenesis, animal virology, general bacteriology and physiology, host/parasite relationships, medical microbiology, microbial genetics, and recombinant DNA research. Students are prepared for creative research in all of these fields. The objective of the department is to provide depth and training in independent study and research for graduate students.

Course Requirements

Formal Lecture/Laboratory Courses. (1) Biochemistry: Chemistry and Biochemistry CM253 (six units; offered only in Fall Quarter; to be completed during the first year); (2) Cell Biology: Chemistry and Biochemistry M267 or Neurobiology M209A or Microbiology and Molecular Genetics M229.

A total of eight additional units of 200-level coursework to be selected from at least two of the following four subject areas is required. These courses may be selected to remedy background deficiencies or to deepen knowledge of a particular subject area. Acceptable courses include the following:

- (1) General microbiology: Microbiology and Molecular Genetics C211, C212.
- (2) Host/parasite interactions and virology: Microbiology and Molecular Genetics C206, Microbiology and Immunology M208.
- (3) Immunology: Microbiology and Molecular Genetics M185A, M261, or CM285.
- (4) Genetics and regulation: courses from current listings maintained in the department office.

Other courses may be accepted with written consent of the departmental graduate adviser and the student's advisory committee.

Student-Participation Seminar Courses. Each quarter, seminar courses in which students read and report on current scientific research literature are organized. Students must enroll in five such courses (10 units) during their first five years in residence.

Laboratories. During the first 12 months in residence, students rotate for one quarter each through three laboratories. Students normally enroll in Microbiology and Molecular Genetics 596 for a minimum of four units of credit for each rotation.

First-Year Proposal. By August 15 of the first year of study students must submit an original research proposal of approximately six double-spaced pages. Students should choose a current paper in an area of interest in which the next experiment is fairly obvious, possibly even suggested in the discussion. The experiment should be designed with appropriate controls and succinctly presented along with the interpretation of possible results. The proposal should be focused on one or a very few specific questions. It is unacceptable to submit a duplicate or revised version of a previous class assignment (for example, Biological Chemistry CM253). Suggestions and evaluations are returned to the student and used by the faculty to evaluate continuation into the second year.

Written and Oral Qualifying Examinations

The oral examination must be taken within 24 months of entry into graduate school and must be passed, if reexamination is required, no later than 27 months from the date of entry. These periods may be extended with the written consent of the departmental graduate adviser and the student's mentor.

The examination is administered by the doctoral committee which normally serves as the dissertation committee as well. As a major part of the examination, students prepare and defend a written research proposal. Before presentation to the doctoral committee, the stu-

dents are encouraged to present the proposal before a student seminar group.

The University Oral Qualifying Examination covers both the student's proposal and general scientific background. It is not restricted to the topics of the proposal. The committee may arrange alternate ways to assess the student's preparation and qualifications.

Microbiology and Molecular Genetics

Lower Division Courses

6. Introduction to Microbiology. (4) Lecture, three hours. Not open for credit to students with credit for course 101, Life Sciences 2, or former Biology 5. Designed for nontechnical 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.

7. Developments in Biotechnology. (4) Lecture, three hours; demonstration, one hour; outside study, eight hours. Recommended preparation: course 6 or Biology 2 or Life Sciences 2. Not open for credit to students with credit for course 101 or Life Sciences 3. Survey of recent developments in biotechnology, with emphasis on use of single-celled organisms. Review of basic principles of microbiology as they apply to biotechnology and examination of wide variety of topics, including alternate energy sources, pollution, cleanup, genetic fingerprinting, genetic engineering, and agricultural and food microbiology. P/NP or letter grading.

10. Applied Medical Microbiology. (5) Lecture, three hours; laboratory, five hours; outside study, eight hours. Enforced prerequisite: Life Sciences 2. Designed for students interested in medical microbiology and those going into allied health professions. Not open for credit to students with credit for course 101; does not substitute for course 101 in the major. Introduction to biology of bacteria and their role in diseases of humans. Letter grading.

Upper Division Courses

101. Fundamentals of Bacteriology. (5) Lecture, three hours; discussion, one hour; computer/multimedia laboratory, one hour. Requisites: Chemistry 153A, Life Sciences 3. Recommended: Life Sciences 4. Recommended corequisite: course 101L. Historical foundations of the science; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology.

101L. Bacteriology Laboratory. (3) Discussion, one hour; laboratory, six hours. Requisites: Chemistry 153A, Life Sciences 3. Recommended: Life Sciences 4. Recommended corequisite: course 101 (or 101 with a grade of C or better if previously taken). General laboratory techniques and theory in microbiology and molecular genetics, including isolation and identification of bacterial species from nature, transformation of *Escherichia coli*, Ames test, analysis of auxotrophic mutants.

102. Introductory Virology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 4, with grades of C or better. Recommended: Chemistry 153A. Recommended corequisite: course 102L. Biological properties of bacterial and animal viruses, replication, methods of detection, interactions with host cells and multicellular hosts.

102L. Virology Laboratory. (2) Discussion, one hour; laboratory, four hours. Requisites: Life Sciences 1, 2, 3, 4, with grades of C or better. Recommended corequisite: course 102 (or 102 with a grade of C or better if previously taken). General laboratory techniques and theory in virology, including complementation, recombination, transduction, experiments in animal virology using tissue culture.

C106. Molecular and Genetic Basis of Bacterial Infections. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Life Sciences 4. Biochemical and genetic properties of bacteria which afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Concurrently scheduled with course C206.

C111. Biology of Prokaryotic Cell. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Chemistry 153C. Review of current knowledge of structural organization of prokaryotic cells. Emphasis on isolation methods, chemical composition, structure and assembly of subcellular components, including membranes, walls, flagella, ribosomes, and viruses. Concurrently scheduled with course C211.

C112. Molecular Biology of Bacterial Growth. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Chemistry 153A, 153L, Life Sciences 4. Analysis of growth, development, and physiological adaptations of bacteria, with emphasis on their molecular and genetic basis. Analysis of complex regulatory mechanisms that underlie cell cycle and other multicomponent cellular systems from perspective of contemporary research techniques. Concurrently scheduled with course C212.

120. Advanced Techniques in Microbiology. (4) Lecture, one hour; laboratory, six hours. Requisites: courses 101 and 101L, with grades of B or better. Techniques used in research laboratories in microbiology/biotechnology field. Introduction to current techniques. Practical and theoretical background of these techniques. Interested qualifying students to be given opportunity to participate in summer internships.

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology and Immunology CM133, and Molecular, Cell, and Developmental Biology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

C134. Ethics and Accountability in Biomedical Research. (2) Designed for graduate students and undergraduates who have credit for a 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 CM234. P/NP grading.

CM156. Human Genetics. (4) (Same as Human Genetics CM156 and Molecular, Cell, and Developmental Biology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

C159. Advanced Molecular Genetics. (5) Lecture, three hours; discussion, two hours. Requisites: Chemistry 153A, Life Sciences 4. Integrated conceptual analysis of classical and modern molecular genetics of microbes, with coverage of key papers from elucidation of genetics code to the present. Essential elements of experimental design, analysis of results, and scientific logic. Concurrently scheduled with course C259.

CM165. Bioprocess Technology. (4) (Same as Chemical Engineering CM165.) Lecture, two hours; laboratory, eight hours; outside study, two hours. Requisites: course 101, Chemical Engineering C115, Chemistry 156. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM265.

CM168. Molecular Parasitology. (4) (Same as Molecular, Cell, and Developmental Biology CM168.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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. Concurrently scheduled with course CM268. Letter grading.

M176. Advanced Topics in Animal Virus/Host Interaction. (4) (Same as Molecular, Cell, and Developmental Biology M176.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Life Sciences 3, 4. Recommended: course 102 or Chemistry 153B or Molecular, Cell, and Developmental Biology 144. Recent developments in fields of interaction of hosts with animal viruses. Emphasis on molecular and cellular approaches to understand host/virus interaction at level of entry, replication, assembly, and morphogenesis, as well as host defense and viral pathogenesis. P/NP or letter grading.

M185A. Immunology. (5) (Same as Microbiology and Immunology M185A and Molecular, Cell, and Developmental Biology M185A.) Lecture, three hours; discussion, 90 minutes; outside study, 11.5 hours. Requisites: Life Sciences 3, 4. Recommended requisites or corequisites: Chemistry 153A, 153L, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Not open for credit to students with credit for course M261 or Molecular, Cell, and Developmental Biology C180. Introduction to experimental immunology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions.

CM185B. Intermediate Immunology. (4) (Same as Molecular, Cell, and Developmental Biology CM185B.) Lecture, three hours; discussion, one hour. Requisite: course M185A or Molecular, Cell, and Developmental Biology C180. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM285.

195. Proseminar. (2) Designed for seniors. Discussion by small groups of students and instructor on current research literature. Topics vary each year. May be taken only once for credit in the major but may be repeated for University credit.

199. Special Studies in Microbiology and Molecular Genetics. (2 to 8) Preparation: minimum 3.0 grade-point average in premajor and major. Requisites: Chemistry 153A, 153L. Limited to junior/senior Microbiology and Molecular Genetics majors. Individual research project under direct supervision of departmental faculty member. Copy of report describing the research must be filed with Student Affairs Office by end of term. First four units must be taken P/NP; 12 additional units, four of which may be applied toward the major, may be taken for a letter grade.

199H. Honors Thesis. (4 or 8) Limited to microbiology and molecular genetics honors program students. Directed individual research for departmental honors; students must have a faculty sponsor. Three sequential 199H terms required. Progress report must be submitted to faculty sponsor at end of each of the first two terms, with honors thesis submitted at end of final term. Maximum of four units may be applied toward the major, with balance applied toward B.S. degree requirements.

Graduate Courses

C206. Molecular and Genetic Basis of Bacterial Infections. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Life Sciences 4. Biochemical and genetic properties of bacteria which afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Concurrently scheduled with course C106.

C211. Biology of Prokaryotic Cell. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Chemistry 153C. Review of current knowledge of structural organization of prokaryotic cells. Emphasis on isolation methods, chemical composition, structure and assembly of subcellular components, including membranes, walls, flagella, ribosomes, and viruses. Concurrently scheduled with course C111. Term paper on research topic selected by each graduate student required.

C212. Molecular Biology of Bacterial Growth. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Chemistry 153A, 153L, Life Sciences 4. Analysis of growth, development, and physiological adaptations of bacteria, with emphasis on their molecular and genetic basis. Analysis of complex regulatory mechanisms that underlie cell cycle and other multicomponent cellular systems from perspective of contemporary research techniques. Concurrently scheduled with course C112.

213. Seminar: Unicellular Development. (2) Seminar, 30 minutes; discussion, 90 minutes. Requisite: course 101. Designed for graduate students. Background on each of developmental systems in bacillus, myxobacteria, dictyostelium, and streptococcus. Student analysis and discussion of recent publications in each of these areas. S/U or letter grading.

M217. Basic Science and Strategies of Gene Therapy. (2) (Same as Microbiology and Immunology M217 and Molecular, Cell, and Developmental Biology M217.) Preparation: basic knowledge of virology. Basic science and viral vector systems utilized for gene therapy. S/U grading.

M223. Membrane Research Seminar. (2) (Same as Microbiology and Immunology M223.) Critical discussions of current literature in membrane research, with emphasis on relationship between structure and function in lipid bilayers. May be repeated for credit.

M226A-M226B. Principles of Microbial Pathogenesis. (4-4) (Same as Microbiology and Immunology M226A-M226B and Molecular, Cell, and Developmental Biology M226A-M226B.) Lecture, one hour; discussion, three hours. Requisites: Microbiology and Immunology 202A, 202B, 202C, 202D. Lecture/discussion format designed to analyze basic pathogenesis of infections. Emphasis on molecular and cellular approaches to understand host-microbial interaction. **M226A.** Bacterial and Mycotic Infections; **M226B.** Parasitic and Viral Infections.

M227. Molecular Genetics of Bacteria and Phage. (4) (Same as Chemistry M227, Microbiology and Immunology M227, and Molecular, Cell, and Developmental Biology CM207.) Lecture, three hours; discussion, one hour. Requisite: Biological Chemistry CM253 or Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages.

M229. Cellular Biology of Host/Pathogen Interactions. (6) (Same as Microbiology and Immunology M229 and Molecular, Cell, and Developmental Biology M229.) Lecture, four hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and host.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology and Immunology CM233, and Molecular, Cell, and Developmental Biology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

CM234. Ethics and Accountability in Biomedical Research. (2) (Formerly numbered M234.) (Same as Microbiology and Immunology M234.) Designed for graduate students and undergraduates who have credit for a 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.

M240. Cytokines and Reproductive Biology. (2) (Same as Microbiology and Immunology M240 and Molecular, Cell, and Developmental Biology M240.) Lecture, 90 minutes; discussion, one hour. Overview of current progress on research in cytokines and other immune system molecules in reproductive biology. S/U or letter grading.

242. Seminar: Microbial Molecular Genetics. (2) Student and instructor presentations and critical discussion of newly emerging concepts in prokaryotic and/or eukaryotic molecular genetics. Emphasis on nature of the gene and control of gene expression. May be repeated for credit. S/U or letter grading.

M246. Computer Analysis of Genetic Organization. (4) (Same as Microbiology and Immunology M246 and Molecular, Cell, and Developmental Biology M246.) Lecture, two hours; laboratory, six hours. Requisite: course C159 or Life Sciences 4. Lectures and laboratory instruction in contemporary procedures for analysis of nucleic acid and protein sequence data with the computer. No prior computer experience necessary; students gain both general and specialized facility with IBM PC and Digital VAX computers.

M248. Molecular Genetics. (6) (Same as Biological Chemistry CM248, Human Genetics CM248, and Molecular, Cell, and Developmental Biology CM248.) Lecture, five hours. Requisite: Biological Chemistry CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Letter grading.

250. Seminar: Microbial Metabolism. (2) Discussion and student presentations of recent work in areas of genetic regulation and physiology of bacterial metabolism.

251. Seminar: Regulation and Differentiation. (2) S/U grading.

M252. Seminar: Microbial Pathogenesis. (2) (Same as Microbiology and Immunology M252.) Limited to 10 students. Student presentations and critical discussion of current literature on various aspects of microbial pathogenesis. May be repeated for credit. S/U or letter grading.

254. Pre-mRNA Processing in Cellular Metabolism and Differentiation. (2) Seminar, three hours. Designed for graduate students. Reading and discussion of papers dealing with mRNA metabolism and posttranscriptional control of gene expression. From detailed RNA chemistry and autocatalytic reactions to more recently described and less understood systems, topics include RNA catalysis, general splicing and spliceosome assembly, splicing regulation, polyadenylation and three prime end formation, mRNA stability, mRNA transport, RNA editing and modification, and RNA localization. S/U or letter grading.

255. Seminar: Microbial Cell Biology. (2) Student presentations and critical discussion of current literature on various aspects of prokaryotic and eukaryotic cell biology and morphogenesis. May be repeated for credit.

CM256. Human Genetics. (4) (Same as Human Genetics CM256 and Molecular, Cell, and Developmental Biology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: Molecular, Cell, and Developmental Biology 100 or C139 or M140. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the 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.

C259. Advanced Molecular Genetics. (5) Lecture, three hours; discussion, two hours. Requisites: Chemistry 153A, Life Sciences 4. Integrated conceptual analysis of classical and modern molecular genetics of microbes, with coverage of key papers from elucidation of genetics code to the present. Essential elements of experimental design, analysis of results, and scientific logic. Concurrently scheduled with course C159.

M260. Immunology Forum. (2) (Same as Microbiology and Immunology M260.) Requisite: course M185A. Broad range of current topics in immunology presented and discussed at advanced frontier level. Continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. S/U grading.

M261. Molecular and Cellular Immunology. (6) (Same as Microbiology and Immunology M261 and Molecular, Cell, and Developmental Biology CM261.) Lecture, four and one-half hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Oral presentation required. S/U or letter grading.

M262A. Seminar: Current Topics in Immunobiology of Cancer. (2) (Same as Microbiology and Immunology M262A.) 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.

M262D. Selected Topics in Immunology. (2) (Same as Microbiology and Immunology M262D.) Student participation in discussions related to various topics in immunology. May be repeated for credit. S/U or letter grading.

M263. Molecular and Cellular Immunology Seminar. (2) (Same as Microbiology and Immunology M263.) Critical discussions of current literature in T and B cell immunology, with emphasis on molecular mechanisms.

M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics. (2-2-2) (Same as Biological Chemistry M264A-M264B-M264C and Chemistry M264A-M264B-M264C.) Biochemistry, morphology, and physiology of atherosclerosis. Emphasis on chemistry of lipoproteins and role of plasma lipoproteins in regulation of tissue lipid metabolism and development of atherosclerosis. Each course may be taken independently for credit.

CM265. Bioprocess Technology. (4) (Same as Chemical Engineering CM265.) Lecture, two hours; laboratory, eight hours; outside study two hours. Requisites: course 101, Chemical Engineering C115, Chemistry 156. Current bioprocess technologies involving microorganisms, especially extremophiles and animal cells, as vehicles for macromolecular and biomaterial production. Applications to processes including mineral leaching, remediation, and bioconversion. Emphasis on exploiting properties of diverse microorganisms. Exercises may vary yearly. Concurrently scheduled with course CM165.

266. Genetic Mechanisms Seminar. (2) Seminar, three hours; outside study, three hours. Designed for students in Predoctoral Training Program in Genetic Mechanisms. Current research topics in genetics. May be repeated for credit. S/U grading.

CM268. Molecular Parasitology. (4) (Same as Microbiology and Immunology M268 and Molecular, Cell, and Developmental Biology CM268.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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. Concurrently scheduled with course CM168. Letter grading.

270. Seminar: Molecular Virology. (2) Designed for graduate students. Discussion and student presentations of recent work in molecular virology, including viral gene expression and function. S/U grading.

280. Seminar: Molecular and Cellular Endocrinology. (2) Designed for graduate students. Discussion and student presentations of recent work in molecular and cellular endocrinology. S/U grading.

CM285. Intermediate Immunology. (4) (Same as Microbiology and Immunology M285 and Molecular, Cell, and Developmental Biology CM285.) Lecture, three hours; discussion, one hour. Requisite: course M185A or Molecular, Cell, and Developmental Biology C180. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM185B.

290. Seminar: Molecular Genetics. (2) Seminar, one hour; discussion, one hour. Designed for graduate students. Discussion and student presentations of recent work in molecular and genetic analysis of cellular gene regulation. S/U grading.

M294L. Cancer Histopathology Laboratory. (2) (Same as Microbiology and Immunology M294L and Pathology M294L.) Lecture, one hour; laboratory, two hours. Requisites: course M229 or Neurobiology M209A, Biological Chemistry CM253, CM267, and Pathology M294 (preferred) or M293. Histopathological approaches to cellular or tissue alterations commonly observed in tumor progression. Introduction to characteristics that clearly distinguish between benign and malignant neoplasia, precancerous stages, carcinoma in situ, and frankly invasive and metastatic neoplasia.

296A-296Z. Seminars: Research Topics in Microbiology and Molecular Genetics. (1 to 4 each) Discussion, three hours. Advanced study and analysis of current topics in microbiology and molecular genetics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

296A. Eukaryotic Transcription Control.

296B. Regulation of Pre-mRNA Splicing.

296D. *Escherichia coli* Physiological Research.

296E. Archaeobacterial Research.

296F. Molecular Biology of Microbial Diversity.

296G. Structure and Function of Membrane Transport Proteins.

296H. Genetics of Common Diseases.

296J. Microbial Pathogenesis.

296K. Advanced Topics in Immunology.

296L. Molecular Biology of Bacterial Growth.

296M. Immune Regulation and Autoimmune Disease.

296N. RNA and Protein Structure and Function.

296O. Cell Growth and Signal Transduction.

296P. Bacterial Toxins and Human Cytokines.

296Q. Mechanisms of Hematopoietic Development.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Preparation for Teaching Microbiology in Higher Education. (2) Seminar/laboratory. Designed for graduate students. Study of problems and methodologies in teaching microbiology, including workshops, seminars, apprentice teaching, and peer observation. S/U or letter grading.

596. Directed Individual Research. (2 to 12) Tutorial, to be arranged.

598. Research for M.A. Thesis. (2 to 12) Tutorial, to be arranged.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged.

MOLECULAR AND MEDICAL PHARMACOLOGY

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Ren Sun, Ph.D.
Jide Tian, M.D.
Tatsushi Toyokuni, Ph.D.
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Scope and Objectives

The Department of Molecular and Medical Pharmacology has basic and clinical components in which students have opportunities to develop intellectually and experimentally in basic biological sciences placed in the context of human disease. The department conducts teaching and research programs that begin with molecular interactions and extend to studies of diseases and their treatment in humans. Starting with the biochemistry and pharmacology of drugs, departmental investigators study gene expression and its regulation, signal transduction processes, cell-to-cell communication, viral replication and pathogenesis, autoimmune disease, neuronal development and plasticity, and integrated organ functions using techniques of structural chemistry and biology, molecular and cell biology, transgenic and chimeric mice, and cellular and organ imaging. Organic synthesis, genetic engineering, and imaging techniques such as confocal fluorescent and cryoelectron microscopy, autoradiography, and positron emission tomography (PET) are extensively employed. The imaging techniques are available in the Crump Institute for Biological Imaging and the UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, which are affiliated with the department. The goal of the education program is to provide faculty members and students the opportunity to examine the molecular and clinical basis of disease and the mechanisms of drugs in their treatment, as well as to visualize the changes in the disease state with procedures that monitor the molecular basis of cellular and organ function.

The graduate program seeks to prepare students for these interdisciplinary activities with a

basic foundation in genetics, molecular and cellular biology, and pharmacology during their first year in residence. The second year is spent in the laboratory and in elective courses selected to reflect each student's interest, background, and requirements for the research undertaken. Numerous opportunities for interaction with other departments, institutes, and programs are provided through interdisciplinary coursework and many collaborative research activities.

Although the department offers only graduate degrees, upper division undergraduate courses are offered with enrollment restrictions as indicated in the course descriptions.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Note: There is no degree program in pharmacy at UCLA.

Master's Degree**Admission**

The Master of Science (M.S.) degree in Pharmacology is offered only under special circumstances: for example, to candidates who already have a doctoral degree in another field and wish to obtain additional training in pharmacology or to those doctoral students who are already in the program and who for some reason cannot continue for the Ph.D. To obtain the M.S. degree, students must formally request approval by the graduate training committee. If approved, a guidance committee, proposed by students and approved by the graduate training committee, reviews the thesis. None of the research conducted for the M.S. thesis may be applied to a Ph.D. degree later.

Areas of Study

Consult the department.

Course Requirements

The M.S. degree requires satisfactory completion of the required courses as listed under doctoral course requirements below, excluding three quarters of Molecular and Medical Pharmacology 200.

Comprehensive Examination Plan

None.

Thesis Plan

The M.S. degree requires satisfactory completion of a thesis.

Doctoral Degree**Admission**

In addition to meeting University requirements for graduate admission, applicants to the program leading to the Ph.D. degree in Pharmacology must have received a bachelor's degree in a biological or physical science or in the pre-medical curriculum. Requisite courses include basic biology, basic chemistry, organic chemistry, and biochemistry, including laboratory. Quantitative analysis and physical chemistry are recommended.

In suitable cases, students who have course deficiencies may be admitted to graduate status, but any deficiencies have to be removed within a specified time. Graduate Record Examination (GRE) scores and three letters of recommendation are required.

Applicants may write to the department for a departmental brochure and/or application form.

Students may also enter the program through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

The Department of Molecular and Medical Pharmacology offers two M.D./Ph.D. programs concurrently with the UCLA School of Medicine. One is the Medical Scientist Training Program (MSTP) in which candidates are medical students that have been accepted into MSTP by the School of Medicine in order to qualify. The second is the Speciality Training and Advanced Research (STAR) Program in which candidates are post-M.D. housestaff (interns, residents, or fellows) who have been accepted into the STAR Program by its selection committee in order to qualify.

Major Fields or Subdisciplines

Cardiovascular pharmacology; chemical pharmacology; medical pharmacology; immunopharmacology; neuroendocrine pharmacology; neuropharmacology; psychopharmacology; nuclear medicine (positron emission tomography); pharmacokinetics.

Course Requirements

Required: Molecular and Medical Pharmacology 200 (three quarters), 211A-211B, 212A-212B, 234A-234B, 237A-237B, 241, 251 (must be taken every quarter), and two electives chosen from Molecular and Medical Pharmacology M255, Biological Chemistry CM253, CM267 or Neurobiology M209A, Physiology 201A-201B/M203A-M203B, or a course in biostatistics.

These requirements are waived for students who have passed equivalent courses with grades of B or better within the past 36 months. Students are required to maintain a grade-point average of 3.0 in all coursework and to achieve grades of B or better in all molecular and medical pharmacology courses. One grade of less than B in a required molecular and medical

pharmacology course results in probationary status; the course must be repeated with a grade of B or better; two grades of less than B result in recommendation to the graduate dean for dismissal. A single grade below B in any of the other required courses results in probationary status as well. Any student with two grades less than B in any of the nonmolecular and medical pharmacology courses is considered by the graduate training committee for dismissal. A total of three grades below B in any of the required courses results in recommendation to the graduate dean for dismissal.

All required coursework should be completed by the end of the sixth quarter.

The department provides a system of laboratory rotations (Molecular and Medical Pharmacology 200) in order to familiarize students with a variety of pharmacological research areas and techniques. During the first year in the department, students participate in projects of the laboratories of their choosing. Students also become familiar with the literature relevant to the various research projects and thus establish a basis for the selection of their own research areas.

Students must submit a report on their activities at the end of each quarter of Molecular and Medical Pharmacology 200 to research advisers. The report should include the nature of the project, how the student participated, the results obtained, and a critical evaluation of the project. A copy of this report and an evaluation form by the research adviser is submitted to the graduate training committee. A report on the student and the final grade is also submitted to the committee by the research adviser.

For students entering through UCLA ACCESS, required courses include Molecular and Medical Pharmacology 237A, 241, 251 (each term after entering a pharmacology laboratory for dissertation research), Biological Chemistry CM253, and CM267 or Neurobiology M209A. Recommended electives include Molecular and Medical Pharmacology 211A, 211B, 212A, 212B, 234A, 234B, 237B, M255, Physiology 201A-201B/M203A-M203B, and one biostatistics course. Students may use course 200 or courses in other departments for the three required laboratory research rotations.

Examinations are given in all courses except seminars and research. These are in the form of written examinations, oral examinations, term papers, and/or laboratory practicals.

Written and Oral Qualifying Examinations

After completing all required courses, students take a departmental comprehensive examination consisting of a written part and an oral part. The examination panel then recommends continuation toward the Ph.D. degree, further remedial study, or termination. The examination tests for a rational analytical approach to problem solving and for ability to integrate material learned in different courses. Students are required to know basic principles of pharma-

cology and the status of topics of current interest in pharmacology.

After passing the departmental comprehensive examination, students must take the University Oral Qualifying Examination within 24 months. The examination is administered by the doctoral guidance committee. The examination concentrates on the background literature, experimental methods, and implications of the field of interest and dissertation project.

If any one of the above required examinations is failed, students may be reexamined at a later date determined by the guidance committee.

Molecular and Medical Pharmacology

Upper Division Courses

110A-110B. Drugs: Mechanisms, Uses, and Misuse. (4-4) (Formerly numbered 110.) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requisites: Chemistry 15, Life Sciences 2, 3. Course 110A is requisite to 110B. Introduction to pharmacology for undergraduate students, emphasizing principles underlying mechanism of action of drugs, their development, control, rational use, and misuse.

199. Special Studies. (2 to 8) Special studies in pharmacology, including either reading assignments or laboratory work or both, designed for proper training of students.

Graduate Courses

200. Introduction to Laboratory Research. (2 to 4) Individual projects in laboratory research for beginning graduate students. At end of each term students submit to their supervisor a report covering research performed. Pharmacology graduate students must take this course three times during their first two years in residence. S/U or letter grading.

203. Medical Pharmacology. (2) Lecture, zero to two hours; discussion, zero to two hours. Requisites: courses 211A-211B. Series of lectures and case presentations designed to illustrate principles of pharmacology in a clinical context, and solution of practical therapeutics by reference to pharmacokinetics, mechanisms of action, and disposition of drugs.

211A-211B. Principles of Pharmacology. (4-2) Lecture, three to eight hours; discussion, zero to nine hours. Preparation: mammalian physiology, biochemistry. Systematic consideration of principles governing interaction between drugs and biological systems and of principal groups of drugs used in therapeutics. Particular attention on modes of action, pharmacokinetics, and disposition to provide a scientific basis for their rational use in medicine.

212A-212B. Graduate Commentary: Medical Pharmacology. (2-2) Preparation: mammalian physiology, biochemistry. Supplementation of topics covered in course 203. Primarily for graduate students.

M221. Cellular and Molecular Neurochemistry. (4) (Same as Biological Chemistry M221, Neurobiology M221, Neuroscience M240, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

234A-234B-234C. Experimental Methods in Pharmacology. (2-2-2) Survey of experimental methods and instrumentation used in analysis, identification, and study of mechanisms of action of pharmacologically active compounds.

237A-237B-237C. Research Frontiers in Cellular and Molecular Pharmacology. (4) Requisite: course 241. Detailed examination of mechanisms of drug action at organismal, tissue, cellular, and molecular levels, emphasizing receptors, receptor/effector coupling, neurotransmitters, autonomic and central nervous system pharmacology.

241. Introduction to Chemical Pharmacology. (6) Preparation: organic and biological chemistry. Designed for molecular and medical pharmacology students. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, excretion, and modes of action.

M248. Introduction to Biological Imaging. (4) (Same as Biomedical Physics M248.) Lecture, three hours; laboratory, one hour. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for a range of modalities. Practical experience provided through a series of imaging laboratories.

251. Seminar: Pharmacology. (2) Seminar presented by students, faculty, and guest lecturers on a variety of topics. S/U grading.

M255. Biological Catalysis. (4) (Same as Biological Chemistry M255, Chemistry CM255, and Molecular, Cell, and Developmental Biology CM252.) Requisites: Chemistry 110A, 153A, 153B, Life Sciences 3, Molecular, Cell, and Developmental Biology 100 or C139 or M140. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level.

M257. 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.

M258. 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).

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. Molecular basis of disease, gene delivery vectors, and animal models. Letter grading.

291. Special Topics in Pharmacology. (2 to 4) Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced Ph.D. candidates and faculty.

298. Seminar: Current Topics in Molecular and Medical Pharmacology. (2) Limited to pharmacology, ACCESS program, and interdepartmental Molecular Biology Ph.D. program students. Students conduct or participate in discussions on assigned topics. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596. Directed Individual Research in Pharmacology. (4 to 12) Tutorial, to be arranged.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 12) Tutorial, to be arranged.

MOLECULAR BIOLOGY

Interdepartmental Program
College of Letters and Science

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Hong Ur, M.D., Ph.D. (*Molecular and Medical Pharmacology*)
Alexander van der Bliek, Ph.D. (*Biological Chemistry*)
Geraldine A. Weinmaster, Ph.D. (*Biological Chemistry*)
Hong Wu, M.D., Ph.D. (*Molecular and Medical Pharmacy*)

Scope and Objectives

The Ph.D. in Molecular Biology is offered under the supervision of an interdepartmental committee. The Molecular Biology Institute serves this committee and the various departments concerned in support of faculty research and teaching associated with the Ph.D. program. Staff members are from participating departments and from the Molecular Biology Institute. Areas for study include cell biology; developmental biology and neurobiology; DNA replication, repair, and recombination; gene regulation; immunobiology; microbiology/virology; molecular evolution and paleobiology; oncogenes and signal transduction; plant molecular biology; protein structure and function; and structural biology.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are sub-

ject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Doctoral Degree

Admission

The Molecular Biology Interdepartmental Program admits graduate students to the Ph.D. program in Molecular Biology through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

At the completion of the first-year UCLA ACCESS curriculum, including three laboratory rotations, students choose a permanent research and thesis adviser. Students interested in entering the program for their research work must choose a research adviser who is a member of the Molecular Biology Institute (MBI) faculty. Entrance to the program is determined by an evaluation of the student's undergraduate and first-year graduate performance and the proposed area of thesis research. Undergraduate coursework should include calculus, general chemistry and/or biochemistry, organic chemistry, physics, biology, and genetics. Any course deficiencies should be addressed in the first year in the UCLA ACCESS program.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

A minimum of 12 units per quarter must be maintained during graduate study. Grades of B or better must be received in all courses. Any grade less than a B requires a repeat of the course, or its equivalent, as per the approval of the graduate adviser.

First Year. Successful completion of the UCLA ACCESS curriculum, including any of the core courses, student seminar courses, and the ethics course is required. Recommended C-level elective: Biological Chemistry CM248.

Second Year. Two to three sections of Molecular Biology 298 (see NOTE under Written and Oral Qualifying Examinations). These may be taken one per quarter, or students may choose to take two in one quarter. Three different topics are offered each quarter taught by various MBI faculty members. Students have the choice of grading basis, either letter grade or S/U.

Second through Sixth Years. Independent research: one 596 course prior to advancement to candidacy and one 599 course after advancement to candidacy.

Written and Oral Qualifying Examinations

The written examination is coupled to the Molecular Biology 298 student seminar courses. One examination must be submitted for each of the three required 298 sections. (NOTE: Alternatively, one of three papers may be submitted for a student seminar during the first year

of study in the UCLA ACCESS program, and the third 298 section may then be waived.) Examinations take the form of a single-spaced, three page (or equivalent) research proposal based on the topic and required reading for each section. Papers are graded separately from the course grade, on a pass, rewrite, or no pass basis. A constructive critique is provided by the instructor to give students the opportunity to improve their skills in critical analysis and experimental design. All three papers must be passed before presenting the oral qualifying examination and advancing to candidacy.

Research Proposition. The University Oral Qualifying Examination is held at the end of the second year of graduate study, after the required three written qualifying examinations (298 papers) have been passed. The examination includes preparation of a written research proposition, which gives the doctoral committee the opportunity to judge the student's ability to think creatively and formulate significant ideas for research. The subject of the proposal should not be immediately connected with the student's own thesis research, although it may be in the same very broad, general area (i.e., molecular genetics). The topic selected must be approved by the student's research adviser and by the graduate adviser. The oral examination covers the student's proposition as well as general scientific background. More detailed instructions on the written proposal and oral examination are available in the Molecular Biology Graduate Office.

Midstream Seminar. Students meet with their doctoral committee every year during their graduate study. In year two for their University Oral Qualifying Examination, in year six (or earlier) for their final oral examination (dissertation defense), and in years three, four, and five on a more informal basis to evaluate progress, define specific goals, and solicit advice on the direction of further research. The doctoral committee meeting in year three takes the form of a "midstream seminar," where the student presents to the committee a summary of the background, objectives, present accomplishments, and future plans for the dissertation research. The student may present the history and significance of the area and discuss the merits and pitfalls of the particular experimental approach being taken.

Molecular Biology

Graduate Courses

297. Seminar: Molecular and Cellular Life Sciences. (2) In-depth surveys of recent developments in specific fields of life sciences research. By reading and presenting primary research articles, students learn to critically evaluate research papers and organize and present a seminar on a specific research topic. S/U or letter grading.

298. Seminar: Current Topics in Molecular Biology. (2) (Formerly numbered M298.) Students conduct and participate in discussions on assigned topics. May be repeated for credit. S/U or letter grading.

Related Courses

The following courses offered by the departments listed are particularly appropriate to the research areas mentioned above. With the approval of the guidance committee or research supervisor, other related courses may be included in the program.

Biological Chemistry

M221. Cellular and Molecular Neurochemistry
CM248. Molecular Genetics
CM253. Macromolecular Structure
M255. Biological Catalysis
M263. Metabolism and Its Regulation
M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics
M266A-M266B-M266C. Seminars: Molecular Embryology
CM267. Cell Structure, Signaling, and Differentiation

Chemistry and Biochemistry

M230B. Structural Molecular Biology
M230D. Structural Molecular Biology Laboratory
CM253. Macromolecular Structure
M263. Metabolism and Its Regulation
M264A-M264B-M264C. Molecular Basis of Atherosclerosis
M267. Cell Structure, Signaling, and Differentiation

Microbiology and Immunology

250. Cell and Molecular Biology
M256. Seminar: Viral Oncology
M260. Immunology Forum
M262A. Seminar: Current Topics in Immunobiology of Cancer
M263. Molecular and Cellular Immunology Seminar

Microbiology and Molecular Genetics

242. Seminar: Microbial Molecular Genetics
M248. Molecular Genetics
250. Seminar: Microbial Metabolism
251. Seminar: Regulation and Differentiation
M260. Immunology Forum
M263. Molecular and Cellular Immunology Seminar
290. Seminar: Molecular Genetics

Molecular, Cell, and Developmental Biology

228. Prokaryotic and Eukaryotic Gene Systems
M230B. Structural Molecular Biology
M230D. Structural Molecular Biology Laboratory
M234. Genetic Control of Development
CM248. Molecular Genetics
257A. Gene Manipulation: Genetic Engineering

MOLECULAR, CELL, AND DEVELOPMENTAL BIOLOGY

College of Letters and Science

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Lutz Birnbaumer, Ph.D., *Chair*

Professors

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Lutz Birnbaumer, Ph.D.
Robert B. Goldberg, Ph.D.
Volker Hartenstein, Ph.D.
Ann M. Hirsch, Ph.D.
Harumi Kasamatsu, Ph.D.
James A. Lake, Ph.D.
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Professors Emeriti

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Fritiof S. Sjostrand, Ph.D.
Clara M. Szego, Ph.D.

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Frank A. Laski, Ph.D.
Paul H. O'Lague, Ph.D.

Assistant Professor

Luisa M. Iruela-Arispe, Ph.D.
Stephen Erik Jacobsen, Ph.D.
Chentao Lin, Ph.D.
Karen Marie Lyons, Ph.D.

Lecturer

Roger Bohman, Ph.D.

Scope and Objectives

The revolution in modern biology that began with the elucidation of the structure of DNA by Watson and Crick in the 1950s has had a profound effect not only on biological research, but on the way biology is taught as a subject. The field of biology spawned by this discovery, generally called molecular biology, has provided an entirely new framework within which to approach questions in cell and developmental biology. The specializations, both technical and conceptual, demanded by this field have led to the growth of molecular biology and its related disciplines into an essentially separate branch of scientific inquiry.

Students who complete the requirements for the Bachelor of Science degree in Molecular, Cell, and Developmental Biology are exceptionally well prepared to pursue careers in cellular and subcellular biological research, biomedical research, or medicine or allied health fields. The degree combines essential background studies in mathematics, chemistry, and physics with a general introduction to all of the biological subjects, as well as in-depth exposure to key topics in molecular, cell, and developmental biology. The M.A. and Ph.D. degrees provide opportunities for advanced concentrated study and require independent and innovative research that ultimately results in publishable thesis and dissertation materials.

Undergraduate Study**Molecular, Cell, and Developmental Biology B.S.**

The Bachelor of Science degree in Molecular, Cell, and Developmental Biology (MCDB) is designed especially for students who intend to

go on to postgraduate work in biology or medicine and for students aiming for entry-level positions in biotechnology-related fields. Students are exposed to basic biological and molecular concepts underlying recent technical advances in molecular, cell, and developmental biology of animals and plants. Areas of emphasis include cell biology, immunology, molecular biology, plant biology, developmental biology, and neurobiology, among others.

Preparation for the Major**Life Sciences Core Curriculum**

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 14O, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Molecular, Cell, and Developmental Biology majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

The Major

(1) *Required Courses:* Chemistry and Biochemistry 153A, 153L, Molecular, Cell, and Developmental Biology 100 or C139 or M140, 104, 138 or C141, 144.

(2) *Electives:* At least 24 upper division elective units, of which at least 12 must be in courses offered by the department. Any upper division departmental course, except Molecular, Cell, and Developmental Biology 193 or 199, is acceptable. The following courses outside the department may be taken to satisfy a maximum of 12 units in this category: Chemistry and Biochemistry 153C, 156, CM159A, CM159B, Microbiology and Molecular Genetics 101, 102, C106, C112, C159, Organismic Biology, Ecology, and Evolution 110, 146, 162, M166.

(3) *Laboratory:* At least four units of upper division laboratory experience selected from Chemistry and Biochemistry 154, Microbiology and Molecular Genetics 101/101L (both courses must be taken), 102/102L (both courses must be taken), Molecular, Cell, and Developmental Biology 155, 190A through 190D, 199, Organismic Biology, Ecology, and Evolution M158, 162, M166.

Additional Requirements

(1) A maximum of eight units of Molecular, Cell, and Developmental Biology 190 may be applied toward the major. Credit for 199 courses from other departments may not be applied except by petition.

(2) Any single course may be applied toward only one category within the major (e.g., only course C141 may be applied toward the required or elective category but not toward both).

(3) Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. MCDB majors must earn a C– or better in each preparation for the major course, and at least a 2.0 (C) overall average in all courses applied toward the major.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under “Publications”) on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree**Admission**

The department does not accept students whose sole objective is the Master of Arts degree in Molecular, Cell, and Developmental Biology. The department rarely awards the master's degree except in instances where the student is unable to complete the requirements for the doctorate.

Areas of Study

See under Doctoral Degree.

Course Requirements

The program consists of at least nine courses in graduate standing, of which at least five must be graduate-level (200 series) courses. The remainder may be courses in the 100, 200, or 500 series. No more than two 596 courses (eight units) may be applied toward the nine courses required for the degree; only one 596 course (four units) may be applied toward the minimum graduate course requirement. Courses graded S/U may be not be applied toward the minimum requirement unless these courses are not offered for a letter grade.

Specific course requirements are established for each student by the guidance committee.

Comprehensive Examination Plan

The departmental written qualifying examination, or its equivalent as determined by the graduate adviser, serves as the comprehensive examination for the M.A. degree.

Thesis Plan

A thesis reporting the results of an original investigation, written to conform to the requirements of the Graduate Division, is presented to and approved by the master's thesis committee of three faculty members. Before beginning work on the thesis, students must obtain approval of the subject and general plan from the faculty members concerned and from the thesis committee.

Doctoral Degree

Admission

The Department of Molecular, Cell, and Developmental Biology admits students directly into the program leading to the Ph.D. degree in Molecular, Cell, and Developmental Biology and also through UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

The department expects graduate students to have or to acquire a background comparable to the requirements for the B.S. degree in Molecular, Cell, and Developmental Biology at UCLA. A background in chemistry, physics, and mathematics is essential. Deficiencies in these or other subjects must be made up at the earliest opportunity, preferably during the first year of the Ph.D. program.

Applications and additional information may be obtained from Student Affairs Office, 2316 Life Sciences, UCLA, Box 951606, Los Angeles, CA 90095-1606, or from UCLA ACCESS.

Major Fields or Subdisciplines

Fields of emphasis in molecular, cell, and developmental biology naturally reflect the research foci of the faculty. These include cell biology, molecular biology, genetics and developmental biology, in both plants and animals; and immunology, neurobiology, parasitology and molecular evolution.

Course Requirements

In addition to any remedial coursework specified by the graduate adviser, all Ph.D. students are required to take (and pass with grades of B or better) a minimum of four graduate-level courses and three graduate seminars approved by the department. Students may elect, in consultation with their thesis adviser, to take additional graduate courses or seminars in a particular area of specialization. Consult the department for course requirements.

All molecular, cell, and developmental biology graduate students are required to take the teaching assistant training course (Molecular, Cell, and Developmental Biology 495) and are expected to teach a minimum of three quarters during their graduate careers. Students indicate to the Graduate Office which quarter they are available to be a teaching assistant. If they fail to volunteer and fall behind in the normal schedule of a teaching assistant, the graduate adviser may assign them to a course arbitrarily.

Written and Oral Qualifying Examinations

Written Qualifying Examination. The written qualifying examination must be passed before taking the University Oral Qualifying Examination. The written qualifying examination requirement is satisfied through written papers generated in connection with selected courses, including seminar courses. Such papers are separate from the formal course requirements for these courses and do not form part of the course grade. It is the responsibility of the student to arrange with the instructor at the beginning of a course to submit such a paper at the end of the course. (The department's version of the written qualifying examination is used by most Ph.D. programs in the molecular life sciences, and the graduate courses taken by molecular life sciences students all offer the written qualifying examination paper option.) The papers are in the form of a mini research proposal and are graded as pass, rewrite, or fail. If a rewrite is required, specific criticism is supplied by those grading the paper. A minimum of three such papers, with a grade of pass, is required. A copy of each paper, with graders' comments, becomes part of the student's file.

Oral Qualifying Examination. The University Oral Qualifying Examination, ordinarily taken by the end of the second year in residence, is composed of two sections: presentation of an independent research proposal, and testing of general knowledge of advanced biology. The examinations are administered by the doctoral committee and conform to the standard requirements of the Graduate Division. Detailed instructions and suggestions are given in the *Graduate Student Handbook*.

Molecular, Cell, and Developmental Biology

Lower Division Courses

30. Biology of Cancer. (4) Introduction to molecular, cellular, and clinical aspects of cancer and consideration of sociological and psychological impacts of cancer on the individual and society. P/NP or letter grading.

40. AIDS and Other Sexually Transmitted Diseases. (4) Introduction to interdisciplinary debate surrounding the personal and societal response to AIDS and other sexually transmitted diseases. P/NP or letter grading.

70. Genetic Engineering and Society. (4) Lecture, three hours; discussion, two hours. Designed for nonmajors. Not open to students with credit for Life Sciences 3 or 4. Basic principles of genetic engineering. Overview of genetic engineering techniques and relationship of genetic engineering to medicine, agriculture, and society. Emphasis on specific genetic engineering applications to generate discussion on its use in society.

80. The Green World: Plant Biology for Now and the Future. (4) Lecture, three hours; laboratory, two hours. Designed for nonmajors. Basic principles of plant biology and introduction to techniques for manipulating plants for improved agriculture, sources of renewable "clean" energy, reclamation of deforested and nutritionally depleted soils, and "biological factories" to produce biodegradable plastics, antibodies, and other commodities. Underexploited agriculture crops also featured. P/NP or letter grading.

88C. Lower Division Seminar: Frontiers of Molecular Biology — Historical Perspective. (4) Seminar, three hours. Limited to freshmen who have not completed Life Sciences 3. Designed for nonmajors. Study of biology at molecular level has unlocked secrets of the gene, started the biotechnology revolution, and promises a new scientific age that uses gene therapy to cure human disease, produce superplants that grow in the desert, and uncover the mysteries of the mind. Exploration of origins and history of molecular biology by analyzing papers written by Mendel, Watson, Crick, and others who played a major role in changing society with their discoveries of new biological principles. P/NP or letter grading.

88D. Lower Division Seminar: Genetics and Society. (4) Discussion, three hours. Some ways genetics affects us now and what changes are possible for our children. Examination of biological basis of inheritance in order to understand scientific methods and science teaching.

88E. Lower Division Seminar: Genetics and Society — Current Status and Future Applications. (4) Seminar, three hours; outside study, nine hours. Recent advances in genetics have opened up new possibilities in fields of forensics, medicine, agriculture, and industry, with corresponding legal, social, and economic ramifications. Examination of scientific/genetic basis underlying genetic engineering, genetic screening, gene therapy, eugenics, DNA fingerprinting, cloning, etc., and discussion of current and future applications. P/NP or letter grading.

88F. Lower Division Seminar: Science and Scientists — Expectations and Realities. (2) Examination of change from when science was done by individuals as an avocation without societal goals to contemporary science which is done by professionals and is driven by societal needs and pressures. P/NP or letter grading.

M88H. Lower Division Seminar: Limits of Biological Design through Physical Principles. (4) (Same as Physics M88.) Seminar, three hours. Enforced requisites: Chemistry 20A and 20B (or former courses 10A and 10B), Life Sciences 1, 3, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 1A, 1B, and 1C, or 2AH, 2BH, and 17, or 6A, 6B, and 6C. Specific examples of diverse biological design such as scaling of metabolic activity, bone and muscle mass, cell size, cell membranes and pumps, heart and blood circulation, swim bladders, insect vision, magnetic bacteria, etc., studied quantitatively using elementary mathematics and physical principles. Letter grading.

Upper Division Courses

100. Introduction to Cell Biology. (4) (Formerly numbered Biology 100B.) Lecture, three hours; discussion, one hour. Requisites: Chemistry 20 series or former courses 10A, 10B, and 10BL (may be taken concurrently), Life Sciences 3, 4. Not open for credit to students with credit for course C139 or M140 or former Biology 100B. 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.

104. Cell and Molecular Biology Laboratory. (6) Lecture, 90 minutes; discussion, one hour; laboratory, eight hours; outside study, seven and one-half hours. Requisites: Life Sciences 3, 4. Introduction to methods in molecular biology. Topics include purification, manipulation and analysis of DNA, RNA, and protein. Emphasis on computer sequence analysis and use of current literature.

CM133. Principles, Practices, and Policies in Biotechnology. (2) (Same as Biological Chemistry CM133, Biomedical Physics CM133, Chemical Engineering CM133, Chemistry CM133, Microbiology CM133, and Microbiology and Immunology CM133.) Lecture, three hours. Designed for juniors/seniors. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM233. P/NP or letter grading.

138. Developmental Biology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Cellular and molecular basis of animal embryology. Letter grading.

C139. Molecular Cell Biology. (6) Requisites: Chemistry 153A, Life Sciences 3. Not open for credit to students with credit for course 100 or M140. Introduction to cell biology for graduate students in basic medical sciences and selected undergraduates. Topics include membrane structure, assembly, and function; biogenesis of organelles, intercellular and intracellular signaling, immunity and gene structure, function and replication. Concurrently scheduled with course CM220.

M140. Cell Biology: Cell Cycle. (5) (Same as Biological Chemistry M140.) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A and 14B/14BL, or 20 series, Life Sciences 3, 4. Not open for credit to students with credit for course 100 or C139. Satisfies premedical requirements. Eukaryotic cellular structures and biogenesis at a molecular level. Biochemical and genetic analysis of cell cycle, signal transduction, and their involvement in development and cancer. Protein sorting and transport across cell membranes. Cytoskeletal components and cell-adhesion.

C141. Molecular Basis of Plant Differentiation and Development. (4) (Formerly numbered Biology C141.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of a variety of plant systems, with focus on developing critical understanding of current experimental basis of research in this field. Concurrently scheduled with course C239.

142. Seminar: Topics in Developmental Biology. (2) Requisite: course 138. Undergraduate seminar on topics in developmental biology. Reading and group discussions on current research. P/NP or letter grading.

144. Molecular Biology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Not open for credit to students with credit for former Biology 100A, Chemistry 153B, or Organismic Biology 121. Structure of genes and chromosomes; prokaryotic and eukaryotic replication and transcription; repair and recombination; RNA processing.

C150. Plant Chemical and Molecular Communication. (4) (Formerly numbered 150.) Lecture, three hours; discussion, one hour. Preparation: completion of life sciences core curriculum. 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.

155. Molecular Genetic Methods. (4) Lecture, two hours; discussion, one hour; laboratory, six hours; outside study, three hours. Recommended preparation: course 104. Designed for and limited to Molecular, Cell, and Developmental Biology majors for priority pass and first pass. Gene mapping and detection and analysis of gene variants by means of inheritance patterns. Letter grading.

CM156. Human Genetics. (4) (Same as Human Genetics CM156 and Microbiology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: course 100 or C139 or M140. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

CM160. Biological Catalysis. (4) (Same as Chemistry CM155.) Requisites: course 100 or C139 or M140, Chemistry 110A, 153A, 153B, Life Sciences 3. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM252.

CM168. Molecular Parasitology. (4) (Same as Microbiology CM168.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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. Concurrently scheduled with course CM268. Letter grading.

CM169. Cell Structure, Signaling, and Differentiation. (6) (Same as Biological Chemistry CM169 and Human Genetics CM169.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: Chemistry CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM223. Letter grading.

M170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) (Same as Chemistry CM170.) Lecture, two to three hours; discussion, zero to two hours; outside study, four to seven hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3, 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.

171. Principles of Neurobiology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, Organismic Biology M166. Strongly recommended: course 100 or C139 or M140. Introduction to basic principles of neurobiology, including description of structure of neurons and nervous systems; ionic mechanisms responsible for generating membrane potentials, action potentials, and synaptic potentials; properties of synaptic transmission, information transduction and coding in sensory pathways, and neural control of movement; development of and trophic interactions between cells of nervous system.

C172. Molecular Genetics of Bacteria and Phage. (4) Lecture, three hours; discussion, one hour. Molecular and cellular biology of bacteria and bacteriophages. Concurrently scheduled with course CM207.

C174A-C174G. Advanced Topics in Cell and Molecular Biology. (2 each) (Formerly numbered C174A-C174F.) Lecture. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C222A-C222G. Letter grading:

C174A. Molecular Evolution. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in the field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Letter grading.

C174B. Molecular Biology of Cell Nucleus. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Letter grading.

C174D. Molecular Biology of Extracellular Matrix. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recommended: course 138. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Letter grading.

C174F. Molecular Parasitology. (2) Lecture, two hours. 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.

C174G. Signal Transduction by G-Protein Coupled Receptors. (2) Lecture, one hour; discussion, one hour. Requisites: course 100 or C139 or M140, Life Sciences 3, 4. Introduction to G-protein mediated signal transduction as used by sensory neurotransmitter, and many hormones receptors that alter intracellular second messengers. Structure and functions of molecules that participate in signal transduction via G proteins (receptors, G proteins, effectors), with emphasis on original experiments leading to present concepts. Letter grading.

M175A-M175B-M175C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Neuroscience M101A-M101B-M101C, Physiological Science M180A-M180B-M180C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, one hour. P/NP or letter grading:

M175A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: Chemistry 14C or 30 or former course 10D (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. Not open for credit to students with credit for Physiological Science 111A. 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.

M175B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115, Life Sciences 3, 4. 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.

M175C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisite: course M175B (or Neuroscience M101B or Physiological Science M180B or Psychology M117B) or Physiological Science 111A or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M176. Advanced Topics in Animal Virus/Host Interaction. (4) (Formerly numbered 176.) (Same as Microbiology M176.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Life Sciences 3, 4. Recommended: course 144 or Chemistry 153B or Microbiology 102. Recent developments in fields of interaction of hosts with animal viruses. Emphasis on molecular and cellular approaches to understand host/virus interaction at level of entry, replication, assembly, and morphogenesis, as well as host defense and viral pathogenesis. P/NP or letter grading.

C177. Molecular Biology of Animal Viruses. (4) Lecture, three hours. Requisites: Chemistry 153B, Life Sciences 3. Recommended for advanced undergraduate students with a major in public health, biology, or microbiology and for graduate students with interest in any field of biology or chemistry. Overview of animal viruses, including viral structure, virus cell interaction, virus replication, and viral oncogenesis. Special emphasis on understanding the molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host. Concurrently scheduled with course CM279.

CM178. Molecular Genetics. (6) (Same as Biological Chemistry CM178 and Human Genetics CM178.) Lecture, five hours. Requisites: course 100 or C139 or M140, Chemistry 153A, 153B, Life Sciences 3, 4. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM248. Letter grading.

C180. Molecular and Cellular Immunology. (6) Lecture, four and one-half hours; discussion, 90 minutes. Requisites: course 100 or C139 or M140, Chemistry 153A, Life Sciences 3. Not open for credit to students with credit for course M185A. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Concurrently scheduled with course CM261.

M185A. Immunology. (5) (Same as Microbiology M185A and Microbiology and Immunology M185A.) Lecture, three hours; discussion, 90 minutes; outside study, 11.5 hours. Requisites: Life Sciences 3, 4. Recommended requisites or corequisites: course 100 or C139 or M140, Chemistry 153A, 153L. Not open for credit to students with credit for course C180/CM261. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions.

CM185B. Intermediate Immunology. (4) (Same as Microbiology CM185B.) Lecture, three hours; discussion, one hour. Requisite: course C180 or M185A. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM285.

189. Seminar: Social Implications of Current Biological Research. (2) Seminar, two hours; outside study, four hours. Discussions about how current research in biology, particularly in areas of molecular, cell, and developmental biology, affects social issues and policy. May be repeated once for credit; however, only two units of this course or Organismic Biology 188 may be applied toward either the Biology or Molecular, Cell, and Developmental Biology major.

190A-190D. Honors Research in Molecular, Cell, and Developmental Biology. (2 to 4 each) Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken with Molecular, Cell, and Developmental Biology Department faculty for at least two terms and for a total of at least eight units. In Progress grading (credit to be given only on completion of course 190B). Students may elect to enroll in additional research through courses 190C-190D (letter grading). A report on progress must be presented to undergraduate adviser each term a 190 course is taken. Eight units may be applied toward Molecular, Cell, and Developmental Biology major.

M191. Biological Bases of Psychiatric Disorders. (4) (Same as Neuroscience M130, Physiological Science M181, Psychiatry M191, and Psychology M117J.) Lecture, three hours. Requisite: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric syndromes and neurological disorders, including schizophrenia, depression, bipolar disorders, obsessive/compulsive disorder, eating disorders. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments.

193. Teaching Practicum in Molecular, Cell, and Developmental Biology. (4) Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Training and supervised practicum for advanced undergraduates in teaching cell and molecular biology. Students serve as junior teaching assistants and assist in preparation of materials and development of innovative programs. Consult Undergraduate Office for further information. May not be applied toward course requirements for Biology or Molecular, Cell, and Developmental Biology majors. May be repeated once for credit. P/NP or letter grading.

199. Special Studies. (2 to 16) Preparation: submission of written proposal outlining the study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal should be worked out in consultation with instructor and submitted for approval to undergraduate adviser before the day instruction begins in that term. At end of term a report describing progress of the study or research and signed by the student and instructor must be presented to undergraduate adviser. Students who wish to take more than eight units of course 199 in any one term must obtain authorization from department chair and appropriate dean.

Graduate Courses

M201. Use of the Computer in Biology. (2) (Formerly numbered 201.) (Same as Human Genetics M201 and Microbiology and Immunology M241.) Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

CM207. Molecular Genetics of Bacteria and Phage. (4) (Same as Chemistry M227, Microbiology M227, and Microbiology and Immunology M227.) Lecture, three hours; discussion, one hour. Requisite: Biological Chemistry CM253 or Chemistry CM253. Molecular and cellular biology of bacteria and bacteriophages. Concurrently scheduled with course C172.

M217. Basic Science and Strategies of Gene Therapy. (2) (Same as Microbiology and Immunology M217 and Microbiology M217.) Preparation: basic knowledge of virology. Basic science and viral vector systems utilized for gene therapy. S/U grading.

CM220. Molecular Cell Biology. (6) (Same as Neurobiology M209A and Physiology M209A.) Not open for credit to students with credit for course 100 or M140. Introduction to cell biology for graduate students in basic medical sciences and selected undergraduates. Topics include membrane structure, assembly, and function; biogenesis of organelles, intercellular and intracellular signaling, immunity and gene structure, function and replication. Concurrently scheduled with course C139.

C222A-C222G. Advanced Topics in Cell and Molecular Biology. (2 each) (Formerly numbered C222A-C222F.) Lecture. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C174A-C174G. Letter grading:

C222A. Molecular Evolution. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in the field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Original research proposal required. Letter grading.

C222B. Molecular Biology of Cell Nucleus. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Original research proposal required. Letter grading.

C222D. Molecular Biology of Extracellular Matrix. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recommended: course 138. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Original research proposal required. Letter grading.

C222F. Molecular Parasitology. (2) Lecture, two hours. 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. Original research proposal required. Letter grading.

C222G. Signal Transduction by G-Protein Coupled Receptors. (2) Lecture, one hour; discussion, one hour. Requisites: course 100 or C139 or M140, Life Sciences 3, 4. Introduction to G-protein mediated signal transduction as used by sensory, neurotransmitter, and many hormones receptors that alter intracellular second messengers. Structure and functions of molecules that participate in signal transduction via G proteins (receptors, G proteins, effectors), with emphasis on original experiments leading to present concepts. Letter grading.

CM223. Cell Structure, Signaling, and Differentiation. (6) (Same as Biological Chemistry CM267, Chemistry M267, and Human Genetics CM267.) Lecture, five hours. Requisites: Chemistry 153A, 153B, 153C. Recommended: Chemistry CM153G. Cell cycle regulation; chromosomes and DNA repair; protein trafficking and endocytosis; extracellular matrix, cell to cell communication and signal transduction; cell transformation and apoptosis; molecular aspects of development, differentiation, and cancer. Concurrently scheduled with course CM169. Letter grading.

M226A-M226B. Principles of Microbial Pathogenesis. (4-4) (Same as Microbiology M226A-M226B and Microbiology and Immunology M226A-M226B.) Lecture, one hour; discussion, three hours. Requisites: Microbiology and Immunology 202A, 202B, 202C, 202D. Lecture/discussion format designed to analyze basic pathogenesis of infections. Emphasis on molecular and cellular approaches to understand host-microbial interaction. **M226A.** Bacterial and Mycotic Infections; **M226B.** Parasitic and Viral Infections.

228. Prokaryotic and Eukaryotic Gene Systems. (2) Presentations concerning current experimental approaches in study of DNA replication, organization, transcription, and translation.

M229. Cellular Biology of Host/Pathogen Interactions. (6) (Same as Microbiology M229 and Microbiology and Immunology M229.) Lecture, four hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and hosts.

M230B. 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.

M230D. 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.

CM233. Principles, Practices, and Policies in Biotechnology. (2) (Formerly numbered M233.) (Same as Biological Chemistry CM233, Biomedical Physics CM233, Chemical Engineering CM233, Chemistry CM233, Microbiology CM233, and Microbiology and Immunology CM233.) Lecture, three hours. Designed for graduate students. Life and physical sciences majors and students in the School of Law and Anderson Graduate School of Management may find course useful in career preparation. Presentation of technologies, regulatory practices, and policies required for product development and review of current opportunities for new technology development. Topics include fermentation processes, pilot and large-scale bioprocess technologies, scaleup strategies, industrial recombinant DNA processes, hybridomas, protein engineering, peptide mimetics and rational drug design, medical and microscopic imaging, and intellectual property issues. Concurrently scheduled with course CM133. S/U or letter grading.

M234. Genetic Control of Development. (4) (Formerly numbered Biology 234.) (Same as Biological Chemistry M234.) 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.

M237. Introduction to Cellular Physiology and Biophysics. (6) (Same as Physiological Science M212 and Physiology M212.) Lecture, five hours. Requisite: Physiological Science 111A or Physiology M209A. Development of fundamental physiological and biophysical concepts associated with all membranes, membrane channels and transporters, membrane potential, membrane excitability, electrical signal transmission and transduction, and muscle contraction and their application to study of basic cellular processes. Emphasis in laboratory on development of skills using computer programming languages, spreadsheets, and graphics for modeling and analysis of cellular processes.

C239. Molecular Basis of Plant Differentiation and Development. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of a 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.

M240. Cytokines and Reproductive Biology. (2) (Same as Microbiology M240 and Microbiology and Immunology M240.) Lecture, 90 minutes; discussion, one hour. Overview of current progress on research in cytokines and other immune system molecules in reproductive biology. S/U or 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.

M246. Computer Analysis of Genetic Organization. (4) (Same as Microbiology M246 and Microbiology and Immunology M246.) Lecture, two hours; laboratory, six hours. Requisite: Life Sciences 4 or Microbiology C159. Lectures and laboratory instruction in contemporary procedures for analysis of nucleic acid and protein sequence data with the computer. No prior computer experience necessary; students gain both general and specialized facility with IBM PC and Digital VAX computers.

CM248. Molecular Genetics. (6) (Formerly numbered Biology CM248.) (Same as Biological Chemistry CM248, Human Genetics CM248, and Microbiology M248.) Lecture, five hours. Requisite: Biological Chemistry CM153G or Chemistry CM153G. Basic concepts in modern genetics, with examples from both eukaryotic and prokaryotic systems. Emphasis on use of genetic techniques for addressing fundamental questions in cellular biochemistry. Topics include mutagenesis, repair, recombination, transposition, genetic regulation, developmental genetics, neurogenetics, and immunogenetics. Concurrently scheduled with course CM178. Letter grading.

C250. Plant Chemical and Molecular Communication. (4) Lecture, three hours; discussion, one hour. Designed for graduate students. 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.

CM252. Biological Catalysis. (4) (Same as Biological Chemistry M255, Chemistry CM255, and Pharmacology M255.) Requisites: course 100 or C139 or M140, Chemistry 110A, 153A, 153B, Life Sciences 3. Reaction mechanisms in molecular biology; experimental approaches for study of enzymes, including kinetics, isotopic labeling, stereochemistry, chemical modification, and spectroscopy; design of pharmacologically active agents and artificial enzymes. Drug metabolism and interactions addressed on a mechanistic level. Concurrently scheduled with course CM160. Graduate students required to write research paper and present oral report on it.

254. Seminar: Plant Morphogenesis. (2) Seminar, two hours. S/U or letter grading.

255. RNA Editing. (4) Lecture, two hours; discussion, one hour. Preparation: knowledge of molecular biology and molecular genetics. 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.

CM256. Human Genetics. (4) (Same as Human Genetics CM256 and Microbiology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Strongly recommended: course 100 or C139 or M140. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the 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.

257A. Gene Manipulation: Genetic Engineering. (4) (Formerly numbered Biology 257A.) Lecture, three hours; discussion, two hours. Requisite: course 138. Survey of methods and applications of recombinant DNA research as applied to both basic scientific research and the biotechnology industry.

257B. Gene Manipulation: Advanced Course. (2) Lecture, 90 minutes; discussion, one hour. Requisite: course 157 or 257A. Additional topics in methods and applications of recombinant DNA research as applied to both basic scientific research and the biotechnology industry. S/U or letter grading.

CM261. Molecular and Cellular Immunology. (6) (Formerly numbered Biology CM261.) (Same as Microbiology M261 and Microbiology and Immunology M261.) Lecture, four and one-half hours; discussion, 90 minutes. Requisite: Biological Chemistry CM253. Comprehensive course for graduate students and selected undergraduates covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented with discussion section focusing on reading and analysis of primary research articles. Concurrently scheduled with course C180. Oral presentation required of graduate students. S/U or letter grading.

M266A-M266B-M266C. Seminars: Molecular Embryology. (2-2-2) (Same as Biological Chemistry M266A-M266B-M266C.) Advanced course in developmental genetics and biochemistry, with emphasis on early development. Intended mostly for students actively working or highly interested in embryology. S/U grading.

CM268. Molecular Parasitology. (4) (Same as Microbiology CM268 and Microbiology and Immunology M268.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites which interact with a 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. Concurrently scheduled with course CM168. Letter grading.

276. Seminar: Molecular Genetics. (2) Topics vary each term.

277. Seminar: Genetics. (2) Seminar, two hours. S/U or letter grading.

278. Seminar: Molecular Genetics of Development. (2) 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.

CM279. Molecular Biology of Animal Viruses. (4) (Same as Microbiology and Immunology M208.) Lecture, three hours. Preparation: courses in general biochemistry and general microbiology, including virology. Recommended for advanced undergraduate students with a major in public health, biology, or microbiology and for graduate students with interest in any field of biology or chemistry. Overview of animal viruses, including viral structure, virus cell interaction, virus replication, and viral oncogenesis. Special emphasis on understanding the molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host. Concurrently scheduled with course C177.

281. Seminar: Molecular Biology. (2) Seminar, two hours. S/U or letter grading.

283. Seminar: Topics in Cell Biology. (2) 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.

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.

CM285. Intermediate Immunology. (4) (Formerly numbered Biology CM285.) (Same as Microbiology CM285 and Microbiology and Immunology M285.) Lecture, three hours; discussion, one hour. Prerequisite: course C180 or M185A. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM185B.

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) (Formerly numbered Biology 289.) Discussion, one hour. Recent research developments in the field of plant molecular biology. Opportunities for graduate students to discuss individual research work. S/U grading.

292. Seminar: Molecular Evolution. (2) Discussion, three hours. Detailed analysis of current understanding of evolution of molecular sequences and structures.

296. Advanced Topics in Molecular, Cellular, and Developmental Biology. (2) (Formerly numbered Biology 296A.) 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) 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.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Preparation for Teaching Molecular, Cell, and Developmental Biology in Higher Education. (2) 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) S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

598. M.A. Thesis Research and Writing. (2 to 12) S/U grading.

599. Ph.D. Dissertation Research and Writing. (2 to 12) S/U grading.

Gary G. Gray, M.M.
Thomas F. Harmon, Ph.D.
Mark Kaplan, B.A.
D. Thomas Lee, D.M.A.
Vitaly Margulis, M.M.
Donald Neuen, M.A.
Walter Ponce, Ph.D.
Paul V. Reale, Ph.D.
Jon Robertson, D.M.A.
Robert S. Winter, Ph.D.

Professors Emeriti

Elaine R. Barkin, Ph.D.
Paul E. Des Marais, M.A.
Maurice Gerow, Ph.D.
Frederick F. Hammond, Ph.D.
Henri Lazarof, M.F.A.
Paul O. Tanner
Roy E. Travis, M.A.

Associate Professors

Tom Beghin, Ph.D.
Juliana Gondek, M.M.
Ian Krouse, D.M.A.
Timothy Mussard, D.M.A.

Assistant Professors

Frank Heuser, D.M.A.
David Lefkowitz, Ph.D.

Senior Lecturers

John L. Hall, M.M.
Gordon Henderson, M.M.E.
Maureen D. Hooper, Ed.D., *Emerita*
Bess Karp, M.A., *Emerita*
Sameel Krachmalnick, *Emeritus*
Sheridon W. Stokes

Lecturers

Judith Hansen
Lou Anne Neill, M.A.
Mitchell T. Peters, M.M.
Paul Zibits, M.M.

Adjunct Professor

John Johnson

Adjunct Associate Professors

William Booth, M.M.
Richard Todd, B.M.

Adjunct Assistant Professors

Charles Coker, M.M.
Evan Wilson
Peter Yates

Visiting Associate Professors

Gary Foster, M.M.
Robert Karon
Calvin Price
William Vendice

Visiting Assistant Professors

Barry Gold, M.M.
Marion Kuszyk

based on a core curriculum of theory, history, analysis, and individual and group performance. Given in the context of a liberal education, this provides a foundation for an academic or professional career and affords valuable cultural background.

At the graduate level, specialized studies leading to the degrees of Master of Arts and Doctor of Philosophy are offered in composition; specialized studies leading to the degrees of Master of Music and Doctor of Musical Arts are offered in all classical solo instruments, voice, and conducting.

Undergraduate Study

Music B.A.

Admission

All applicants for admission and change of major are required to pass an audition in their principal performing medium.

Preparation for the Major

Required: Music 20A, 20B, 20C, 12 units from courses 60A through 65, two years (12 units) of performance organizations (courses C90A through 90N) for a letter grade, Music History 26A-26B-26C. Students taking string, woodwind, brass, or percussion lessons must select from Music C90E, 90F, C90G, 90M (Fall Quarter only), or 90N; students taking vocal lessons must select from C90A, 90D, 90J, 90K, or 90L; students taking keyboard or guitar lessons may choose from C90A through 90N. Students must participate in a minimum of two different organizations over the course of their stay at UCLA. In addition, they are required to take one college year — or at least one course at level three — of French, German, Italian, or Spanish, which may be used to fulfill the school language requirement.

The Major

Required (for all concentrations except composition and jazz studies): A minimum of 48 upper division units, including Music 120A, 120B, 120C, Music History 126A-126B-126C, and six courses selected from one of the concentrations listed below.

Composition: A minimum of 65 upper division units, including Music 104A or 104B, 106A, 106B, 116, 120A, 120B, 120C (accelerated sections), 123A-123B-123C, 124A or 124B or 124C, C176, and at least eight elective units selected from courses 101, 104A or 104B (if not already taken), 117, 118A, 118B, additional terms of 123A-123B-123C, 124A or 124B or 124C (if not already taken), 156, 199, Ethnomusicology 117, 128, 130, 136A, 136B, 146, C156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 181. A senior recital, to include at least 30 minutes of original music, is also required (exceptions by petition only).

Music Education: Music 100A-100B-100C, 116, 117, eight units from courses 115A through 115E. Students are encouraged to take additional coursework from 112A, 112B, 118A,

Scope and Objectives

Students interested in a concentration in music history and literature should consider the majors in Music History and Musicology offered through the College of Letters and Science; those interested in a concentration in world music should consider the major in Ethnomusicology offered through the School of the Arts and Architecture.

The four-year Bachelor of Arts curriculum in Music is a classically oriented, balanced program of practical, theoretical, and historical studies, with related performance and academic studies in non-Western music. The major, designed for students who want to combine fine musicianship with academic excellence, is

MUSIC

School of the Arts and Architecture

UCLA
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Box 951616
Los Angeles, CA 90095-1616
(310) 825-4761
<http://www.music.ucla.edu/>

Jon Robertson, D.M.A., *Chair*

Professors

Roger Bourland, Ph.D.
Kenneth Burrell, B.A.

118B, 199, Ethnomusicology 170, 172B, 174 as their schedules allow. They are required to enroll in the type of performance organizations (courses C90A through 90N; 90M may be used in Fall Quarter only) that they plan to teach. In addition, if they intend to teach instrumental music, they are encouraged to select three terms of choral organizations (courses C90A, 90B, 90C, 90J, or 90K); if they intend to teach general music, they are encouraged to elect three terms of ethnomusicology performance organizations (Ethnomusicology 91A-91Z).

Performance: Twelve units in performance instruction from Music 160A through 165 (including junior and senior recital requirements), four units of chamber ensembles (Music C175), four units of elective courses from 101, 106B, 112A, 112B, 116, 117, 118A, 118B, 151A, 151B, 199, Music History 127A through 127G, 130, 133, 134, 135A, 135B, 135C, 139, Ethnomusicology M108A, 108B, 120A, 120B, 121, 170, and one upper division elective course in music. During each term in which students take private lessons, they must participate in a performance organization for a letter grade. Students taking string, woodwind, brass, or percussion lessons must select from Music C90E, 90F, C90G, 90M (Fall Quarter only), or 90N; students taking vocal lessons must select from C90A, 90D, 90J, 90K, or 90L; students taking keyboard or guitar lessons may choose from C90A through 90N.

Theory: Music 120C and six courses selected in consultation with a faculty adviser.

Jazz Studies Concentration

Preparation for the Major

Required: Music 20A, 20B, 20C, 12 units from courses 60A through 65 or 12 units of course 71, two years (12 units) of performance organizations (courses C90A through 90N) for a letter grade, Music History 26A-26B-26C.

The Major

Required: Music 120A, 120B, 120C, M127, M129A-M129B-M129C, M186, 12 units of course M177, Ethnomusicology M110A, Music History 126A-126B-126C, 150.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Music offers the Master of Arts (M.A.) degree in Music and the Master of Music (M.M.) degree.

Admission

Applicants to the M.A. program or to the M.M. program must have completed a B.A. degree, or its equivalent, in Music. Other fields of study are accepted if applicants have the musical training and musicianship necessary to pursue graduate work. Transcripts must show at least 52 quarter units of work outside music, including one college year (or its high school equivalent) of French, German, Italian, or Spanish and an average grade of at least B in the basic areas that normally constitute the undergraduate core curriculum in music (harmony, counterpoint, music history, analysis, and musicianship).

Applicants to the M.A. program in Music are required to (1) take a departmental assessment examination; (2) submit a letter describing background of study and stating reasons for wishing to pursue graduate studies in music; (3) submit three letters of recommendation from former instructors and/or professionals with whom applicants have worked; and (4) submit written examples of work. For composition, musical scores of at least three compositions must be submitted.

No application can be considered until the assessment examination has been taken and all of the above materials have been received.

Applicants to the M.M. program are required to (1) submit a statement of purpose which also includes a description of their background of study and (2) submit three letters of recommendation from former instructors and or/professionals with whom the applicants have worked and perform an audition. A repertoire list, summary of recent performances, and sample recital programs are also required.

No new applicants are being accepted into the M.F.A. program. Those currently active in the program will be allowed to finish within a reasonable amount of time.

Admission Timetable

Note: Applicants for fellowships must take the early examination; all monies are awarded at that time.

December 30 — Application for admission/fellowship is due.

January 30 — Supplementary application materials are due.

End of January — Assessment examination/audition is administered.

March 1 — Late applications are accepted until March 1 for the M.A. and Ph.D. only.

By March 15 — Notice of acceptance or denial is sent.

April 1 — Supplementary application materials are due for late applications.

Early April — Assessment examination is administered.

By May 15 — Notice of acceptance or denial is sent.

Failure to meet any deadline may result in a delay in action or no action on an application for admission, as well as that for a fellowship or assistantship.

Assessment Examination. The assessment examination for the M.A. is administered at Schoenberg Hall on the UCLA campus twice a year. Students who are applying from outside the Southern California area and find it impossible to take the examination on campus can make arrangements with the Student Services Office to take the examination in absentia before the dates listed above. Information is included in the applicant's packet.

The assessment examination is approximately five hours long and covers music theory, history and analysis, and musicianship skills.

The dossier and assessment examination are reviewed, along with those of other applicants, by each area to assess the applicant's potential as a graduate student in that field at UCLA.

Placement Examination. The placement examination, which is administered during the week before classes start in Fall Quarter, is required of all new M.M. students and covers theory, musicianship skills, and music history. Those who do not pass any portion are required to do remedial work which must be completed by the end of the first year.

Areas of Study

The Music Department offers the Master of Arts degree in the field of composition and the Master of Music degree in all classical solo instruments, voice, and conducting. Degrees in historical musicology, ethnomusicology, and systematic musicology are offered through other departments. As noted above, the Master of Fine Arts degree in performance practices is being phased out.

Course Requirements

Master of Arts

Students are required to complete a minimum of nine courses, five of which must be at the 200 level. Only four units of Music 596A, 596C, or 596D and four units of 597 or 598 may be applied toward the total course requirement. No more than four units of all types of 500-series courses may be applied toward the minimum graduate course requirement. Upper division courses that may be applied toward the minimum of nine courses include Music 109A, 109B, 109C, 112A, 112B, 116, 117, 118A, 118B, 151A, 151B, 156, C175 (four units only), Ethnomusicology 106A, 106B, 106C, 113, M126, 128, 130, 136A, 136B, 146, 147, C156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 173, M180, 181. Course 598 serves to guide the preparation of the thesis and should normally be taken during the last quarters of residence.

Required courses are Music 251A, 266A-266B; one course from Music 251B, 251C, 251D; Music 252A-252B-252C in sequence, with the option of substituting 596A for 252C; and two electives with the recommendation of

the graduate adviser. In addition to the thesis, students are expected to produce other works involving both instrumental and vocal music for both solo and ensemble forces. Furthermore, students are responsible for the campus presentation of one original work during each year of residency.

Master of Music

Students are required to complete a minimum of 68 units, 16 of which must be at the 200 level, 40 units at the 400 level, and six units at the 500 level. Sixty-four of these units are specified below. The remaining elective must be from 200-, 400-, or 500-series courses. Music 595A serves to guide the preparation of the master's recital and should normally be taken during the last quarter of residence. The department provides a maximum of six quarters of enrolled private instruction in performance. If students do not complete the degree within that period and wish to continue instruction, they must do so at their own expense on a noncredit basis.

Course requirements are as follows:

Instrumental/Vocal Performance. A core of Music 202, 203, 204; one course from Music 261A through 261F; five quarters of 400-level performance instruction; three quarters of 400-level performance organizations; two quarters of Music C485; one quarter of Music 401 and of 595A; and one additional course (selected with advisement) from Music 261A through 261F, C267, 270E, 270F, 271, 401, 596D, courses in pedagogy, Musicology 250A, 250B, 269, Ethnomusicology 271, 273, 275, 279. Keyboard specialists may substitute three additional quarters of Music C485 for the performance organization requirement.

Conducting. A core of Music 202, 203, 204; one course from Music 261A through 261F; five quarters of 400-level conducting instruction; three quarters of 400-level performance organizations; two quarters of Music C485; one quarter of Music 401 and of 595A; and one additional course (selected with advisement) from Music 261A through 261F, C267, 270E, 270F, 271, 401, 596D, courses in pedagogy, Musicology 250A, 250B, 269, Ethnomusicology 271, 273, 275, 279. Conducting students may substitute two additional quarters of 400-level performance organizations for the Music C485 requirement.

Master of Fine Arts

Students are required to complete a minimum of 18 courses, including at least six at the 200 level and six or more in the 400 series. Only four units of Music 596A, 596C, or 596D and eight units of Music 598 may be applied toward the total course requirement. No more than four units of all types of 500-series courses may be applied toward the minimum graduate course requirement. The minimum residence requirement for the M.F.A. is two years. The degree is normally completed in three years.

Course requirements are as follows: Musicology 200A; two quarters of Music 261A through

261F; six quarters of 400-level performance instruction; two quarters (eight units) of Music 598; and seven electives. If students are in the conducting specialty, they declare either a choral or instrumental specialization. Six quarters of Music 475 are required in the area of specialization and at least two in the other area. (On a two-year program, the ratio would be four to one.) Recommended electives include Music C175 (four units only) 596A, 596C, 596D, Ethnomusicology 170, and additional courses from the 200 and 400 series. Music 598 serves to guide the preparation of the final project and should normally be taken during the last two terms of residence.

Performance Requirements. Each year students must complete a solo recital on campus (preferably a noon concert) with a faculty committee in attendance to evaluate the performance. Except for the first-year recital, students are to write the program notes for the annual performance project. These must be submitted with the program to the graduate adviser in performance practices at least one month before the concert date. If students are in the conducting specialty, they present a program, or a substantial portion thereof, approved by the conducting faculty, either on or off campus.

Comprehensive Examination Plan

Master of Arts

None.

Master of Music

After students have completed the core seminars and three quarters of performance/conducting instruction, and after verification from the graduate adviser that the requirements have been met, a master's committee for the final year is formed. The committee consists of the student's master teacher and two other Music Department faculty in related areas of instruction. Two of the three committee members must be full-time Academic Senate faculty. The committee oversees the preparation of the recital and adjudicates the recital itself.

Master's Recital. Students present a final master's recital. During the final year of residence and after completion of the major coursework, students perform for their committee for its approval. The committee decides whether the student qualifies for the presentation of the master's recital. No recital takes place until it has been approved by the committee. An audio tape of the recital is archived in the Music Library.

Master of Fine Arts

Final Project. A final project is to be completed during the last year of residence. A solo recital and appropriate scholarly paper are required in all areas. In addition, a major operatic performance is required in the area of opera. Students in conducting present an on-campus program, or a substantial portion thereof, with one of the department's performance organizations. The scholarly paper should be equivalent to a graduate seminar paper (15 to 25

pages in length) and should be concerned with performance problems which can be elucidated through research and analysis. Students decide the topic for the final project in consultation with their committee chair, who is responsible for supervising the work. Pieces from or related to the study are to be included in the final recital. Both the paper and the recital are evaluated by the committee.

A completed draft of the scholarly paper must be submitted to the committee members by the first day of classes of the quarter in which the final recital has been scheduled. If this requirement is not met, the recital is postponed until the next regular academic quarter in which this requirement can be met.

Students must provide concise, well-written program notes and include a brief biography. These should be submitted to the graduate adviser in performance practices for approval at least one month prior to the final recital. Publicity information for the final recital must be submitted to the graduate adviser at the beginning of the previous quarter.

The final version of the scholarly paper, with the accompanying recital program, must be submitted in the format of a thesis. (Students should contact the theses and dissertations adviser, 390 Powell Library, for information and the Student Services Office for information specific to the M.F.A. program.) The final paper, signed by all M.F.A. committee members, must be submitted in duplicate (two thesis-quality photocopies or the original and one photocopy) to the Student Services Office by the last day of classes in the quarter in which the student is to graduate.

The language requirement and a majority of the coursework must be completed before submitting the final project proposal and request for an M.F.A. committee. The proposal, which is to include the complete recital program and an abstract of the scholarly paper, should be submitted at the beginning of the Fall Quarter of the last year of residence. It is approved by the graduate committee for performance.

Thesis Plan

Master of Arts

The thesis is a work proposed by the student and approved by the composition and theory faculty. The thesis topic and composition of the committee are approved by the faculty before nomination to the Graduate Division.

Master of Music

None.

Master of Fine Arts

None.

Doctoral Degrees

Admission

Applicants to the program leading to the Doctor or Philosophy (Ph.D.) degree in Music must have completed a Master of Arts degree in Music (or the equivalent degree). The degree nor-

mally will have been taken in the same field of concentration as the proposed doctorate. If applicants wish to obtain a doctorate in a field other than that of the M.A., additional coursework, as prescribed by the area, must be completed. Applicants are required to (1) take a departmental assessment examination; (2) submit a letter describing background of study and stating reasons for wishing to pursue graduate studies in music; (3) submit three letters of recommendation from former instructors and/or professionals with whom the applicant has worked; and (4) submit written examples of work. For composition, musical scores of at least three compositions are required. Applicants should submit their M.A. thesis or composition, if possible.

Applicants to the program leading to the Doctor of Musical Arts (D.M.A.) degree are required to (1) submit a statement of purpose which also includes a description of their background of study; (2) submit three letters of recommendation from former instructors and/or professionals with whom the applicants have worked (for the D.M.A. the Music Department is especially interested to hear from persons who can speak to the applicant's academic potential); (3) submit a sample seminar or research paper; and (4) perform an audition. A repertoire list, summary of recent performances, and sample recital programs are also required.

No application can be considered until the assessment examination or audition has been taken and all of the required materials have been received.

Admission Timetable

Note: Applicants for fellowships must take the early examination; all monies are awarded at that time.

December 30 — Application for admission/fellowship is due.

January 30 — Supplementary application materials are due.

End of January — Assessment examination/audition is administered.

March 1 — Late applications are accepted until March 1 for the M.A. and Ph.D. only.

By March 15 — Notice of acceptance or denial is sent.

April 1 — Supplementary application materials are due for late applications.

Early April — Assessment examination is administered.

By May 15 — Notice of acceptance or denial is sent.

Failure to meet any deadline may result in a delay in action or no action on an application for admission, as well as that for a fellowship or assistantship.

Assessment Examination. The assessment examination for the Ph.D. is administered at Schoenberg Hall on the UCLA campus twice a

year. Students who are applying from outside the Southern California area and find it impossible to take the examination on campus can make arrangements with the Student Services Office to take the examination in absentia before the dates listed above. Information is included in the applicant's packet.

The assessment examination is approximately five hours long and covers music theory, history and analysis, and musicianship skills.

The dossier and assessment examination are reviewed, along with those of other applicants, by area to assess the applicant's potential as a graduate student in that field at UCLA.

Placement Examination. The placement examination, which is administered during the week before classes start in Fall Quarter, is required of all new D.M.A. students and covers theory, musicianship skills, and music history. Those who do not pass any portion are required to do remedial work which must be completed by the end of the first year.

Major Fields or Subdisciplines

The Music Department offers the degrees of Doctor of Philosophy in the field of composition; Doctor of Philosophy in the field of composition with a cognate in ethnomusicology; and Doctor of Musical Arts in all classical solo instruments, voice, and conducting. Degrees in historical musicology, ethnomusicology, and systematic musicology are offered through other departments.

Course Requirements

Doctor of Philosophy

Students may petition to their area on the advice of their graduate adviser for exemption from specific requirements on the basis of equivalent work done at the M.A. level. If students are in the program in composition with the cognate in ethnomusicology and have had no prior coursework in ethnomusicology, they are required to take Ethnomusicology 20A-20B-20C. They are also encouraged to participate in the ethnomusicology performance organizations (Ethnomusicology 91A through 91Z).

Students may complete the residence requirement by electing courses recommended by the graduate adviser from the 200- or 100-level courses listed under the course requirements for the M.A. degree.

Required courses for the Ph.D. are Musicology 200A; Music 251A, 266A-266B; one course from 251B, 251C, 251D; and six quarters of Music 252A-252B-252C in sequence, with the option of substituting Music 596A for 252C. Students who have received the M.A. in composition from UCLA normally take a minimum of three quarters of Music 252 in the Ph.D. program.

Students who have received the M.A. in composition elsewhere normally take two full cycles of Music 252A-252B-252C in sequence, with the option of substituting Music 596A for either or both 252Cs. In addition to the dissertation, students are expected to produce other

works involving both instrumental and vocal music for both solo and ensemble forces. Furthermore, students are responsible for the campus presentation of one original work during each year of residency.

Cognate in Ethnomusicology. Students may substitute Ethnomusicology C201A for Musicology 200A and Ethnomusicology 282 or 283 for Music 251B through 251D. Students are required to take two courses from Ethnomusicology 207, M211, 237, 240, 241, 248A, 248B, 250A, 250B.

Doctor of Musical Arts

Students are required to complete a minimum of 102 units, 28 of which must be at the 200 level, 60 units at the 400 level, and 10 units at the 500 level. Ninety-eight of these units are specified below. The elective must be from 200-, 400-, or 500-series courses. Music 599 serves to guide the preparation of the dissertation and should normally be taken during the final year of residence. Students who received the M.M. at UCLA are expected to complete at least 32 additional units and two recitals beyond the M.M. requirements, subject to the specific requirements of their area of specialization. The department provides a maximum of nine quarters of enrolled private instruction in performance. Students who were admitted to the program with a master's degree from another institution may petition for up to a year of private lessons (18 units) and 12 units of academic courses to be applied to D.M.A. requirements.

The requirements for the D.M.A. are below.

Instrumental/Vocal Performance. A core of Music 202, 203, 204; three courses from Music 261A through 261F, 271; eight quarters of 400-level performance instruction; three quarters of Music C485; one quarter of Music 401, 595B, and 599; the appropriate course from Music 469, 471, 473, 474, 476, 477; one additional course from Music 261A through 261F, C267, 270E, 270F, 271, 596D, additional courses in pedagogy, Musicology 250A, 250B, 269, Ethnomusicology 271, 273, 275, 279.

Conducting. A core of Music 202, 203, 204; three courses from Music 261A through 261F, 271; eight quarters of 400-level conducting instruction; three quarters of 400-level chamber ensembles; one quarter of Music 401, 595B, and 599; one course from Music 469, 471, 473, 474, 476, 477; one additional course from Music 261A through 261F, C267, 270E, 270F, 271, 596D, courses in pedagogy, Musicology 250A, 250B, 269, Ethnomusicology 271, 273, 275, 279. Conducting students may substitute three quarters of 400-level performance organizations for the Music C485 requirement.

Written and Oral Qualifying Examinations

Doctor of Philosophy

When the student and the committee feel the student is ready to take the qualifying examinations, the student should submit a schedule to the Student Services Office and the committee

members listing the order in which the examinations are to be taken. The Student Services Office staff acts as proctor for the tests. Normally the six written examinations are spread over a two-week period but should be completed within three weeks. Repeat examinations may be scheduled in consultation with the guidance committee and after a stipulated period of time. On successful completion of the written examinations, a departmental oral qualifying examination is scheduled.

The written examinations consist of the following:

- (1) Style composition: composition of a short piece in the style of a particular period, genre, or composer as posed by the examiner (within a 24-hour period, optionally either on or off campus).
- (2) General history of music (three hours).
- (3) Analysis of form and style (three hours).
- (4) Two or more from the following (four hours total): acoustics, aesthetics, psychology of music, ethnomusicology, or music theory from the medieval period to the present, with an optional emphasis on theoretical writings before or after 1700.
- (5) Twentieth-century music (three hours).

Students with a cognate in ethnomusicology may substitute an ethnomusicology area for item 2 and in lieu of items 3 and 4, may choose any three of the following (two hours each): acoustics, aesthetics, music theory, form and analysis, general history of music, or organology.

On completion of the written and oral qualifying examinations and the second language, students may submit the dissertation topic and request for a doctoral committee, for approval. The dissertation topic and the composition of the doctoral committee are approved by the faculty before nomination to the Graduate Division.

For students with a cognate in ethnomusicology, the composition (item 1) should reflect the ethnomusicological area interests of the student and draw from a variety of traditional, classical, Western, and/or non-Western sources; a public reading of this composition is required. The monograph should deal with a cross-cultural 20th-century work.

Doctor of Musical Arts

Two preliminary recitals are required to be adjudicated by the Music Department M.M./D.M.A. Committee.

Two sets of qualifying examinations are required. The written examinations cover material in the three-quarter core sequence of Music 202, 203, 204, one of the performance practice seminars, and the appropriate pedagogy course. The second examination is the defense of the final recital repertoire dissertation topic with the doctoral committee (University Oral Qualifying Examination—see below).

The second-year entrepreneurial recital is an individual project in public performance outside

the UCLA campus. All scheduling, publicity, program notes, and ticketing must be arranged by the student without assistance from the supervising instructor. After that recital and the written qualifying examinations have been passed and the foreign language requirement has been met, students may submit the request for a doctoral committee.

A minimum of three months before the final doctoral recital (which is a full professional recital of approximately 90 minutes duration), students take the second examination, the University Oral Qualifying Examination. This consists of the student's performance of a major portion of the works on the program (including the new music forum premiere work) and includes a defense of the recital repertoire, the dissertation topic, and its relationship to the final recital.

Music

Lower Division Courses

1A-1B. Fundamentals of Music. (4-4) Lecture, three hours; discussion, two hours. Designed for non-music majors. **1A.** Introduction to elements of music: pitch and rhythm symbols, meter and time signatures, notation, scales, intervals, and chord structure. **1B.** Requisite: course 1A. Diatonic harmony; four-part writing, including inversions, sevenths, secondary dominants, and modulation; organization of melody and accompaniment; simple analysis; sight-singing and ear training.

3A-3B. Preparatory Theory for Music Majors. (2-2) Lecture, two hours; discussion, one hour. Limited to Music majors. Course 3A is not open for credit to students with credit for course 1A; course 3B is not open for credit to students with credit for course 1B. Course for Music majors in music fundamentals, including musicianship, theory, and terminology.

4A-4B-4C. Basic Musicianship. (2-2-2) Laboratory, three hours. Class instruction in elementary ear training and keyboard skills.

8G. Graduate Piano Sight-Reading. (2) Limited to graduate students. Designed to help entering graduate students remedy entrance deficiencies, to be cleared by examination. May be repeated. S/U grading.

10. Computer-Assisted Sight-Singing Laboratory. (2) Lecture, two hours; laboratory, one hour. Requisite: course 1A. Individualized, self-instructional approach for development of sight-singing skills through use of a music computer, keyboard instrument, and linear program learning.

12A-12B. Counterpoint. (2-2) Lecture, four hours. **12A.** Preparation: music theory placement examinations. 16th-century modal counterpoint in two parts, including writing of motets. **12B.** Requisites: courses 20A, 20B, 20C. 18th-century tonal counterpoint in two parts, including writing of inventions.

15. Art of Listening. (4) Lecture, three hours; laboratory, one hour. 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.

20A. Music Theory I. (4) Lecture, two hours; discussion, six hours. Preparation: passing score on departmental examination. Theory: species counterpoint through fifth species; description of triads and inversions. Musicianship: interval recognition; fixed-do solfège of diatonic melodies; one-part dictation of diatonic melodies; two-part dictation of small-compass, note-against-note melodies; simple rhythmic dictation; use of treble, alto, and bass clefs.

20B. Music Theory II. (4) Lecture, four hours; discussion, four hours. Requisite: course 20A (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. Musicianship: harmonic dictation, including secondary dominants and diminished sevenths, but not modulations; more advanced two-part dictation; chromatic one-part dictation; more advanced sight-singing; keyboard (three-part open score in homophonic textures, introduction to tenor clef).

20C. Music Theory III. (4) Lecture, four hours; discussion, four hours. Requisite: course 20B (C or better). Theory: chromatic harmony including development of tonality, 1800 to 1850; appropriate analysis and style composition. Musicianship: advanced sight-singing; two-part contrapuntal dictation; keyboard harmony (harmonic sequences in major and minor keys); reading in open score of four homophonic parts in four clefs.

23. Composition Workshop. (2) Requisites: courses 20A, 20B, 20C. Introductory composition course which provides compositional experiences at a basic level. May be repeated once for credit.

60A-65. Undergraduate Instruction in Performance. (2 each) Limited to Music majors (all freshman/sophomore majors, and junior/senior majors not in performance specialization). Individual instruction of one hour per week. Students must perform in a practicum once 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 credit. **60A.** Violin; **60B.** Viola; **60C.** Cello; **60D.** String Bass; **60E.** Harp; **60F.** Classical Guitar; **60G.** Viola da gamba; **60K.** Lute; **61A.** Flute; **61B.** Oboe; **61C.** Clarinet; **61D.** Bassoon; **61E.** Saxophone; **62A.** Trumpet; **62B.** French Horn; **62C.** Trombone; **62D.** Tuba; **63.** Percussion. **64A.** Piano; **64B.** Organ; **64C.** Harpsichord; **65.** Voice.

71. Instruction in Jazz Performance. (2) Laboratory, one hour. Study of jazz repertoire and techniques for specific instruments and voice. May be repeated for a maximum of 12 units.

C90A. UCLA Chorale. (2) Activity, four hours. Preparation: audition. Select mixed ensemble of 50 to 60 voices performing choral music appropriate for a concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C480. P/NP or letter grading.

90B. Collegiate Chorus. (2) Nonaudition mixed chorus of 50 to 150 voices performing medium- and concert-length choral works from baroque to the present. Collegiate Chorus performs only as part of "Choral Union," a large chorus made up of all of the choral ensembles. May be repeated for credit without limitation. P/NP or letter grading.

90C. Chamber Singers. (2) Activity, three hours. Preparation: audition. Select mixed ensemble of 16 to 20 voices performing chamber choral music of all periods, with emphasis on Renaissance and baroque music. May be repeated for credit without limitation. P/NP or letter grading.

90D. 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. P/NP or letter grading.

C90E. Symphony Orchestra. (2) Activity, four hours. Preparation: audition. Group performance of symphonic 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 C481. P/NP or letter grading.

90F. Symphonic Band. (2) Preparation: audition. Group performance of instrumental music scored for band. May be repeated for credit without limitation. P/NP or letter grading.

C90G. Wind Ensemble. (2) Activity, four hours. Preparation: audition. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C482. P/NP or letter grading.

90H. Collegium Musicum. (2) Activity, three hours. Preparation: audition. Group performance of vocal and instrumental music of medieval, Renaissance, and baroque eras on period instruments. May be repeated for credit without limitation. P/NP or letter grading.

90J. Men's Glee Club. (2) Activity, three hours. Preparation: audition. Select male chorus of 40 to 45 voices performing male choral music of all periods, with emphasis on popular and folk arrangements. May be repeated for credit without limitation. P/NP or letter grading.

90K. Women's Chorus. (2) Activity, three hours. Preparation: audition. Select female chorus of 45 to 55 voices performing treble choral music of all periods, with emphasis on music after 1750. May be repeated for credit without limitation. P/NP or letter grading.

90L. Music Theater Workshop. (2) Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete musical theater productions, including repertoire and stage movement coaching. May be repeated for credit without limitation. P/NP or letter grading.

90M. Marching and Varsity Bands. (2) Activity, four 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.

90N. Jazz Ensemble. (2) Activity, three hours. Preparation: audition. Group performance of jazz and popular music in ensembles of 20 to 30 instruments. May be repeated for credit without limitation. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Music in American Education. (4-4-4) Lecture, four hours; laboratory, one hour. Requisites: courses 20A, 20B, 20C, 116, 120A, 120B, 120C, Music History 26A-26B-26C. Critical study and analysis of philosophy, history, organization, curriculum, and literature of music programs for elementary and secondary schools in American education. Each course may be taken independently for credit. **100A.** General Music; **100B.** Choral Music; **100C.** Instrumental Music.

101. Advanced Keyboard Harmony and Score Reading. (4) Requisite: course 120B. Intensive individual work in keyboard harmony and reading of chamber and orchestral scores. May be repeated once for credit.

102. Instrumentation. (4) Lecture, three hours. Requisite: course 120B with a grade of C (2.0) or better. Not open for credit to students with credit for course 106A. Designed for music majors in specializations other than composition. Ranges and characteristics of instruments, exercises in scoring.

104A. Modal Counterpoint. (3) Lecture, three hours. Requisite: course 120C (accelerated section). In-depth exploration of styles and techniques of counterpoint of 15th and 16th centuries through writing and analysis of important forms of the 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. Requisite: course 120C (accelerated section). 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.

105. Introduction to Composition. (4) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Designed for Music majors in specializations other than composition. Nature of compositional process, with selected exercises in specific techniques and styles.

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.

109A-109B-109C. Composition for Motion Pictures and Television. (2-2-2) Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Course 109A is requisite to 109B, which is requisite to 109C. Composition of music for dramatic and documentary film in cinema and television. Techniques used in recording and editing.

112A-112B. Practical Scoring. (4-4) Lecture, two hours; laboratory, two hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C, Music History 26A-26B-26C. Emphasis on practical problems in scoring for small and large ensembles at various educational levels. **112A.** Band Scoring; **112B.** Choral Scoring.

113A-113B. Music Literature for Children. (4-4) Lecture, three hours; laboratory, one hour. Requisites: course 1A, Music History 2A. Course 113A is not requisite to 113B. Designed for nonmusic majors, particularly elementary education students. Study of music literature applicable to elementary school programs. **113A.** Emphasis on listening analysis, movement, and improvisation. **113B.** Emphasis on class performance — music reading, singing, and folk instruments.

115A-115E. Study of Instrumental and Vocal Techniques (1 each) Laboratory, three hours. Requisite or corequisite: course 20A. Applied studies in basic performance techniques and tutorial materials. Each of courses 115A-115D may be repeated once for credit. **115A.** Strings; **115B.** Woodwinds; **115C.** Brass; **115D.** Percussion; **115E.** Voice.

116. Introduction to Conducting. (2) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A. Fundamentals of conducting, including basic skills, techniques, analysis, and repertoire.

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.

118A-118B. Advanced Study and Conducting of Choral and Instrumental Literature. (2-2) Lecture, one hour; laboratory, two hours. Requisites: courses 116, 117. Detailed investigation of musical styles, performance practices, and rehearsal techniques. Each course may be repeated once for credit. **118A.** Choral; **118B.** Instrumental.

120A. Music Theory IV. (4) Lecture, four hours; discussion, four hours. Preparation: passing score on departmental first-year examination. Requisite: course 20C with a grade of C (2.0) or better. Theory: baroque counterpoint including chorale prelude; two-part invention; exposition and first modulation of a 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.

120B. Music Theory V. (4) Lecture, four hours; discussion, four hours. Requisite: course 120A with a 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.

120C. Music Theory VI. (4) Lecture, four hours; discussion, two hours; listening, two hours. Requisite: course 120B with a grade of C (2.0) or better. 20th-century harmonic language, including nonfunctional harmony, polytonality, free atonality, serialism, and minimalism.

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.

C122. Speculative Music Theory. (4) Discussion, 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. May be concurrently scheduled with course C222.

123A-123B-123C. Composition. (4-4-4) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Course 123A is requisite to 123B, which is requisite to 123C. Designed for composition students. Vocal and instrumental composition in the smaller forms, including style composition and 20th-century techniques. Each course may be repeated once for credit, but first year must be taken in sequence.

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.

M127. Jazz Keyboard Harmony. (1) (Same as Ethnomusicology M127.) Laboratory, two hours. Study of jazz harmony through use of piano keyboard. Development of basic keyboard skills in order to manipulate essential chord voicings and harmonic passages in jazz music. Instruction in basic jazz theory.

M129A-M129B-M129C. Jazz Theory and Improvisation. (2-2-2) (Same as Ethnomusicology M129A-M129B-M129C.) Lecture, four hours. Elements of jazz theory and improvisation. **M129A.** Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisations. **M129B.** Requisite: course M129A with a grade of C or better. Medium-level jazz harmonic constructions. **M129C.** Requisite: course M129B with a grade of C or better. Advanced-level jazz harmonic constructions.

M131. Development of Latin Jazz. (4) (Same as Ethnomusicology 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.

136A-136B-136C. Historical Survey of Music Theater. (4-4-4) Lecture, four hours; discussion, one hour. Historical survey of major works from music theater, tracing development of the art form from its European beginning to the American music theater of today. P/NP or letter grading. **136A.** Early Forms to 1900; **136B.** 1900 to 1945; **136C.** 1945 to 1975.

150. Introduction to Music Criticism. (4) Lecture, three hours. Designed for Music majors. Readings and discussion of music criticism past and current, and exercise in the writing of criticism of live concert events and recordings. Designed to aid students (performers, critics, or listeners) in verbalizing the experience of listening to music.

151A-151B. History of Musical Performance Practices. (4-4) Requisites: courses 20A, 20B, 20C, 120A, 120B, Music History 26A-26B-26C. General survey of musical interpretation and re-creation from viewpoint of stylistic authenticity. **151A.** Medieval through Baroque; **151B.** Classic through 20th Century.

155. Audio Technology for Musicians. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 20A, 20B, 20C. Theory and practice of sound engineering in relation to concert and studio recording techniques.

156. Electronic Music: Theory and Techniques. (4) Lecture, three hours; laboratory, three hours. Requisites: courses 123A-123B-123C. Designed for composition students. Applicable acoustical and electronic theory, history of technological and compositional development of classical electronic music. Analysis, manipulation of analog and digital synthesizers and ancillary equipment, invention and realization of materials.

158. New Orleans Jazz. (4) Lecture, three hours; discussion, two hours. Major black and Creole figures in origin and development of jazz in New Orleans from turn of the 20th century through the 1960s, with emphasis on polycultural roots, local municipal traditions, and stylistic analysis.

160A-165. Undergraduate Instruction in Performance for the Performance Specialist. (2 each) Limited to junior/senior Music majors who have been accepted by audition into performance specialization. Individual instruction of one hour per week. Students must perform in a noon concert once during their junior year and must present a full recital in their senior year. Grades are assigned by applied instructor in Fall and Winter Quarters and by jury examination in Spring Quarter. May be repeated for credit. **160A.** Violin; **160B.** Viola; **160C.** Cello; **160D.** String Bass; **160E.** Harp; **160F.** Classical Guitar; **160G.** Viola da gamba; **160K.** Lute; **161A.** Flute; **161B.** Oboe; **161C.** Clarinet; **161D.** Bassoon; **161E.** Saxophone; **162A.** Trumpet; **162B.** French Horn; **162C.** Trombone; **162D.** Tuba; **163.** Percussion; **164A.** Piano; **164B.** Organ; **164C.** Harpsichord; **165.** Voice.

C167. Selected Topics in Keyboard Literature. (4) Lecture, three hours. Corequisite: course 164A or 164B or 164C. 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 concurrently scheduled with course C267.

174A-174B-174C. Language of Song. (2-2-2) Designed for Music majors. Sounds of the language as applied to singing, including use of International Phonetic Alphabet, translation of art song texts, and application to student's current vocal repertoire. Background in the language is encouraged. **174A.** German; **174B.** French; **174C.** Italian.

C175. Chamber Ensembles. (2) Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to the ensemble. Students may enroll in two sections per term; total of 12 units may be applied toward degree requirements. May be concurrently scheduled with course C485. P/NP or letter grading.

C176. Electronic Music Composition. (4) Lecture, three hours; studio, three hours. Preparation: advanced experience and accomplishment in serious composition (art music). Requisite: course 156. Limited enrollment. Analog and digital realizations of original compositional materials culminating in a composition at least five minutes in duration. May be concurrently scheduled with course C226.

M177. Jazz Combo. (2) (Same as Ethnomusicology M177.) Small group performance of various styles in ensembles of three to 10 musicians. May be repeated for a maximum of 12 units.

C185. Historical and Philosophical Foundations of Music Education. (4) Lecture, three hours. Preparation: completion of undergraduate music education specialization. Development of music education in the U.S. according to established schools of thought. May be concurrently scheduled with course C225.

M186. Senior Recital or Research Paper. (No credit) (Same as Ethnomusicology M186.) Preparation and performance of one-hour senior recital of jazz repertoire or preparation of a senior paper (topic and length to be approved by assigned adviser). P/NP grading.

199. Special Studies in Music. (2 or 4) Hours to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in music resulting in research project. May be repeated for a maximum of eight units.

Graduate Courses

202. Analysis for Performers. (4) Lecture, three 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.

203. Musical Terminology. (4) Lecture, three hours. Designed for graduate music students. Survey of musical terminology intended to clarify the performance and interpretation of vocal and instrumental music in the European tradition. Coverage of terms in Italian, French, and German.

204. Music Bibliography for Performers. (4) Lecture, three hours. Designed for graduate music performance students. Survey of general bibliographic techniques in music, with emphasis on materials for the performing musician.

C222. Speculative Music Theory. (4) Discussion, three hours. Designed for graduate music students. Techniques of tonal coherence studied through analysis and compositional exercises in styles of given periods. May be repeated once for credit. May be concurrently scheduled with course C122.

C225. Historical and Philosophical Foundations of Music Education. (4) Lecture, three hours. Designed for graduate students. Development of music education in the U.S. according to established schools of thought. May be concurrently scheduled with course C185. Additional assignments, as well as evidence of greater depth of study, required of graduate students.

C226. Electronic Music Composition. (4) Lecture, three hours; studio, three hours. Preparation: advanced experience and accomplishment in serious composition (art music). Requisite: course 156. Designed for graduate students. Limited enrollment. Analog and digital realizations of original compositional materials culminating in a composition of major proportions at least seven minutes in duration. May be concurrently scheduled with course C176.

251A-251D. Seminars: Special Topics in Composition and Theory. (4 each) Seminar, three hours. Intensive exploration of specialized aspects of composition. May be repeated for credit. **251A.** Orchestration; **251B.** Specific Media; **251C.** Specific Styles; **251D.** Compositional Analysis.

252A-252B-252C. Seminars: Composition. (6-6-6) Seminar, three hours. Requisites: courses 106B, 123C. Course 252A is requisite to 252B, which is requisite to 252C. Courses may be taken out of sequence only with consent of instructor. May be repeated for credit.

261A-261F. Problems in Performance Practices. (4 each) Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to the period; analytical reports and practical applications in class demonstrations. May be repeated for credit. S/U or letter grading. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary.

266A-266B. Seminars: Music of the 20th Century. (4-4) Seminar, three hours. Designed for graduate music students. Discussion and analysis of major works of the 20th century, with emphasis on study of groups of works written at the same time in history. **266A.** 1900 to 1949; **266B.** 1950 to the Present.

C267. Selected Topics in Keyboard Literature. (4) Lecture, three hours. Corequisite: course 464A or 464B or 464C. 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 concurrently scheduled with course C167.

270A-270G. Seminars: Music Education. (6-6) Seminar, three hours. May be repeated for credit. **270A.** History; **270B.** Non-Western Musics; **270C.** Curriculum Innovations; **270D.** Tests and Measurements; **270E.** Choral Literature; **270F.** Instrumental Literature; **270G.** General Topics.

271. Music and Electronic Technology. (4) Lecture, four hours; media laboratory, one hour. Designed for graduate music performance students. Survey of music and its place in emerging digital world of the arts, including training in arranging and multimedia production.

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.

S331A-S331B-S331C. Orff Schulwerk Training Courses. (4-4-4) Lecture, 10 hours; discussion, five hours; laboratory, 15 hours. Requisite: course 330. Course S331A is requisite to S331B, which is requisite to S331C. In-depth courses 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 the American Orff Schulwerk Association. Offered in summer only. S/U or letter grading. **S331A.** Level I (Beginning); **S331B.** Level II (Intermediate); **S331C.** Level III (Advanced).

S341. Conducting for High School and College Band/Wind Ensemble Teachers. (2) Lecture, 25 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 a band/wind ensemble program. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

S342. Contemporary Marching Band. (1) Lecture, 12 hours. Innovative approaches to marching band programs for high school and college teachers, including creative approaches to charging and drill design and use of microcomputers. May be repeated for credit without limitation. Offered in summer only. 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.

S345. Symposium on Art of Choral Music. (2) Lecture, 25 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. Offered in summer only. 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.

351. World Music in the Classroom: Implementation through Orff Schulwerk. (3) Lecture, 36 hours. From Orff Schulwerk perspective, presentation of current visual and aural materials from various world cultures and methods for teaching world musics in the classroom. Discussions of problems — practical and philosophical — of incorporating world musics into curriculum. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

370. Music in General Education. (2) Designed for Graduate School of Education and Information Studies teacher training program students (all music students must take course 370 concurrently with Education 100A, 100B, 112, 312, 315A, 315B, and supervised teaching). Critical discussions related to supervised teaching in progress. May be repeated twice for credit.

371. The Marching Band in Secondary Education. (2) Study of contemporary marching band as a component of the music curriculum in secondary education, including current approaches, practices, and problems associated with the marching band, as well as historical perspective. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

401. New Music Forum. (2) Tutorial/laboratory. Preparation: one year of graduate study in music at UCLA. Interactive course in preparation and performance of a premiere work especially composed for a graduate performer or performers by a graduate composer at UCLA.

460A-465. Graduate Instruction in Performance. (6 each) 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. **460A.** Violin; **460B.** Viola; **460C.** Cello; **460D.** String Bass; **460E.** Harp; **460F.** Classical Guitar; **460G.** Viola da gamba; **460K.** Lute; **461A.** Flute; **461B.** Oboe; **461C.** Clarinet; **461D.** Bassoon; **461E.** Saxophone; **462A.** Trumpet; **462B.** French Horn; **462C.** Trombone; **462D.** Tuba; **463.** Percussion; **464A.** Piano; **464B.** Organ; **464C.** Harpsichord; **464D.** Fortepiano; **465.** Voice.

469. Piano Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency on piano. Designed for graduate music students. Study of teaching techniques for individual and group instruction, including discussions of how to teach physical skills, musicianship, and interpretation, plus study of ideas and teachings of noted pedagogues of the past and present. Further emphasis on practical teaching experience in class.

470. Opera Studio for Graduate Students. (4) Laboratory, six hours. Designed for graduate students. Performance techniques and repertoire for graduate students in opera.

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 the vocal mechanism and its use, plus study of noted teachers of the past and present. Further emphasis on practical teaching experience in class.

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.

473. String Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency on a string instrument. Designed for graduate music students. Study of teaching techniques for string instruments, with main emphasis on instruments represented in class, including how to teach physical and musical aspects of playing. Study of various methods and theories of teaching, with emphasis on practical teaching experience in class.

474. Woodwind Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency on a woodwind instrument. Designed for graduate music students. Study of teaching techniques for woodwind instruments, with main emphasis on instruments represented in class, including development of tone quality, facility, and musicianship. Study of important teachers of the past and present, with emphasis on practical teaching experience in class.

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.

476. Brass Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency on a brass instrument. Designed for graduate music students. Study of teaching techniques for brass instruments, with main emphasis on instruments represented in class, including teaching of physical and musical aspects of playing. Study of successful brass performers and teachers, with emphasis on practical teaching experience in class.

477. Percussion Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency in percussion. Designed for graduate music students. Study of various methods of teaching the vast array of standard percussion instruments, including both classical and "popular" techniques. Study of successful percussion performers/teachers, with emphasis on practical teaching experience in class.

C480. UCLA Chorale. (2) Activity, four hours. Preparation: audition. Designed for M.M. and D.M.A. students. Select mixed ensemble of 50 to 60 voices performing choral music appropriate for a concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C90A.

C481. Symphony Orchestra. (2) Activity, four hours. Preparation: audition. Group performance of symphonic 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 C90E. S/U or letter grading.

C482. Wind Ensemble. (2) Activity, four hours. Preparation: audition. Designed for M.M. and D.M.A. students. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C90G.

C485. Chamber Ensembles. (2) Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to the ensemble. Students may enroll in two sections per term; total of 12 units may be applied toward degree requirements. May be concurrently scheduled with course C175. S/U or letter grading.

495. Introductory Practicum for Teaching Apprentices in Music. (2) Eight weekly two-hour 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.

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 D.M.A. degree. Intensive study and preparation of final D.M.A. 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, 4, or 6) Tutorial, to be arranged. Only four units may be applied toward M.A. or M.M. degree requirements. May be repeated for credit. S/U or letter grading.

596C. Directed Individual Studies in Music Education. (2, 4, or 6) Tutorial, to be arranged. Only four units may be applied toward M.A. or M.M. 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 four units may be applied toward M.A. or M.M. degree requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4) S/U grading.

598. Guidance of M.A. Thesis. (4, 8, or 12) Tutorial, to be arranged. Only four units may be applied toward degree requirements. May be repeated for credit. S/U grading.

599. Guidance of Ph.D. Dissertation. (4, 8, or 12) May be repeated for credit. S/U grading.

Related Courses

Folklore and Mythology

CM106. Anglo-American Folk Song

M243A. The Ballad

M243B. Problems in Ballad Scholarship.

World Arts and Cultures

C120. Music as Dance Accompaniment

221. Music for Dance

MUSICOLOGY

College of Letters and Science

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(310) 206-5187
<http://www.humnet.ucla.edu/humnet/musicology/index.html>

Robert Walser, Ph.D., *Chair*

Professors

Murray C. Bradshaw, Ph.D.
Malcolm S. Cole, Ph.D.
Marie Louise Göllner, Ph.D.
Susan K. McClary, Ph.D.

Professors Emeriti

Frank A. D'Accone, Ph.D.
Edwin H. Hanley, Ph.D.
Richard A. Hudson, Ph.D.
W. Thomas Marrocco, Ph.D.
Robert U. Nelson, Ph.D.
Gilbert Reaney, M.A.
Robert M. Stevenson, Ph.D.
Robert L. Tusler, Ph.D.

Associate Professors

Raymond L. Knapp, Ph.D.
Robert Walser, Ph.D.

Assistant Professors

Robert W. Fink, Ph.D.
Elisabeth C. LeGuin, Ph.D.
Mitchell B. Morris, Ph.D.

Scope and Objectives

The Department of Musicology provides students with a broad understanding of the history and literature of the music of Europe and the Americas and of its place in the development of Western culture. Courses cover virtually every period, style, and genre as well as particular areas of popular music and jazz which have influenced or been influenced by Western art music. Music history appeals to undergraduate students with musical backgrounds whose interests and principal career goals lie in areas other than professional performance. The graduate program provides students with a strong foundation that enables them to pursue careers in teaching and research.

The undergraduate program prepares students for graduate programs in music and related fields and provides them with sufficient background to teach in secondary schools after obtaining the necessary credentials in education. With its focused requirement of study in an area outside music, the program also offers training within the broader context of the humanities. Depending on their particular interests and career goals, students may select courses in the arts, literature, history and society, philosophy, and religion; these may be concentrated within such fields as Afro-American, American Indian, Asian American, Chicana and Chicano, and women's studies. If students wish to participate in performance at UCLA, they are encouraged to do so.

The graduate program offers courses leading to the M.A. and Ph.D. degrees. It is designed to equip students to pursue careers not only in teaching but also in other areas that require bibliographical skills and training in research methodologies. The department provides teaching and research assistantships each year for all qualified students.

Undergraduate Study

Music History B.A.

Admission

The Music History program assumes that students have some musical background before entering UCLA. Although auditions are not required, prospective majors should be sufficiently competent on an instrument or in voice to participate in a performance group, as required by the program.

Preparation for the Major

Required: Music 20A, 20B, 20C, Music History 26A-26B-26C, and six units (three terms) of performance organizations selected from Ethnomusicology 91A-91Z or Music C90A through 90M. Enrollment in Music 20A requires either a minimum score on the Music Theory Placement Examination administered by the Music Department or successful completion of Music 3A-3B (or a comparable year-long college-level music theory sequence). Students with limited musicianship skills may find it useful to enroll in Music 4A-4B-4C concurrently with Music 20A, 20B, 20C. Transfer applicants may petition to waive courses 20A, 20B, 20C if they have completed equivalent work prior to enrolling at UCLA.

The Major

Required: Music 120A, 120B, 120C, Music History 101, 126A-126B-126C; three courses from Music History 127A through 127G; two additional upper division music history courses (eight units) or, via petition, lower division courses with additional work as specified by the instructor; and three upper division ethnomusicology courses (12 units), each from a different geographical or cultural area. Students may petition to substitute ethnomusicology or music history theory courses for one or more of Music 120A, 120B, 120C, as appropriate. Students may enroll in lessons from the Music Department, if instructors are available.

Music History Minor

The Music History minor provides undergraduates with an overview of music history, starting with required courses that offer beginning students a general historical survey from antiquity through the 20th century. Upper division courses have been selected to provide study of more specific areas of interest, with various electives that offer a variety of perspectives on music history.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition at the Student Services Office,

2443 Schoenberg Hall. The ability to read music, although helpful, is not required for admission. For further information, contact Cora Gamulo at (310) 206-5187.

Required Lower Division Courses (12 units): Music History 1A and two courses from 2A, 2B, 5, 7, 13.

Required Upper Division Courses (20 units): Five courses, including (1) one from Music History 127A, 127B, 127C, (2) one from 127D, 127E, 127F, and (3) three from 130 through 189. A recommended course plan for item 3 is one course from 130, 131, M136, 139, 150, 156, 189, one course from 133, 134, 188, and one course from 135A, 135B, 135C.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The Department of Musicology does not admit candidates for the Master of Arts degree in Musicology only, although students may be awarded the M.A. enroute to the Ph.D.

Applicants for the M.A. are required to (1) take the Graduate Record Examination (GRE) Subject Test in Music; (2) submit a letter describing their background study and stating reasons for wishing to pursue graduate studies in musicology; (3) submit three letters of recommendation from former instructors and/or professionals with whom they have worked; (4) submit two official transcripts from each college attended; and (5) submit written examples of their work such as a paper on an appropriate subject.

Admission Timetable

December 30 — Application for admission/fellowship is due.

January 30 — Supplementary application materials are due.

By March 15 — Notice of acceptance or denial is sent.

Failure to meet any deadline may result in a delay in action on an application for admission, as well as that for a fellowship or assistantship.

Areas of Study

The Musicology Department offers the Master of Arts degree in the field of historical musicology. Degrees in composition, performance, and ethnomusicology are offered through other departments.

Course Requirements

Students are required to complete a minimum of nine courses at the 200 level.

The requirements are Musicology 200A, 200B, 200C; three seminars chosen from 260A through 260F and 262; and a choice of three electives (up to two outside the department). The musicology electives include Musicology 201A through 201F, 210, 211, 250A, 250B, and other 200-level courses.

Comprehensive Examination

Students take the comprehensive examination after completing their course requirements, which is normally by the end of their fifth quarter. All other degree requirements, including language proficiencies, must be satisfied before the examination can be taken. The examination is scheduled by the faculty during the Spring Quarter; all second-year students take it together. However, transfer students entering with a master's degree are expected to take the examination at the end of their first year, before proceeding on to their Ph.D. coursework. In anticipation of the examination, students are asked to designate three fields in which they are to be examined. Two of these fields must be historical: one before 1700 (medieval, Renaissance, or 17th century) and one after 1700 (18th century, 19th century, or 20th century). The third field may be a genre, methodology, or other topic that is recognized as a scholarly specialization among musicologists, e.g., Latin American music, opera, popular music, feminist musicology, ethnomusicology, criticism, African American music. The examinations are designed to test factual knowledge, power of historical analysis and synthesis, and capacity for critical and reflective thinking.

The faculty, after taking into account the fields designated by the student and the suggestions of the student and the adviser, approve the appointment of three of its members to serve as the examining committee. Two weeks before the examination, students submit three samples of their best written work which demonstrate their research, writing, thinking, and analytical skills (typically three seminar papers) prepared for at least two musicology faculty members. The samples do not need to match up with the designated areas of examination. The committee's review of these papers constitutes the first stage of the examination. The second stage is the written examination which is taken together by the cohort of students but is designed differently for each. The members of the examining committee (in consultation with each other to avoid duplication) formulate three essay topics related to the designated fields. Each student receives these topics at the time of the examination and is given up to

four hours to address them. The comprehensive examination is concluded by a two-hour oral examination covering the three designated fields and the written work that has been submitted. On the basis of the student's overall performance, the committee awards a grade of high pass (pass to continue in the Ph.D. program), pass (terminal pass), fail, or pass subject to reevaluation. In this last instance, the student is permitted to repeat the deficient portions of the examination in the following Winter Quarter, after additional coursework or study is completed. More than one such attempt may be granted at the discretion of the faculty.

Thesis Plan

None.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Musicology must have completed a Master of Arts degree (or the equivalent) in Music. The degree normally is in musicology or music history. Otherwise additional coursework, as prescribed by the department, must be completed.

Applicants for the Ph.D. are required to (1) take the Graduate Record Examination (GRE) Subject Test in Music; (2) submit a letter describing their background of study and stating reasons for wishing to pursue graduate studies in musicology; (3) submit three letters of recommendation from former instructors and/or professionals with whom they have worked; (4) submit two official transcripts from each college attended; and (5) submit written examples of their work such as a paper on an appropriate subject. Applicants should also submit their M.A. thesis, if possible.

Major Fields or Subdisciplines

The Musicology Department offers the Doctor of Philosophy degree in the field of historical musicology. Degrees in composition, performance, and ethnomusicology are offered through other departments.

Course Requirements

Students are required to take a minimum of six courses beyond the M.A., including three seminars from Musicology 260A through 260F and 262, and three electives in areas they wish to pursue. Students whose M.A. is not from UCLA may be required, in consultation with the graduate adviser, to take other relevant and necessary courses beyond the six specified.

Written and Oral Qualifying Examinations

Guidance Committee. A guidance committee assists students in the preparation of the written and oral qualifying examinations. The committee is made up of five members, all in the professorial ranks. Students suggest the membership, including the person who guides their dissertation and other faculty, according to the examinations to be taken; the department appoints the chair, who should *not* be the chair of

the student's doctoral committee. A list of questions and repertoire is available to students to help them prepare for this examination.

Soon after completion of the doctoral coursework, normally at the end of the third year, students take the special field examination, which includes both written and oral components. By this time, students must have decided on an area of specialization and secured the agreement of a qualified faculty member to serve as the dissertation adviser. Taking into account the field designated and the suggestions of students and the adviser, the faculty approves the appointment of three of its members to serve as the examining committee. Three months before the examination, students submit to the committee members a reading and repertoire list related to the area of specialization. Typically, this consists of a bibliography in the general area of the dissertation research and a list of relevant musical works, together totaling no more than 50 items. The members of the examining committee (in consultation with one another to avoid duplication) each formulate one or more questions related to the topic, repertoire, and methods thus staked out by the students. Students are allowed one week to address these topics in writing, using any desired research materials. After the completed written examination has been distributed to the examiners, a two-hour oral examination is scheduled. At this time, the committee may discuss the results of the written examination with students and ask further questions related to the area of the dissertation research. If a majority of the committee determines that the written and oral examinations have been passed, students begin preparation for the second stage, the University Oral Qualifying Examination. If the committee determines that the written and oral examinations have not been passed, students may retake the special field examination after six months of further preparation. More than one such attempt may be granted at the discretion of the faculty.

The University Oral Qualifying Examination is a defense of the dissertation prospectus. All other requirements, including language proficiencies, must be satisfied before the examination can be scheduled. At least two weeks before the examination, students must submit the prospectus to the members of the examination committee, who may be but need not be the same as those on the first committee. The prospectus must be a substantially researched overview of the proposed dissertation that demonstrates that students are fully prepared to undertake the dissertation project. Students are encouraged to consult with the members of their committee before the examination, which concentrates on the feasibility and significance of the project and their preparation for it. If the defense is unsatisfactory, the candidate may repeat the examination once, at the discretion of the faculty. After passing the examination, students are advanced to candidacy and begin

to write the dissertation. Candidates are encouraged to enroll in or audit seminars in their field whenever they are offered. If enrolled, candidates may satisfy all course requirements through work connected with the dissertation.

Music History

Lower Division Courses

1A. Introduction to Music History. (4) Lecture, four hours. Designed for Music History minors. Survey of issues and methods of music history and criticism for nonmajors. Letter grading.

2A-2B. Introduction to Literature of Music. (4-4) Lecture, four hours; laboratory, one hour. Course 2A is not requisite to 2B. Limited to undergraduate students. Designed for nonmusic majors. P/NP or letter grading. **2A.** Technical and formal principles of music literature through the mid-18th century. **2B.** Music literature from the mid-18th century to the present.

5. History of Rock and Roll. (4) Lecture, four hours. Analysis of forms, practices, and meanings of rock and roll music, broadly conceived, from its origin to the present. Emphasis on how this music has reflected and influenced changes in sexual, racial, and class identities and attitudes. Letter grading.

7. Film and Music. (4) Lecture, four hours. History of music and cinema, particularly ways music is used to produce meanings in conjunction with the visual image. P/NP or letter grading.

10. Music Now. (4) Lecture, four hours. Guided interactive tour of contemporary musical landscape. Current events in historical perspective, with special attention to questions of culture, taste, and value hierarchies. Discussion and evaluation of representative works and practices from avant-garde, mainstream, world, and popular spheres. Letter grading.

13. 20th-Century Music of the Western World. (4) Lecture, four hours. Survey of main trends in 20th-century music, with emphasis on representative works from avant-garde, mainstream, and popular traditions. P/NP or letter grading.

26A-26B-26C. History and Analysis of Music I. (4-4-4) Lecture, four hours; laboratory, one hour. Enforced requisite: Music 20C. Course 26A is enforced requisite to 26B, which is enforced requisite to 26C. Students must receive a C– or better to proceed to next course in sequence. History and literature of music from ancient world to 1815, with emphasis on analysis of representative works of each style period. Materials selected illustrate history of style and changing techniques of composition. Letter grading.

28A-28B-28C. Early Music Laboratory. (2-2-2) Laboratory, three hours. Enforced corequisite: course 26A or 26B or 26C. Practical laboratory in which students perform music of various periods, as correlated with courses 26A-26B-26C. P/NP or letter grading.

Upper Division Courses

101. Issues and Methods in Music History. (4) (Formerly numbered 1A.) Lecture, four hours. Requisite: course 26C. Introduction to principles, problems, and methods of music history and criticism through examination of selected issues. Letter grading.

110. Writing about Music. (4) Lecture, two hours; laboratory, two hours. Designed for music and music history/musicology majors. Emphasis on learning specific skills, incorporating technical description, historical contextualization, subjective reaction, and certain stylistic conventions necessary in writing about music. P/NP or letter grading.

126A-126B-126C. History and Analysis of Music II. (4-4-4) Lecture, four hours; laboratory, one hour. Requisites: course 26C, Music 20A, 20B, 20C. Course 126A is requisite to 126B, which is requisite to 126C. Students must receive a C– or better to proceed to next course in sequence. History and literature of music from 1815 to the present, with emphasis on analysis of representative works of each style period. Materials selected illustrate history of style and changing techniques of composition. Letter grading.

127A-127G. Selected Topics in History of Music. (4 each) (Formerly numbered C127A-C127F.) Discussion, three hours. Requisites: courses 26A-26B-26C. Designed as proseminars for undergraduates in preparation for graduate work. Special aspects of music of each period studied in depth. P/NP or letter grading. **127A.** Middle Ages; **127B.** Renaissance; **127C.** Baroque; **127D.** Classic; **127E.** Romantic; **127F.** 20th Century; **127G.** Other Topics.

130. Music of the U.S. (4) Lecture, four hours. Survey of art music in the U.S. from Colonial times to the present. P/NP or letter grading.

131. American Popular Song. (4) Lecture, four hours. Survey of American popular song from the 18th century to the present, with emphasis on relationship of popular song to important currents in American life and culture. P/NP or letter grading.

132. Mozart. (4) Lecture, four hours. 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. P/NP or letter grading.

133. Bach. (4) Lecture, two hours; laboratory, two hours. Designed for undergraduate students. Life and works of Johann Sebastian Bach. P/NP or letter grading.

134. Beethoven. (4) Lecture, two hours; laboratory, two hours. Designed for undergraduate students. Life and works of Ludwig van Beethoven. P/NP or letter grading.

135A-135B-135C. History of Opera. (4-4-4) Lecture, four hours; laboratory, one hour. Designed for undergraduate students. P/NP or letter grading. **135A.** Opera of Baroque and Classical Periods; **135B.** Opera of Romantic Period; **135C.** Opera of the 20th Century.

M136. Music and Gender. (4) (Formerly numbered 136.) (Same as Women's Studies M136.) Lecture, four hours. Analysis of gender ideologies in several musical cultures; representations of gender, the body, and sexuality by both male and female musicians; contributions of women to Western art and popular musics; methods in feminist and gay/lesbian theory and criticism. Letter grading.

M137. Gay and Lesbian Perspectives in Pop Music. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M137.) Lecture, four hours. Survey of English-language popular music in the 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

138. History of Electronic Dance Music. (4) Lecture, four hours. Survey of groove-based electrified dance music from its origins in 1960s' pop and soul to the 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 a new "art" music. Letter grading.

139. History and Literature of Church Music. (4) Lecture, four hours. Study of forms and liturgies of Western church music. P/NP or 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.

145. American Musical. (4) Lecture, four hours. Survey of American musical in the 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and a variety of popular musical styles, including Tin Pan Alley, jazz, and rock. Letter grading.

150. History of Jazz. (4) Lecture, four hours. Designed for music history, music, and ethnomusicology majors, and other students with some background in musical performance and theory. History and analysis of variety of jazz styles, from late 19th-century fore-runners to the present, with emphasis on social meanings of musical practices. Letter grading.

156. Studies in Musical Genres. (4) Lecture, four hours. Survey of musical genres, with emphasis on analysis of structural organization. P/NP or letter grading.

188. Topics in Music History. (4) (Formerly numbered 188A-188F.) Lecture, three hours; laboratory, one hour. Variable topics selected from several outstanding composers in Western art music. Consult *Schedule of Classes* for topics to be offered. Letter grading.

189A-189B. The Symphony. (4-4) (Formerly numbered 189.) Lecture, four hours. Designed for undergraduate students. Survey of symphonic literature from Haydn through the 20th century. Letter grading.

195. Honors Course. (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 an overall GPA of 3.0. Limited to junior/senior Music History majors. One- to two-term independent research study project under supervision of an appropriate faculty member, culminating in department honors thesis of approximately 25 pages. P/NP or letter grading.

199. Special Studies in Musicology. (2 or 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average. Limited to seniors. Individual studies in musicology resulting in a research project. May be repeated for a maximum of eight units. P/NP or letter grading.

Musicology

Lower Division Courses

6GA-6GB. Musicianship for Musicology Graduate Students. (2-2) Seminar/laboratory, three hours. Designed to help entering graduate students remedy entrance deficiencies. S/U grading.

Graduate Courses

200A. Research Methods and Bibliography. (6) Lecture, three hours. Designed for graduate musicology students. Survey of general bibliographic material in music.

200B. Historiography. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Critical examination of principles and procedures which inform historical study of music, with emphasis on impact of recent cultural theory.

200C. Contemporary Music Criticism. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to recent developments in the field of musicology, focusing on problems of how music operates as a cultural practice and how musical meanings can most effectively be analyzed and written about.

210. Medieval Notation. (6) Lecture, three hours. Vocal and instrumental notation; paleography of the period.

211. Renaissance Notation. (6) Lecture, three hours. Vocal and instrumental notation; paleography of the period.

250A-250B. Seminars: History of Music Theory. (6-6) Seminar, three hours. Requisite: course 200A. Course 250A is not requisite to 250B. **250A.** Investigation of principal theoretical writings concerning music from antiquity through Zarlino. **250B.** Investigation of principal theoretical writings concerning music from Rameau to the present.

254. Structure and Interpretation of Music. (4) Seminar, three hours. Requisite: course 200C. Critical survey of recent music theory and its analytical methods for musicologists. Questions of analysis and value judgment, formalism and autonomy, popular and vernacular musics, cultural versus musical theory, hermeneutic risks and (im)proprieties. Individual students work practically and in depth on specific analytical problems most relevant to their interests. Letter grading.

256. Seminar: Musical Form. (6) Seminar, three hours. Requisites: courses 126A-126B-126C. Analysis of structural organizations in music. Specific topics vary from year to year.

257. Music of the U.S. (6) Discussion, three hours. Designed for graduate students. Examination of principal figures and trends in music of the U.S. since the 18th century.

260A-260F. Seminars: Historical Musicology. (6 each) Seminar, three hours. Requisites: courses 200A, 201A-201B-201C, and 210 or 211 (either may be taken concurrently). Specific topics vary from year to year. May be repeated for credit. **260A.** Medieval; **260B.** Renaissance; **260C.** Baroque; **260D.** Classical; **260E.** Romantic; **260F.** 20th Century.

261A-261F. Problems in Performance Practices. (4 each) Lecture, three hours. Designed for graduate students. Investigation of primary source readings in performance practices as related to the period; analytical reports and practical applications in class demonstrations. May be repeated for credit. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary.

262. Contemporary Popular Music Studies. (4) Seminar, three hours. Designed for graduate students. Critical exploration of methodologies of interdisciplinary field of popular music studies. Analysis of how music, lyrics, and visual images produce meanings within contexts shaped by mass mediation, capitalism, and political realities of gender, class, and race.

263. History of Performance. (4) Seminar, three hours. Designed for graduate students. Survey of role of performers and performance in Western music history. Critical understanding of (and set of tools for addressing) frequent invisibility or "transparency" of performance and performers in histories of music. Letter grading.

264. Seminar: Topics in Musicology. (6) Seminar, three hours. Designed for graduate students. Specific topics vary from term to term. May be repeated for credit.

265. Ideal of Authenticity in Performance: 1827 to the Present. (4) Seminar, three hours. Preparation: ability to read musical notation and knowledge of musical history equivalent to successful completion of courses 126A-126B-126C. Not a course in performance, but intellectual history of performance and interpretation from solidification of classical canon to disintegration. How have performers mediated between claims of imaginative sympathy, performing tradition, and textual evidence? Use of historical texts and recordings to reconstruct interpretive strategies and justifications of the past and consideration of such major 20th-century trends as idea of Werktreue, Toscani versus Furtwängler debates, impact of recording and mass media, and rise of historical performance movement. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Introductory Practicum for Teaching Apprentices in Musicology. (2) Eight weekly two-hour sessions, plus intensive training session during Fall Quarter registration week. 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, 4, or 6) Tutorial, to be arranged. Limited to graduate students. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4) Preparation: completion of all M.A. or Ph.D. course and language requirements. Limited to graduate students. S/U grading.

598. Guidance of M.A. Thesis. (4, 8, or 12) Preparation: completion of all M.A. degree requirements (except thesis). Limited to graduate students. S/U grading.

599. Guidance of Ph.D. Dissertation. (4, 8, or 12) Preparation: advancement to Ph.D. candidacy. Limited to graduate students. May be repeated for credit. S/U grading.

NEAR EASTERN LANGUAGES AND CULTURES

College of Letters and Science

UCLA
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Los Angeles, CA 90095-1511

(310) 825-4165
<http://www.humnet.ucla.edu/humnet/nelc/nelc.html>

Antonio Loprieno, Dr.phil.habil., *Chair*

Professors

Andras E. Bodrogligeti, Ph.D. (*Turkic, Iranian*)
Elizabeth F. Carter, Ph.D. (*Near Eastern Archaeology*)
Robert K. Englund, Ph.D. (*Assyriology*)
Lev Hakak, Ph.D. (*Hebrew*)
Antonio Loprieno, Dr.phil.habil. (*Egyptology*)
Ismail K. Poonawala, Ph.D. (*Arabic*)
Yona Sabar, Ph.D. (*Hebrew*)

Professors Emeriti

Amin Banani, Ph.D.
Arnold J. Band, Ph.D.
Seeger A. Bonebakker, Ph.D.
Giorgio Buccellati, Ph.D.
Herbert A. Davidson, Ph.D.
Wolf Leslau, Docteur ès Lettres
Thomas Penchoen, Ph.D.
Moshe Perlmann, Ph.D.
Hanns-Peter Schmidt, Ph.D.
Stanislav Segert, Ph.D.

Associate Professor

Daniel C. Polz, Ph.D. (*Egyptian Archaeology and History*)
Hossein Ziai, Ph.D. (*Iranian and Islamic Studies*)

Assistant Professors

Michael D. Cooperson, Ph.D. (*Arabic*)
William M. Schniedewind, Ph.D. (*Biblical Studies and Northwest Semitics*)

Lecturers

Monica M. Bontty, Ph.D. (*Egyptology*)
Nancy Ezer, Ph.D. (*Hebrew*)
Michael Fishbein, Ph.D. (*Arabic*)
Latifeh Hagigi, M.A. (*Iranian*)
Ralph Jaeckel, Ph.D. (*Turkic*)

Scope and Objectives

The mission of the department is the discovery, interpretation, dissemination, and preservation of human values created over a period of five or more thousand years in an area which was the cradle of all civilization.

The department offers instruction in the major modern and ancient languages of the Near East: Akkadian, ancient Egyptian, Arabic, Armenian, Berber, Coptic, Hebrew, Persian, and Turkic. To meet increasing demands for a knowledge of this area and its past and present, it treats each language in a wide perspective — as a means of communication, as a vehicle of a cultural heritage, as a research tool for the area, and as an object of research itself.

Undergraduate majors may be taken in Ancient Near Eastern Civilizations, Arabic, Hebrew, Iranian Studies, and Jewish Studies. Master's and Ph.D. programs are offered in ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, and Turkic.

Courses in the department prepare students for careers in government, foreign trade, teaching abroad, journalism abroad, archaeology, and further academic work involving the area.

Undergraduate Study

The department offers the Bachelor of Arts degree in five fields: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Hebrew, (4) Iranian Studies, and (5) Jewish Studies. In each of these fields students must meet the requisites and take the courses prescribed. Their adviser assists in selecting a plan of study developed around their interests.

Students may combine their major with one in another department (double major) to enhance their educational opportunities. Due to the number of additional courses required, they are advised to consider this option early in their academic career and in consultation with program advisers in both majors.

Ancient Near Eastern Civilizations B.A.

There are four options for a major in Ancient Near Eastern Civilizations: (1) Mesopotamia, (2) Egypt, (3) Syria/Palestine, and (4) biblical studies.

Preparation for the Major

Requisites for options 1 and 2 are German 1 and 2; requisites for options 3 and 4 are Greek 1, 2, Hebrew 1A-1B-1C, 102A-102B-102C. Majors in all four fields are expected to continue their study of German or Greek beyond the requisite levels.

The Major

Majors in all four options are required to take 14 courses selected in consultation with the program adviser.

Majors selecting options 1, 2, and 3 are required to take four language courses as fol-

lows: *option 1* — Semitics 140A-140B, 141, 142; *option 2* — Ancient Near East 120A-120B-120C, 121A; *option 3* — Semitics 130 and three terms of Hebrew 120. The remaining 10 courses for all three options are to be selected from the following: three literature courses from Ancient Near East 150A, 150B, 150C, Jewish Studies M150A; three courses in history and religion from Ancient Near East M104A, M104B, M105, 130, 170, History M191A, 193D, M203A, Iranian 169, 170; three courses in archaeology and art from Ancient Near East 160A, 160B, 161A, 161B, 161C, 162, Art History 101A, 101B; one course in research methodology (such as Anthropology C115R, M116Q, or Linguistics 120A, 120B, or English 140A) taken preferably in another department with the consent of the adviser.

Majors selecting option 4 are required to take 14 courses as follows: three terms of Hebrew 120; Ancient Near East 150C, 162, 170; English 108B or History 194A; Greek 130; Jewish Studies M150A; History M191A; Semitics 130. The remaining three courses may be selected from Ancient Near East M104A, M104B, M105, 130, 150A, 150B, 160A, 160B, Art History 101A, 101B, 105A, Classics 168, Greek 131, History 193D, 194B, Iranian 169, 170, Latin 120.

Arabic B.A.

Preparation for the Major

Required: Arabic 1A-1B-1C, 102A-102B-102C, 150.

The Major

Required: Fifteen courses, including Arabic 103A-103B-103C and History 107A or Islamics 110; five courses from Arabic 120, 130, 132, 141; three courses from Arabic 111A, 111B, 111C, 112A, 112B, 112C, 114A, 114B, 114C; three courses from Art History 104A, Geography 187, History 106A, 106B, 106C, 107B, 108A, 108B, Political Science 132A, 132B, 157.

Hebrew B.A.

Preparation for the Major

Required: Hebrew 1A-1B-1C, 102A-102B-102C, Jewish Studies M150A-150B, or equivalent.

The Major

Required: Sixteen courses, including Hebrew 103A-103B-103C; three terms of Hebrew 120 and/or 125; two courses from Hebrew 130, 135; two courses from Hebrew 140, 160; Hebrew 190A-190B; two additional courses in Hebrew or Aramaic to be approved by the adviser; two courses from History M191A, M191B, M192A, M192B.

Iranian Studies B.A.

Students majoring in Iranian Studies may combine the major with specialization in other fields to enhance their career opportunities. Due to the number of additional courses required, they are advised to consider this option early in their academic career.

Preparation for the Major

Required: Iranian 1A-1B-1C or equivalent, 150A-150B.

The Major

Required: Sixteen courses, including Iranian 102A-102B-102C, 103A-103B-103C, 140, 141, 142, 180A-180B; five courses from Ancient Near East 163A, 163B, Arabic 1A, 1B, 1C, Art History 104A, 104B, C104C, Ethnomusicology 20B, History 106A, 106B, 106C, 110B, Iranian 120, 169, 170, 190A, 190B, Political Science 157.

Jewish Studies B.A.

Preparation for the Major

Required: Hebrew 1A-1B-1C, History M191A-M191B, or equivalent.

The Major

Required: Sixteen courses, including Hebrew 102A-102B-102C, 103A-103B-103C, 120 or 125, Jewish Studies M150A-150B, 151A-151B, 199, and four other upper division courses. At least two of the four must be courses in the areas of Hebrew, Jewish history, or Yiddish. The remaining two may be selected either from those areas or from courses with Jewish content given in other departments and approved by the adviser.

Arabic and Islamic Studies Minor

The Arabic and Islamic Studies minor is designed for students who wish to augment their major program with a group of related courses that provide a systematic introduction to the study of Arabic language and literature and Islam.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed Arabic 1A-1B-1C or the equivalent as determined by the department, and file a petition in 376 Kinsey Hall, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses in Arabic or Islamics; 199 courses may not be applied. With approval of the undergraduate adviser, two of the seven courses may be taken outside the department. Courses recommended as electives for the major in Arabic (Art History 104A, Geography 187, History 106A, 106B, 106C, 107A, 107B, 108A, 108B, Political Science 132A, 132B, 157) may be applied. Other courses may be applied as extra-departmental courses with approval of the adviser.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Armenian Studies Minor

The Armenian Studies minor is designed for students who wish to augment their major program with a group of courses that provide a

systematic introduction to the study of Armenian culture.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed Armenian 101A-101B-101C or the equivalent as determined by the department, and file a petition in 376 Kinsey Hall, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses from the Armenian section of the department; 199 courses may not be applied. At least one course from each of the three disciplines of language, literature, and history must be selected. Eligible language courses begin in the fourth quarter of study (i.e., course 102A for Western Armenian, course 105A for Eastern Armenian). With approval of the undergraduate adviser, two of the seven courses may be taken outside the department. Ordinarily, courses listed as Related Courses under the Armenian section in the *UCLA General Catalog* may be applied.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Hebrew and Jewish Studies Minor

To enter the Hebrew and Jewish Studies minor, students must have an overall grade-point average of 2.0 or better, have completed Hebrew 1A-1B-1C or the equivalent as determined by the department, and file a petition in 376 Kinsey Hall, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses from the Hebrew or Jewish studies section of the department; 199 courses may not be applied. With approval of the undergraduate adviser and based on course content, two of the seven courses may be taken outside the department.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Near Eastern Languages and Cultures Minor

The Near Eastern Languages and Cultures minor is designed for students who wish to augment their major program in the College of Letters and Science with a group of related courses from various linguistic, literary, archaeological, and historical disciplines of the Near East, from ancient Egypt, Mesopotamia, and biblical studies to the modern Arabic, Armenian, Iranian, Jewish, and Turkish world.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 376 Kinsey Hall, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses selected in consultation with an

academic adviser from any of the courses offered by the department; 199 courses may not be applied. With approval of the undergraduate adviser, two of the seven courses may be taken outside the department, provided the content of the courses bears a direct relation to the culture of the Near East.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Near Eastern Languages and Cultures offers the Master of Arts (M.A.) degree in Near Eastern Languages and Cultures.

Admission

In addition to the regular University requirements, a bachelor's degree or its equivalent in the language area chosen for the degree, the Graduate Record Examination (GRE) General Test, and three letters of recommendation are required of applicants to the M.A. program. As a rule, students are not admitted with a grade-point average of less than 3.25 or a GRE score of less than 1,600. The GRE must be taken within 24 months prior to the date of the application.

Areas of Study

Major fields of specialization are ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, Turkic.

Students may concentrate on either language or literature in their selected field but are required to do work in both. In the field of ancient Near Eastern civilizations, the department also offers an archaeology emphasis.

Course Requirements

A minimum of nine upper division and graduate courses is required, of which at least six must be at the graduate level. Students are required to take one quarter of Near Eastern Languages 200.

In general, students choosing either the language, literature, or archaeology option are required to study two Near Eastern languages, one of which is considered the major language. Students in Semitics or in Old Iranian study three languages.

In ancient Near Eastern civilizations, students may choose as their major language any of the following: ancient Egyptian (including Coptic), Akkadian, Aramaic (including Syriac), Hebrew (with Ugaritic and Phoenician), or Old Persian. For the second language, any of the above or Hittite or Sumerian may be chosen.

Students in Hebrew choose Hebrew and another Semitic language. In Turkic, either two Turkic languages or Turkish and a second culturally related language may be chosen. In Arabic, Armenian, and Iranian (modern), a major language and a second culturally related language are chosen.

Students in Semitics are required to study three Near Eastern languages, at least two of which should be Semitic (the third may be Hittite or Sumerian). In Old Iranian, Persian, Sanskrit, and Old and Middle Iranian are studied.

Twelve units of course 596 may be applied toward the total course requirement; eight units may be applied toward the minimum graduate course requirement.

Comprehensive Examination Plan

In general, students are required to take written final comprehensive examinations in their major and minor languages, as well as the history and literature of their major field. Further details can be found in the departmental *Guide to Graduate Studies*, available in the department.

Thesis Plan

None.

Doctoral Degree

Admission

In addition to the regular University requirements, an M.A. or equivalent in the applicant's field, the Graduate Record Examination (GRE) General Test, and three letters of recommendation are required for admission to the program leading to the Ph.D. degree in Near Eastern Languages and Cultures. As a rule, students are not admitted with a grade-point average of less than 3.25 or a GRE score of less than 1,600. The GRE must be taken within 24 months prior to the date of the application.

The M.A. program need not have been completed at UCLA.

Major Fields or Subdisciplines

Major fields of specialization are ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, Turkic.

Students may concentrate on either language or literature in their selected field but are required to do work in both. In the field of ancient Near Eastern civilizations, the department also offers an archaeology emphasis.

Course Requirements

Students who choose a language emphasis for the Ph.D. are required to add a third Near Eastern language to the two that are required for the M.A.

Students are required to achieve high competence in two of their languages and to familiarize themselves with the cultural backgrounds of each of the languages chosen. For language options, see the M.A. requirements section. Students are also expected to take the equivalent of one year of general linguistics. Those studying Semitics or Old Iranian study three languages.

If the literature option is chosen, students are required to achieve high competence in two Near Eastern languages and their literatures. For language options, see the M.A. requirements section. Students are required to familiarize themselves, through appropriate coursework, with the history of the cultural area, and the methods of literary research and the history of literary criticism.

If the archaeology emphasis in the ancient Near Eastern civilizations specialization is chosen, students are required to achieve high competence in two ancient Near Eastern languages and must be well-versed both in the history of the cultural area and in archaeological methodologies. For language options, see the M.A. requirements section.

Further details about the choice of languages and examination requirements may be found in the departmental *Guide to Graduate Study*, available in the department.

Written and Oral Qualifying Examinations

Qualifying examinations must be passed before the formation of a doctoral committee.

Candidates in languages are examined in three Near Eastern languages and the literary and historical background of at least two of them. Candidates in literature are examined in the literatures written in two languages within the cultural area of concentration and the historical and cultural background of these languages, with emphasis on one of them. Candidates in ancient Near Eastern civilizations are examined in two ancient languages and in the history and archaeology of the major areas of the ancient Near East.

When students pass the written examinations, their doctoral committee administers the University Oral Qualifying Examination. Passing this examination allows students to advance to candidacy and begin work on the dissertation.

Ancient Near East

(Akkadian, Aramaic, Phoenician, and Ugaritic are listed under Semitics.)

Lower Division Course

10. Jerusalem: The Holy City. (4) Lecture, three hours. Survey of history of Jerusalem over 3,000 years as a symbolic focus for three faiths: Judaism, Christianity, and Islam.

Upper Division Courses

M104A-M104B. Ancient Egyptian Civilization. (4-4) (Same as History M104A-M104B.) Lecture, three hours. Course M104A is not requisite to M104B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. **M104A.** Chronological discussion of Prehistory, the Old and Middle Kingdom. **M104B.** The New Kingdom and the Late period until 332 B.C.

M105. History of Ancient Mesopotamia and Syria. (4) (Same as History M105.) Lecture, three hours. Designed for juniors/seniors. Political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period.

120A-120B-120C. Elementary Ancient Egyptian. (4-4-4) Lecture, three hours; laboratory, two hours. Grammar and texts.

121A-121B-121C. Intermediate Ancient Egyptian. (4-4-4) Lecture, three hours. Requisites: courses 120A-120B-120C. Readings in ancient Egyptian literature.

123A-123B. Coptic. (4-4) Lecture, three hours. Introduction to Coptic grammar and reading of Coptic texts.

124. Middle Egyptian Technical Literature. (4) Requisite: course 121C. Reading of Middle Egyptian technical literature in hieroglyphic transcription. Medical, veterinary, mathematical, and astronomical texts included.

130. Ancient Egyptian Religion. (4) Lecture, three hours. Introductory survey of various ancient Egyptian religious beliefs and practices, their origin, and development. Discussions of religiopolitical institutions such as divine kingship and pious foundations.

140A-140B-140C. Elementary Sumerian. (4) Lecture, three hours; outside study, nine hours. Requisites: Semitics 140A-140B. Elementary grammar and reading of royal inscriptions, letters, and administrative texts from the Ur III period.

145. Sumerian Literary Texts. (4) Lecture, three hours. Requisites: courses 140A-140B. Reading and interpretation of selected Sumerian literary texts.

150A-150B-150C. Survey of Ancient Near Eastern Literatures in English. (4-4-4) Lecture, three hours. Each course may be taken independently for credit.

150A. Mesopotamia; **150B.** Egypt; **150C.** Syria and Palestine.

160A-160B. Introduction to Near Eastern Archaeology. (4-4) Lecture, three hours. Terminology, geography, principles, strategy of research, bibliography, and general survey of Near Eastern archaeology.

161A-161B-161C. Archaeology of Mesopotamia. (4-4-4) Survey of main archaeological periods in Mesopotamia, with special emphasis on late prehistoric and early historical periods and with reference to neighboring cultural areas. Each course may be taken independently for credit.

162. Archaeology and Religion of the Holy Land. (4) Lecture, three hours. Survey of archaeology of Palestine from the Bronze Age to destruction of Jerusalem in A.D. 70, with emphasis on religious development of ancient Israel.

163A-163B. Archaeology of Iran. (4-4) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. **163A.** Prehistoric and protohistoric phases of Iranian archaeology. **163B.** Archaeology of Elam, Iron Age, and Achaemenid Empire.

164A-164B-164C. Archaeology of Historic Periods in Mesopotamia. (4-4-4) Requisites: courses M105, 161A-161B-161C. Survey of main archaeological periods in Mesopotamia, with special emphasis on historic periods and with reference to neighboring cultural areas. Each course may be taken independently for credit.

165. Archaeology of Pharaonic Egypt. (4) Lecture, three hours. Requisites: courses M104A-M104B. Selected topics on archaeology of Pharaonic Egypt, with emphasis on material culture as source for political, social, and economic history of ancient Egypt.

170. Introduction to Biblical Studies. (4) Lecture, two hours. Knowledge of original languages not required. The Bible (Old and New Testaments) as a book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to the present.

M194. The Hero in the Bible and the Ancient Near East. (4) (Same as Folklore M185.) Lecture, three hours. Investigation of concepts of the hero/heroine in literatures of ancient Mesopotamia, Canaan, and Israel. Texts include epics of Gilgamesh and Aghat, Hebrew Bible, and New Testament. All texts read in translation.

199. Special Studies in the Ancient Near East. (2 to 8) Tutorial, to be arranged.

Graduate Courses

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.

211A-211B. Egyptian Texts of the Greco-Roman Period. (4-4) Lecture, three hours. Requisite: course 121C. Introduction to grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types.

220. Seminar: Ancient Egypt. (4) Seminar, three hours. May be repeated for credit.

221A-221B. Demotic. (4-4) Requisite: course 121C. Introduction to Demotic grammar and orthography. Reading of texts from various genres.

240A-240B-240C. Seminars: Sumerian Language and Literature. (4-4-4) Seminar, two hours. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history.

M250. Seminar: Ancient Mesopotamia. (4) (Same as History M207.) Seminar, three hours. Selected topics on political, social, and intellectual history of ancient Mesopotamia. May be repeated for credit.

250X. Seminar: Ancient Mesopotamia. (1) Selected topics on political, social, and intellectual history of ancient Mesopotamia. Course for students who participate regularly in class meetings but without the homework required in course M250. May be repeated for credit. S/U grading.

260. Seminar: Ancient Near Eastern Archaeology. (4) Seminar, two hours. May be repeated for credit.

261. Practical Field Archaeology. (2 to 8) Fieldwork, two hours. Participation in archaeological excavations or other archaeological research in the Near East under staff supervision. May be repeated.

262. Seminar: Object Archaeology. (4) Discussion, two hours; laboratory, one hour. Selected topics in analysis and interpretation of Near Eastern archaeological finds in museum collections. Students work with objects in Heeramanek Collection of Los Angeles County Museum of Art.

263. Seminar: Egyptian Monuments. (4) Selected monuments and sites in area of Luxor (Ancient Thebes). Architecture and decoration of temples and tombs; structure and occupation of settlements. May be repeated.

M265. 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 the literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with the help of specialists. S/U or letter grading.

272. Semitic Background of the New Testament. (4) Lecture, two hours. Requisites: Hebrew 102A-102B-102C, Semitics 130, Greek 1, 2. Study of Semitic elements in the Greek New Testament: traditions transmitted in Aramaic, relations to the Old Testament and to post-Biblical literature, and Palestinian Judaism.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Related Courses

Art History

101A. Egyptian Art and Archaeology

History

M104A-M104B. Ancient Egyptian Civilization

M105. History of Ancient Mesopotamia and Syria

193D. Religions of the Ancient Near East

201A-201U. Topics in History

Arabic

Lower Division Courses

1A-1B-1C. Elementary Literary Arabic. (4-4-4) Lecture, six hours. Basic grammar and syntax.

Upper Division Courses

102A-102B-102C. Intermediate Literary Arabic. (4-4-4) Lecture, four hours; discussion, one hour. Requisites: courses 1A-1B-1C. Grammar and syntax; readings of excerpts from literary texts; composition.

103A-103B-103C. Advanced Arabic. (4-4-4) Requisites: courses 102A-102B-102C. Review of grammar, composition, conversation, and readings from classical and modern literary texts.

111A-111B-111C. Elementary Spoken Egyptian Arabic. (4-4-4) Lecture, three hours. Requisites: courses 1A-1B-1C. Basic grammar and syntax of Egyptian colloquial Arabic.

112A-112B-112C. Advanced Spoken Egyptian Arabic. (4-4-4) Lecture, three hours. Requisites: courses 111A-111B-111C. Grammar and syntax; excerpts from literary texts using colloquial Arabic.

113A-113B-113C. Elementary Spoken Levantine Arabic. (4-4-4) Lecture, three hours. Requisites: courses 1A-1B-1C. General introduction to spoken Arabic of Syria, Lebanon, and Palestine. Grammar and syntax, with emphasis on language of everyday conversation.

114A-114B-114C. Spoken Moroccan Arabic. (4-4-4) Lecture, three hours; laboratory, one hour. Introduction to spoken Arabic dialect of Morocco. Phonology, morphology, and syntax. Emphasis on developing oral skills.

120. Islamic Texts. (4) Requisite: course 103C. Readings from Qur'an, Tafsir, Hadith, Fiqh. May be repeated for credit.

130. Classical Arabic Texts. (4) Requisite: course 103C. Readings from medieval literary texts, with grammatical and syntactical analysis. May be repeated for credit.

132. Philosophical and Kalam Texts. (4) Lecture, three hours. Requisite: course 120. Readings in medieval and Kalam texts. May be repeated for credit.

141. Modern Arabic Literature. (4) Requisite: course 103C. Conducted in Arabic. Readings in selected texts representing important trends in Arabic literature of the 19th and 20th centuries. May be repeated for credit.

150. Introduction to Arabic Literature and Culture. (4) (Formerly numbered 150A-150B.) Lecture, three hours. Readings in English; knowledge of Arabic not required. Culture of Arabic-speaking peoples through their literature. Texts range from pre-Islamic poetry to contemporary novels, along with works in history and anthropology, to place these writings in their social context. P/NP or letter grading.

151. Survey of Modern Arabic Literature in English. (4) Lecture, three hours. Readings of selected texts covering basic literary trends from middle of the last century to the present.

180. Linguistic Analysis of Arabic. (4) 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.

199. Special Studies in Arabic. (2 to 8) Tutorial, to be arranged.

Graduate Courses

220. Seminar: Islamic Texts. (4) Seminar, three hours. Doctrines and hermeneutics of various schools of thought in Islam, with selected readings from major works. May be repeated for a maximum of 24 units.

230. Medieval Literary Texts. (4) Lecture, two hours. Readings in Arabic prose and poetry, survey of prosody. May be repeated for a maximum of 24 units.

240. Seminar: Arab Historians and Geographers. (4) Seminar, three hours. Selected readings from works of major historians, geographers, and travelers. May be repeated for a maximum of 24 units.

250. Seminar: Arabic Literature. (4) Seminar, two hours. Selected topics from Arabic literature. Readings of texts from manuscript. May be repeated for a maximum of 24 units.

251. Seminar: Modern Arabic Literature. (4) Seminar, three hours. Requisite: course 141. Studies of specific problems and trends in Arabic prose and/or poetry in the 20th century. May be repeated for credit.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Related Courses

History

106A-106B-106C. Survey of the Middle East from 500 to the Present

108A-108B. History of the Arabs

109A-109B. History of North Africa from the Moslem Conquest

109C. History of Islamic Iberia

204A-204B. Seminars: Near and Middle Eastern History

Armenian

Upper Division Courses

101A-101B-101C. Elementary Modern Western Armenian. (4-4-4) Course 101A is requisite to 101B, which is requisite to 101C. Armenian grammar, conversation, and exercises. P/NP or letter grading.

102A-102B-102C. Intermediate Modern Western Armenian. (4-4-4) Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. Reading of selected texts, composition, and conversation. P/NP or letter grading.

103. Advanced Modern Armenian. (4) Lecture, three hours. Requisites: courses 102A-102B-102C. Readings in advanced modern Armenian texts. May be repeated twice for credit.

104A-104B-104C. Elementary Modern Eastern Armenian. (4-4-4) Course 104A is requisite to 104B, which is requisite to 104C. Designed for students with little or no previous knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation.

105A-105B-105C. Intermediate Modern Eastern Armenian. (4-4-4) Requisite: course 104C. Course 105A is requisite to 105B, which is requisite to 105C. 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 the idiom, both orally and in written form.

106A-106B-106C. Advanced Modern Eastern Armenian. (4-4-4) Requisite: course 105C. Course 106A is requisite to 106B, which is requisite to 106C. 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.

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 the homeland and examination of degree to which its social structure and cultural and aesthetic norms were impacted by those of the West (Byzantium, Western Europe) and East (Crusader states, Seljuqs, Mamluks, Mongols). Letter grading.

150A-150B. Survey of Armenian Literature in English. (4-4) Lecture, three hours. Knowledge of Armenian not required. Each course may be taken independently for credit.

151. Canon Formation and Encounter with Modernity: Case Studies in Armenian Literature. (4) 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 a result of exposure to European thought and expressive forms, as well as its response to sociopolitical, demographic, and economic changes in Armenian life.

152. Modern Armenian Drama as Vehicle for Social Critique. (4) Readings of selected plays from 1668 to 1992 in English translation, with particular reference to comedy. Focus on their role as commentators on contemporary mores and as agents for social reform. Discussion supplemented by video recordings of staged performances.

153. Art, Politics, and Nationalism in Modern Armenian Literature. (4) Readings in English. Examination of role of literature in modern Armenian society in service to a cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Students may work on texts in original language for extra credit.

155. Armenian American Literature and Culture. (4) 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. P/NP or letter grading.

160A-160B. Armenian Literature of the 19th and 20th Centuries. (4-4) Lecture, three hours. Requisites: courses 102A-102B-102C. Reading of texts and discussion of various genres of modern Armenian literature within context of the Armenian cultural renaissance.

199. Special Studies in Armenian Language and Literature. (2 to 8) Tutorial, to be arranged.

Graduate Courses

207. Armenian Intellectual History. (4) Lecture, three hours. Intellectual and cultural trends reflected in Armenian literature, historiography, religious and philosophical thought.

210. History of the Armenian Language. (4) Lecture, three hours. Development of the Armenian language in its various stages: classical, middle, and modern.

220. Armenian Literature of the Golden Age (A.D. 5th Century). (4) Lecture, three hours. Requisites: courses 131A-131B. Readings of texts and discussion of literary genres; original works and those translated from Greek and Syriac.

230A-230B-230C. Elementary Classical Armenian. (4-4-4) (Formerly numbered 130A-130B.) Lecture, three hours. Course 230A is requisite to 230B, which is requisite to 230C. Introduction to grammar of the classical literary language (5th to mid-19th century) and guided readings in narrative prose texts.

231A-231B-231C. Intermediate Classical Armenian. (4-4-4) (Formerly numbered 131A-131B.) Lecture, three hours. Requisite: course 230C. Course 231A is not requisite to 231B, which is not requisite to 231C. Intensive review of grammar and reading of select prose and poetic texts.

232A-232B-232C. Advanced Classical Armenian. (4-4-4) (Formerly numbered 132A-132B.) Lecture, three hours. Requisite: course 231A or 231B or 231C. Course 232A is not requisite to 232B, which is not requisite to 232C. In-depth reading and linguistic analysis of texts related to the Philhellene School of the 6th to 8th century and related works up to the 19th century.

250A-250B. Seminars: Armenian Literature. (4-4) Seminar, three hours. Selected topics from various periods of Armenian literature. May be repeated for credit.

290. Seminar: Armenian Paleography. (4) Seminar, three hours. Discussion of a variety of Armenian scripts and training in use of manuscripts.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Related Courses

History

112A-112B-112C. Armenian History

C112D. Introduction to Armenian Oral History

113. The Caucasus under Russian and Soviet Rule

200S. Advanced Historiography: Armenia and the Caucasus

201S. Topics in History: Armenia and the Caucasus

211A-211B. Seminars: Armenian History

C212. Methods in Armenian Oral History

Indo-European Studies

M150. Introduction to Indo-European Linguistics

Berber

Upper Division Courses

101A-101B-101C. Elementary Berber. (4-4-4) Lecture, three hours; laboratory, two hours. Development of oral proficiency and analysis of basic grammatical structure.

102A-102B-102C. Advanced Berber. (4-4-4) Requisites: courses 101A-101B-101C. Advanced study of Berber. Regional and stylistic variants in folk literature.

130. The Berbers. (4) Examination of main features of Berber societies and cultures, with particular attention to social structures and institutions on one hand, and to customs, values, and beliefs on other. Presentation of broad framework within which study of particular aspects of Berber cultures may be pursued.

199. Special Studies in Berber Languages. (2 to 8) Studies based on requirements of individual students.

Related Courses

History

109A-109B. History of North Africa from the Moslem Conquest

Linguistics

225M. Linguistic Structures: Berber

Hebrew

Lower Division Courses

1A-1B-1C. Elementary Hebrew. (4-4-4) Lecture, three hours; laboratory, two hours. Structural principles of grammar. Students who have prior knowledge of reading and some vocabulary are advised to take courses 10A-10B-10C. Students with credit for course 10A cannot receive credit for 1A; those with credit for course 10B cannot receive credit for 1B and/or 1C.

10A-10B-10C. Accelerated Elementary Hebrew. (4-4-4) Lecture, five hours. Open to students who wish to cover equivalent of two years of college Hebrew in one academic year. Designed for students who have previously studied rudiments of Hebrew. Students with credit for course 1A cannot receive credit for 10A; those with credit for course 1B and/or 1C cannot receive credit for 10B.

20A-20B. Introduction to Biblical Hebrew. (4-4) Lecture, three hours. **20A.** Phonology, morphology, and structure of biblical Hebrew. **20B.** Enforced requisite: course 20A. Continuation of course 20A. Readings of biblical prose texts.

Upper Division Courses

101. Hebrew Conversation and Composition. (4) Lecture, three hours; discussion, two hours. Requisites: courses 1A-1B-1C. Intensive course for students who are interested in improvement of their proficiency in basic Hebrew. Reading of simplified texts, written and oral grammatical drills, and conversation exercises. Offered in summer only. P/NP or letter grading.

102A-102B-102C. Intermediate Hebrew. (4-4-4) Lecture, five hours. Requisites: courses 1A-1B-1C. Amplification of grammar; reading of texts from modern literature.

103A-103B-103C. Advanced Hebrew. (4-4-4) Lecture, three hours. Requisites: courses 102A-102B-102C. Introduction to modern Hebrew literary texts.

120. Biblical Texts. (4) (Formerly numbered 120A-120B.) 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 a maximum of 16 units.

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 a maximum of 16 units.

140. Modern Hebrew Poetry and Prose. (4) Lecture, three hours. Requisites: courses 103A-103B-103C. Study of major Hebrew writers of past one hundred years: prose — Mendele, Ahad Ha'am, Agnon, Yizhar; poetry — Bialik, Tchernichovsky, Greenberg, Shlonsky, Alterman, Amihai. May be repeated for credit.

160. Hebrew Essay. (4) Lecture, three hours. Requisites: courses 103A-103B-103C. Hebrew essay from its rise in Europe in the late 18th century to contemporary Israeli essay. Study of literary, political, philosophical, and scholarly essay. May be repeated for credit.

170. Dead Sea Scrolls and Biblical Studies. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 102A-102B-102C, 120. Introduction to history of the Dead Sea Sect, their literature, and its impact on biblical studies, with focus on interpretation in the Qumran texts.

190A-190B. 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 the 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).

199. Special Studies in Hebrew. (2 to 8) Tutorial, to be arranged.

Graduate Courses

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. 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. Letter grading.

230. Seminar: Medieval Hebrew Literature. (4) Seminar, three hours. May be repeated for credit.

231. Texts in Judeo-Arabic. (4) Preparation: reading knowledge of Hebrew and Arabic. Reading of philosophic texts in Judeo-Arabic.

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.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Iranian

Lower Division Courses

1A-1B-1C. Elementary Persian. (4-4-4) Lecture, four hours; laboratory, two hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Persian.

10A-10B-10C. Persian Conversation. (2-2-2) Lecture, three hours. Systematic and structured Persian conversation.

20A-20B-20C. Accelerated Elementary Persian. (6-6-6) 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.

Upper Division Courses

102A-102B-102C. Intermediate Persian. (4-4-4) Lecture, three hours; laboratory, three hours. Requisite: course 1C or 20C. Course 102A is requisite to 102B, which is requisite to 102C.

103A-103B-103C. Advanced Persian. (4-4-4) Lecture, three hours. Requisite: course 102C. Students who successfully complete courses 20A-20B-20C with grades of A may be permitted to enroll. Each course may be taken independently for credit. **103A.** Introduction to Classical Persian Poetry; **103B.** Introduction to Classical Persian Prose; **103C.** Introduction to Contemporary Persian Poetry and Prose.

111A-111B-111C. Elementary Kurdish. (4-4-4) Lecture, three hours; laboratory, two hours. Proficiency-based course in basic grammar of literary Kurdish (Sorani). Graded readings, translation, composition (level one), conversation (levels one and two).

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 the 10th to 14th century who shaped the sense of Persian identity and delineated chief distinguishing characteristics of Persian thought and culture. P/NP or letter grading.

140. Persian Belles Lettres (*Adabiyât*). (4) Lecture, three hours. Requisite: course 103A. Study of major Persian poets and prose writers: prose — Sohravardi, Hamadâni, Nasafi, Irâqi, and others; poetry — Hâfêz, Sa'di, Rûmi, Bahâr, Dehkoda, 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 which 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-150B. Survey of Persian Literature in English. (4-4) Lecture, three hours. Knowledge of Persian not required. Each course may be taken independently for credit.

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.

180A-180B. Iranian Civilization. (4) Lecture, three hours; discussion, one hour. Cultural and social history of the Iranian world, with emphasis on legacy of Persian language and literature. Letter (majors) or P/NP or letter (nonmajors) grading.

190A-190B. Introduction to Modern Iranian Studies. (4-4) Lecture, three hours. Requisites: courses 1A-1B-1C. Survey of Iranian languages. Comparative and historical grammar.

199. Special Studies in Iranian. (2 to 8) Tutorial, to be arranged.

Graduate Courses

220A-220B. Classical Persian Texts. (4) Lecture, three hours. Requisites: courses 103A-103B-103C. Study of selected classical Persian texts. Each course 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.

M222A-M222B. Vedic. (4-4) (Same as Indic M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to Indic 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit.

230A-230B. Old Iranian. (4) Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course 230B may be repeated for credit.

231A-231B. Middle Iranian. (4-4) Studies in grammars and texts of such Middle Iranian languages as best serve students' needs (e.g., Pahlavi, Sogdian, Sakan). Only course 231B may be repeated for credit.

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.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Related Courses

Art History

104A. Western Islamic Art

104B. Eastern Islamic Art

C104C. Problems in Islamic Art

213. Advanced Studies in Islamic Art

Ethnomusicology

91L. Music of Persia

History

9D. Introduction to Asian Civilizations: History of the Near and Middle East

106A-106B-106C. Survey of the Middle East from 500 to the Present

110A-110B. Iranian History

Indic (East Asian Languages)

110A. Elementary Sanskrit

110B. Intermediate Sanskrit

110C. Advanced Sanskrit

Indo-European Studies

210. Indo-European Linguistics: Advanced Course

280A-280B. Seminars: Indo-European Linguistics

Islamics

Upper Division Courses

110. Introduction to Islam. (4) Lecture, three hours. Genesis of Islam, its doctrines, and practices, with readings from the Qur'an and hadith; schools of law and theology; piety and Sufism; reform and modernism.

130. Shi'a in Islamic History. (4) Lecture, three hours. 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.

Graduate Courses

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

598. M.A. Thesis Research and Preparation. (2 to 8) Tutorial, to be arranged.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Related Courses

History

107A-107B. Islamic Civilization

Jewish Studies

Lower Division Course

10. Social, Cultural, and Religious Institutions of Judaism. (4) 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.

Upper Division Courses

M11E. Ethnic Groups and Their Bibliographies: Jewish History and Culture. (4) (Same as Library and Information Science M111E.) Basic reference sources on specific topics on Judaica, ranging from biblical studies to the Holocaust to Jewish life in the U.S.

130. Modern Jewish Religious Movements and Their Ideologies. (4) Lecture, three hours. Introduction to and overview of Jewish religious movements and evolution of their ideologies in the Western world from time of the Enlightenment to the present.

140A-140B. American Jewish History. (4-4) 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. **140A.** 1654 to 1914; **140B.** 1914 to the Present.

141. Modern Anti-Semitism. (4) Lecture, three hours. Examination of modern anti-Semitism from the 18th century to the present; comparison of modern racist ideologies with premodern theories; case studies (e.g., Dreyfus affair, Beiliss Trail, Holocaust); Jewish reactions to these phenomena.

142. History and Institutions of State of Israel. (4) Lecture, three hours. Study of social and cultural development of State of Israel from its pre-state institutional structures to the present, with emphasis on major trends, personalities, and ideologies, and state's position in wider framework of modern Jewish history.

M143. Introduction to Jewish Folklore. (4) (Same as Folklore M142.) Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis.

M150A-150B. Hebrew Literature in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. **M150A.** Literary Traditions of Ancient Israel: Bible and Apocrypha. (Same as Comparative Literature M101.) Study of literary culture of ancient Israel through examination of principal compositional strategies of the Hebrew Bible and the Apocrypha (read in translation). P/NP or letter grading. **150B.** Rabbinic Judaism. 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.

151A-151B. Modern Jewish Literature in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. **151A.** Diaspora Literature. 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. **151B.** Israeli Literature. 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.

155. Literature of the Cabala. (4) Lecture, three hours. Cabalistic literature in the broad sense (i.e., Jewish esoteric literature from the rabbinic to modern period). Topics include precabalistic esoteric texts, the early cabala, the Zohar, Lurianic cabala, nature of mysticism, the question of whether there was a Jewish mysticism.

170. Dead Sea Scrolls and Early Judaism. (4) Lecture, three hours; outside study, nine 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 Hebrew Novel as a Film. (4) Reading of literary works written by modern Hebrew writers which have been translated into English and then made into movies. Lectures, readings, and discussion of novels and movies and guest speakers from movie industry and UCLA.

M187. The Holocaust in Literature. (4) (Same as Comparative Literature M165.) Lecture, three hours. Requisite: History 191E or 191F or 191G. Investigation of how the Holocaust informs a variety of literary and cinema works and raises a wide range of aesthetic and moral questions. P/NP or letter grading.

190. Undergraduate Seminar: Jewish Studies. (4) Examination of a single topic in depth with object of encouraging and guiding students' research in area of Jewish studies. Literary, cultural, and historical subjects included.

M191A-M191B. Survey of Jewish History. (4-4) (Same as History M191A-M191B.) Designed for juniors/seniors. Survey of social, political, and religious developments. **M191A.** From Biblical Times to End of the Middle Ages; **M191B.** From End of the Middle Ages to the Present.

M191C-M191D. Focal Themes in Jewish History. (4-4) (Same as History M191C-M191D.) Designed for juniors/seniors. Treatment in depth of one major theme in Jewish history (such as history of Messianic Movements, structure of the Jewish communities) through the ages.

M192A-M192B. Jewish Intellectual History. (4-4) (Same as History M192A-M192B.) Designed for juniors/seniors. **M192A.** Medieval Period. Examination of three intellectual worldviews that competed for hegemony in the medieval Jewish world — rabbinic Judaism, medieval rationalism as embodied in philosophy, and cabala; **M192B.** Modern Period. Exploration of some of most important currents and figures in Jewish intellectual history from the 18th century to the present.

197A-197Z. Variable Topics in Jewish Studies. (4 each) Lecture or seminar, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading. **197A.** 20th-Century Jewish Thought. May not be repeated for credit. **197B.** Jewish Feminist Theology.

199. Special Studies in Jewish Studies. (2 to 8)
Limited to Jewish Studies majors.

Related Courses

Yiddish

- 101A, 101B, 101C. Elementary Yiddish
102A-102B. Accelerated Elementary Yiddish
104. Advanced Yiddish
121A. 20th-Century Yiddish Poetry in English Translation
121B. 20th-Century Yiddish Prose and Drama in English Translation
121C. Special Topics in Yiddish Literature in English Translation
131A. Modern Yiddish Poetry
131B. Modern Yiddish Prose and Drama
131C. Special Topics in Yiddish Literature
199. Special Studies in Yiddish

Near Eastern Languages

Lower Division Courses

50A-50B-50C. Introduction to Near Eastern Languages and Cultures. (4-4-4) Lecture, three hours. Three-term sequence designed both as an introduction for undergraduate students and as requisite to various majors within department. Art and archaeology, languages and literatures, cultural history. Each course may be taken independently for credit. **50A.** Ancient Near East; **50B.** Medieval Near East; **50C.** Modern Near East.

Graduate Courses

- 200. Bibliography and Method of Near Eastern Languages and Literatures. (4)** Lecture, two hours. Required for M.A. degree. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by department. May be repeated for credit.
210. Survey of Afro-Asiatic Languages. (4) Lecture, three hours. Survey of structures of a number of representative languages from various major branches of Hamito-Semitic (Afro-Asiatic) language family.
M241. Folklore and Mythology of the Near East. (4) (Same as Folklore M241.) Requisite: Folklore 101.
290. Seminar: Paleography. (4) Seminar, three hours. Provides students with ability to cope with varieties of manuscripts.
375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. 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 Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.
597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.
599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Semitics

Upper Division Courses

- 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-140B. Elementary Akkadian. (4-4) Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian.
141. Advanced Akkadian. (4) Lecture, three hours. Old Babylonian syntax; reading of basic Old Babylonian texts.
142. Akkadian Literary Texts. (4) Lecture, three hours. Selected readings from Akkadian myths and epics, with introduction to historical tradition of the works and their literary structure.
199. Special Studies in Semitics. (2 to 8) Tutorial, to be arranged.

Graduate Courses

- 210. Ancient Aramaic. (4)** Lecture, two hours. Requisite: course 130. Reading of surviving inscriptions and papyri. May be repeated for credit.
215B. Syriac. (4) Lecture, two hours. Morphology and syntax of Syriac language; readings in Syriac translation of the Bible and Syriac literature. May be repeated for credit.
220A-220B. Ugaritic. (4-4) Lecture, two hours. Requisites: Hebrew 102A-102B-102C. Study of Ugaritic language and literature. Only course 220B may be repeated for credit.
225. Phoenician. (4) Lecture, two hours. Requisites: Hebrew 102A-102B-102C. Study of Phoenician language and inscriptions. May be repeated for credit.
230. Seminar: Northwest Semitic Languages and Literatures. (4) Seminar, two hours. May be repeated for credit.
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.
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.
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-280B-280C. Seminars: Comparative Semitics. (4) Seminar, two hours.
596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.
597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.
599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Turkic Languages

Upper Division Courses

- 101A-101B-101C. Elementary Turkish. (4-4-4)** Lecture, five hours. Grammar, reading, conversation, and elementary composition drills.
102A-102B-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.
111A-111B-111C. Elementary Uzbek. (4-4-4) Lecture, three hours; laboratory, two hours. Elementary grammar, reading, and composition exercises; elementary conversation.
112A-112B-112C. Advanced Uzbek. (4-4-4) Lecture, three hours; laboratory, two hours. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.
114A-114B-114C. Bashkir. (4-4-4) Lecture, three hours. Requisite: course 102A. Grammar, reading of literary and folkloric texts.

115A-115B-115C. Elementary Azeri. (4-4-4) 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.

116A-116B-116C. Advanced Azeri. (4-4-4) 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.

120A-120B-120C. Descriptive Grammar of Modern Literary Uzbek. (4-4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 102A-102B-102C or 111A-111B-111C or 180. Systematic and comprehensive grammatical survey of modern literary Uzbek, official language of the newly independent Republic of Uzbekistan. Phonemics, morphology, syntax, paremiology, and lexicology analyzed on today's native material.

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 B.C. to A.D. 19th century (Hsiung-nu, Hsien-pi, Juan-Juan, T'u-Chueh, Uyghur, Khitan, Karakhanid, Seljuq, Kara-Khitay, Khorazmian, 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.

199. Special Studies in Turkic Languages. (2 to 8) Tutorial, to be arranged.

Graduate Courses

210A-210B-210C. Introduction to Ottoman. (4-4-4) Lecture, three hours. Introduction to literary language of Ottoman Empire from its foundation in the 14th century to its overthrow in the 20th century. For students of history, literature, and religion of the Balkans, Near East, and Central Asia. Topics include Arabic script as applied to Ottoman; Arabic and Persian elements in grammar and vocabulary. Readings of historical and literary texts.

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.

220A-220B-220C. Classical Uzbek (Chagatay). (4-4-4) Lecture, three hours. Requisites: courses 101A-101B-101C or 111A-111B-111C or Iranian 102A-102B-102C or Arabic 102A-102B-102C or Hebrew 102A-102B-102C. Language of classical Central Asian Turkic literature. Descriptive and historical grammar, text analysis, translation, and composition drills.

225A-225B-225C. Old Turkic: Turk and Uygur. (4-4-4) Lecture, three hours. Requisite: course 180. Textual and linguistic analysis of Turk and Old Uygur documents: inscriptions, Manichean and Buddhist literary works.

230A-230B-230C. Historical and Comparative Survey of Turkic Languages. (4-4-4) Lecture, three hours. Requisite: course 180. Extinct and living Turkic languages. History of Turkic: developments in phonemic, grammatical, and lexical systems from the 8th to 20th century. Structural analysis of Turkic languages on comparative basis.

235A-235B. Middle Turkic: Karakhanid, Khorazmian, Mamluk-Kipchak, and Old Anatolian. (4-4) Lecture, three hours. Requisite: course 180. Survey of Middle Turkic documents. Textual and linguistic analysis of Middle Turkic texts from various literary genres.

240A-240B-240C. Advanced Ottoman. (4-4-4) Lecture, three hours. Requisites: courses 210A-210B-210C. Emphasis on different genres of Ottoman writing (belles lettres as well as various types of state documents) in elaborate high style of classical Ottoman period (15th to 19th century). Selections are read in manuscript to prepare students to read works in form in which they are likely to encounter them in their research.

250A-250B-250C. Islamic Texts in Chagatay. (4-4-4) Lecture, three hours. Requisites: courses 220A-220B-220C. Philological and linguistic survey of basic Islamic source material written in Chagatay literary language. Reading and discussion of Chagatay texts on Islamic topics.

280A-280B. Seminars: Modern Turkish Literature. (4-4) Seminar, two hours. Requisite: course 102B. Specific issues and trends in development of Turkish literature from middle of 19th century to the present.

290A-290B. Seminars: Classical Turkic Literature — Ottoman, Chagatay, and Azeri. (4-4) Seminar, two hours. Requisites: courses 210A-210B-210C and/or 220A-220B-220C. Survey of Islamic literatures of the Turks in classical period. Readings of Ottoman, Chagatay, and Azeri texts from various literary genres. Discussion of stylistic, prosodic, and linguistic characteristics.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) S/U grading.

Related Courses

Art History

104B. Eastern Islamic Art

History

111A-111B. History of the Turks

209A-209B. Seminars: Ottoman and Modern Turkish History

NEAR EASTERN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Irene A. Bierman, Ph.D., *Chair*

Professors

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Leonard Binder, Ph.D. (*Political Science*)

Andras Bodrogligeti, Ph.D. (*Near Eastern Languages and Cultures*)

Elizabeth Carter, Ph.D. (*Near Eastern Languages and Cultures*)

Susan B. Downey, Ph.D. (*Art History*)

Antonio Loprieno, Dr.phil.habil. (*Near Eastern Languages and Cultures*)

Michael G. Morony, Ph.D. (*History*)

Donald A. Preziosi, Ph.D. (*Art History*)

A. Jihad Racy, Ph.D. (*Ethnomusicology*)

Yona Sabar, Ph.D. (*Near Eastern Languages and Cultures*)

Hossein Ziai, Ph.D. (*Near Eastern Languages and Cultures*)

Professor Emeritus

Stanford J. Shaw, Ph.D. (*History*)

Associate Professor

David N. Myers, Ph.D. (*History*)

Assistant Professors

Daniel C. Polz, Ph.D. (*Near Eastern Languages and Cultures*)

Claudia Rapp, D.Phil. (*History*)

Barbara Zeitler, Ph.D. (*Art History*)

Adjunct Professors

Sondra Hale, Ph.D. (*Anthropology*)

Scope and Objectives

The graduate major in this discipline is called Islamic Studies. For details, see the program by that name earlier in this section.

The undergraduate major is designed primarily for (1) students seeking a general education and desiring a special emphasis in this geographic area from the ancient to the modern period, (2) those who plan to live and work in the Near East whose careers can be aided by a knowledge of its peoples, languages, and institutions, and (3) students preparing for academic study in the various disciplines pertaining to the Near East.

Undergraduate Study

Near Eastern Studies B.A.

Preparation for the Major

Required: The first-year course in Arabic, Armenian, Hebrew, Persian, or Turkish. Students must also obtain reading proficiency in French, German, Italian, Russian, or Spanish as demonstrated by completing six quarter courses or the equivalent in the language of their choice.

Students may substitute for the European language requirement Program in Computing 1 and one course from Economics M40, Political Science 6, Sociology M18, or Statistics 10, plus one course from Geography 171, Political Science 102, Psychology 142H, or Sociology C112. Also required are History 9D and four courses from History 1A, 1B, 1C, Anthropology 8, 9, Art History 104A, Economics 1, 2, Geography 3, Political Science 20, 50, Sociology 1.

The Major

Required: Sixteen courses as follows: (1) completion of the advanced level or equivalent in the same language taken in lower division; (2) History 106A-106B-106C and three additional courses in the history of the Near East, two of which are related to the major language; (3) four courses (two of which must be in the same discipline) from Ancient Near East M104A, M104B, Anthropology 110, Art History M102A, M102B, 104B, C104C, 105E, Economics 110, 111, 112, 190, Ethnomusicology 20B, 130, Geography 187, Political Science 132A, 132B, 157, Sociology 187. This program may be modified in exceptional cases with consent of the adviser.

For further information, contact Professor Irene A. Bierman at the program address.

NEUROBIOLOGY

School of Medicine

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Nicholas C. Brecha, Ph.D., *Vice Chair*

Professors

Arthur P. Arnold, Ph.D.

George W. Bernard, D.D.S., Ph.D.

Dean Bok, Ph.D. (*Dolly Green Professor of Ophthalmology*)

Nicholas C. Brecha, Ph.D., *in Residence*

John H. Campbell, Ph.D.

Carmine D. Clemente, Ph.D.

Edwin L. Cooper, Ph.D.

Jean S. de Vellis, Ph.D., *in Residence*

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V. Reggie Edgerton, Ph.D.

Jerome Engel, M.D., Ph.D.

Jack L. Feldman, Ph.D.

Robin S. Fisher, Ph.D., *in Residence*

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Ronald M. Harper, Ph.D.

Carolyn R. Houser, Ph.D., *in Residence*

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John K. Lu, Ph.D.

Paul E. Micevych, Ph.D.

Arnold B. Scheibel, M.D.

John D. Schlag, M.D.

Anna N. Taylor, Ph.D., *in Residence*

Jaime R. Villablanca, M.D., *in Residence*

Charles D. Woody, M.D., *in Residence*

Guido A. Zampighi, D.D.S., Ph.D.

Professors Emeriti

Nathaniel A. Buchwald, Ph.D.
 Emilio E. Decima, M.D.
 Earl Eldred, M.D.
 Daniel C. Pease, Ph.D.
 Charles H. Sawyer, Ph.D.
 José P. Segundo, M.D.
 M.B. Sterman, Ph.D.
 Bernard Towers, M.D.
 Richard W. Young, Ph.D.
 Emery G. Zimmermann, M.D., Ph.D.

Associate Professors

David Glanzman, Ph.D.
 Alcino Silva, Ph.D.

Assistant Professors

Dean Buonomano, Ph.D.
 Ellen Carpenter, Ph.D., *in Residence*
 Susana Cohen-Cory, Ph.D., *in Residence*
 Sheila Nirenberg, Ph.D.
 Thomas Otis, Ph.D.
 Dario Ringach, Ph.D.
 Felix Schweizer, Ph.D.
 Xianjie Yang, Ph.D., *in Residence*

Adjunct Professors

Margaret N. Shouse, Ph.D.
 Catia Sternini, Ph.D.

Adjunct and Clinical Associate Professors

Earle E. Crandall, M.D., Ph.D., F.A.C.S., *Clinical*
 Carlos A.E. Lemmi, Ph.D., *Adjunct*
 Anselmo R. Pineda, M.D., *Clinical*

Adjunct Assistant Professor

Erin Schuman, Ph.D.

Scope and Objectives

The Department of Neurobiology offers advanced training leading to the Ph.D. degree. Students graduating with a doctoral degree in anatomy and cell biology and an emphasis in neurobiology can look forward to an academic career in medical and dental schools or research institutes and, in accord with this, the department strives to produce graduates soundly qualified both for teaching at this level and for the conduct of productive research in neurobiology and cell biology. Program information is available through the department website.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree**Admission**

The Department of Neurobiology offers the Ph.D. degree in Anatomy and Cell Biology, and students may obtain the Master of Science (M.S.) degree in Anatomy and Cell Biology; however, the department normally does not admit candidates for the M.S. degree only.

Areas of Study

The major fields in which graduate research may be undertaken include (1) microscopic anatomy and cell biology, (2) molecular biology, and (3) neuroscience.

Course Requirements

A minimum of 36 units of coursework is required, 20 of which must be in graduate-level courses. Eight units of Neurobiology 597 or 598 may be applied toward the total requirement, but only four units may be applied toward the minimum graduate course requirement. All M.S. candidates must take two courses selected from Neurobiology 104, M202, M203A, M203B, M209A, and M209B; one departmental seminar; other courses essential to the student's program; courses in the minor field (for those under the comprehensive plan). If Neurobiology 104 is selected, Neurobiology 254 must be taken concurrently, making a nine-unit requirement.

Comprehensive Examination Plan

Under the written comprehensive examination plan, students must demonstrate a grasp of the general principles of the required coursework, as well as an understanding of some related field relevant to their objectives.

Thesis Plan

For the thesis plan, a committee of an adviser and two departmental members approves the thesis proposal after all coursework is completed. All members participate in criticism and approval of the eventual thesis, but there is no oral defense.

Doctoral Degree**Admission**

Applicants to the program leading to the Ph.D. degree in Anatomy and Cell Biology must have a bachelor's degree in a physical or biological science or in a premedical curriculum. Introductory courses in zoology, general and organic chemistry, biochemistry, and college physics are required. Courses in comparative anatomy, embryology, cell biology, genetics, molecular biology, and statistics are highly recommended.

Doctoral applicant admission is through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570 Los Angeles, CA 90095-1570, (310) 206-6051.

Major Fields or Subdisciplines

The major fields in which graduate research may be undertaken include (1) microscopic anatomy and cell biology, (2) molecular biology, and (3) neuroscience.

Course Requirements

(1) Students are required to take for credit the following courses or course combinations: Neurobiology M202, M209A (or Biological Chemistry CM267 or Microbiology and Immunology M229), M209B, Biological Chemistry

CM253, and an elective that is sanctioned by UCLA ACCESS.

(2) Participation in at least three seminar courses, one of which should be in the Department of Neurobiology.

(3) Completion of such elective courses as are essential for research interest.

(4) Rotation through three research laboratories in the first year, one term each, with course 596 credit (four units).

Since the Department of Neurobiology graduate degree program is a full participant in UCLA ACCESS, the students are referred to that program for further course requirements.

Written and Oral Qualifying Examinations

The written qualifying examination is intended to evaluate students' knowledge of the research field and ability to formulate a practical and significant research program.

Students submit by the end of the Spring Quarter of the second year a research proposal in the format of an individual National Institutes of Health (NIH) grant application. The research proposal reflects, as closely as possible in each individual's case, the plan for the dissertation research. Students whose research goals are well focused and formulated may also assemble a doctoral committee at this time, and that committee reviews and grades the proposal. If the student has not settled on a research focus at this point, the written research proposal encompasses as closely as possible a topic within the student's area of research interest. In this instance, an appropriate faculty committee is assembled to review and grade the proposal on a pass/fail basis. In either case, a research proposal that meets with approval of the appropriate committee constitutes the written qualifying examination.

Bona fide written dissertation proposals which satisfy the requirements for the written qualifying examination can be followed closely by the University Oral Qualifying Examination, which consists of an oral defense of the proposal accompanied by a 30- to 60-minute presentation with appropriately prepared visual aids. Research proposals that are less focused on the dissertation research, but which satisfy the requirements of the written qualifying examination, can be followed by a University Oral Qualifying Examination after plans for the dissertation research are formulated. The University Oral Qualifying Examination is heard and graded on a pass/fail basis by the student's doctoral committee. The examination is scheduled by the student and major professor at a time that allows all of the members of the committee to attend. There is no specified time allotment for the examination. However, it is anticipated that one-half day should be adequate in the majority of cases. In the event that the committee reaches the conclusion that a failing grade is necessary, either because the research plan is faulty or the student is inadequately prepared to defend the plan, one addi-

tional opportunity is given to modify the proposal and pass the examination. The first University Oral Qualifying Examination should be taken no later than two and one-half years into the program and any reexamination no later than three years.

The Department of Neurobiology may decline to admit any student to the qualifying examination if, in its judgment, the student is inadequately prepared, is not sufficiently interested in those fields of research in which the department can offer sufficient guidance, or is for other reasons not adaptable to the program.

Neurobiology

Lower Division Course

88. Lower Division Seminar: Special Topics in Neurobiology. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in neurobiology approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

104. Histology and Cell Biology. (6) Lecture, four hours; laboratory, six hours. Designed for dental students. Required of freshman dental students. Lectures, demonstrations, and laboratories dealing with structural organization of cells, tissues, and organs at microscopic level. Nervous system included.

106. Functional Neuroanatomy. (4) Lecture/laboratory, three two-hour sessions. Designed for dental students. Lectures, demonstrations, and laboratories dealing with structure and functional organization of nervous system.

199. Individual Special Studies. (2 to 8) Studies in anatomy and related subject areas appropriate for training of particular students, which may include reading assignments or laboratory work leading to a final oral or written report. P/NP or letter grading.

Graduate Courses

201. Microscopic Anatomy and Cell Biology (7 units). Lecture/laboratory, two to three three-hour sessions (16-week semester). Designed for medical students. Microscopic study of structure and function of tissues and cells, with special reference to the human body.

M202. Neuroanatomy: Structure and Function of Nervous System. (4) (Same as Neuroscience M201.) Lecture, three hours; laboratory, three hours. Requisite: Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166. Anatomy of central and peripheral nervous system at the cellular histological and regional systems level. Emphasis on contemporary experimental approaches to morphological study of nervous system in discussions of circuitry and neurochemical anatomy of major brain regions. Consideration of representative vertebrate and invertebrate nervous systems.

M203A-M203B. Neuroscience. (4-4) (Same as Physiology M203A-M203B.) Lecture, four hours. Designed for medical and qualified graduate program students. Lectures, conferences, demonstrations, and laboratory procedures necessary to understand functions of nervous system, with emphasis on their applications in the medical sciences. To receive credit, both courses must be taken together in same academic year. In Progress and letter grading.

M204. Cellular and Molecular Developmental Neurobiology. (4) (Same as Neuroscience M204, Physiology M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Requisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A-201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

M209A. Molecular Cell Biology. (6) (Same as Molecular, Cell, and Developmental Biology CM220 and Physiology M209A.) Not open for credit to students with credit for Molecular, Cell, and Developmental Biology 100 or M140. Introduction to cell biology for graduate students in basic medical sciences and selected undergraduates. Topics include membrane structure, assembly, and function; biogenesis of organelles, intercellular and intracellular signaling, immunity and gene structure, function and replication.

M209B. Cell and Tissue Neurobiology. (4) (Formerly numbered 209B.) (Same as Neuroscience M244.) Lecture, three hours; laboratory, three hours. Designed for graduate students. Introductory course for students planning to conduct cell biology or neurobiology research, with focus on cell biology and tissue organization of central and peripheral nervous system. Emphasis on normal structure of neurons, glia, and meninges.

211. Cellular Basis of Learned Behavior. (2) Lecture/discussion, one two-hour session; laboratory, to be arranged. Preparation: microscopic anatomy, mammalian physiology. Anatomy and physiology of cerebral processes in alerting, learning, focusing attention, and memory.

M221. Cellular and Molecular Neurochemistry. (4) (Same as Biological Chemistry M221, Neuroscience M240, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

M227. Cellular, Molecular, and Functional Aspects of Reproductive System. (4) (Formerly numbered 227.) (Same as Physiological Science M227.) Lecture, three hours; discussion, one hour. Didactic presentations and discussion of developmental, anatomical/histological, physiological, cellular, and molecular aspects of reproductive system and functional integration of neuroendocrine-reproductive axis.

M229. Oral Embryology and Histology. (4) (Same as Oral Biology M203.) Lectures and laboratory instruction in development and histological structure of facial region and oral and peri-oral organs and tissues.

M234. Seminar: Developmental Neuroendocrinology. (2) (Same as Oral Biology M234.) 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 a developmental perspective. S/U or letter grading.

M235. Neuroactive Peptides: Molecular Biology to Function. (2) (Same as Medicine M235 and Neuroscience M246.) Presentation of current knowledge of gut and brain peptides by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides. Review of current information about each of the major gut and brain peptides. S/U or letter grading.

251. Problems in Developmental and Comparative Immunology. (2) Review of current literature emphasizing early development and evolution of immune competence.

252. Evolution as a Complex Process. (2) Designed for graduate students. Study and examination of biological evolution as a fundamental complex process. S/U or letter grading.

254. Structure and Function of Cells and Tissues. (2) Lecture, one hour; discussion, one hour. Requisite or corequisite: course 104. Current topics on structural and functional aspects of microscopic anatomy; term paper required. May be repeated for credit. S/U grading.

M255. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Physiological Science M255 and Psychology M294.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of the 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.

258. Seminar: Neuroscience. (2) Preparation: basic neurology. Topics of current interest or ongoing research projects; examination of both content and method of presentation. May be repeated for credit.

259. Current Topics in Neurobiology. (2) Review and discussion of current research literature in varying areas of neurobiology. S/U grading.

M261. Neuronal Circuit Analysis. (2) (Same as Neuroscience M261.) Lecture, two hours; discussion, one hour. Seminar with strong emphasis on specific reading assignments. Integrated view of neuronal circuit analysis at advanced level; layout and performance of a variety of networks serving cognitive or motor functions.

265. Evolution of Cancer. (2) Review of current literature emphasizing appearance of tumors and neoplasms in representative invertebrates, fishes, amphibians, and reptiles. Theories of cancer development from the evolutionary viewpoint.

M270A-M270B-M270C. Cell, Molecular, and Integrative Biology Seminars. (2-2-2) (Same as Physiology M270A-M270B-M270C.) Seminar, one hour; discussion, one hour. Designed for graduate students. Presentation of weekly seminars and discussion on current topics in cell and molecular biology by faculty members from Neurobiology, Physiology, and other UCLA departments, in addition to invited lecturers. S/U grading.

290. Tutorials in Anatomy. (2) Tutorial, one hour. Individual study with a faculty member leading to submission of a scientific document (usually a review article) on a topic of mutual interest to instructor and student. S/U grading.

390A-390B. Peer Review System. (2-2) Preparation: advancement to candidacy in integrative or systems biology. Introduction to peer review system for evaluation of research proposals. After consideration of grant review process, each student prepares abbreviated grant application which is evaluated in a mock peer review session moderated by the faculty. In Progress and S/U grading.

495A-495F. Preparation for Teaching in Anatomical Sciences. (2 to 4 each) Designed for graduate students. Observation and practice of methods of teaching in anatomy, including preparation of material, participation in laboratory instruction, and presentation of review sessions, all with peer and faculty criticism. Gross anatomy, microscopic anatomy, and neuroanatomy subject fields included. Maximum of three 495 courses may be taken; none may be repeated. 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. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged.

598. Thesis Research for M.S. Candidates. (2 to 12) Tutorial, to be arranged.

599. Dissertation Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged.

Medical History Division

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73-235 Center for the Health Sciences
Box 951763
Los Angeles, CA 90095-1763

<http://www.medsch.ucla.edu/som/neurobio/medhistg.html>

Professor

Ynez V. O'Neill, Ph.D., *in Residence*

Associate Professor

Robert G. Frank, Jr., Ph.D., *Division Chief*

Upper Division Courses

107A-107B. Historical Development of Medical Sciences. (4-4) Lecture, three hours. Major contributions of medicine and medical personalities from earliest times. **107A.** Contributions of medicine and medical personalities from earliest times through 1650. **107B.** Subject in the period from 1650 through the 19th century. Illustrated lectures, class discussion, and required readings from selected texts.

M108A-M108B. History of Biological Sciences. (4-4) (Same as History M195F-M195G.) Lecture, three hours. Designed for juniors/seniors. **M108A.** Biological Sciences from Ancient Times to the Early 19th Century; **M108B.** Biological Sciences from the Early 19th Century to the Mid-20th Century.

120. Health Care in Los Angeles: Introduction to Cultural Medical Traditions. (4) Lecture, one hour; discussion, three hours. Exploration of health beliefs, traditions, and practices of major ethnic groups in Los Angeles area. Scholarly perspective on uses of alternative medicine to prepare students interested in health care to assist patients in clinical settings. P/NP or letter grading.

135. Popular Beliefs and Medicine. (4) Lecture, three hours. Investigation of some basic health beliefs and traditions that can potentially conflict with biomedicine and exploration of educational resources necessary to prepare health care students for the clinical situation. P/NP or letter grading.

Graduate Courses

240A-240B. History of Medical Sciences. (2-2) Lecture, one hour. Survey of development of scientific and medical thought from ancient times to the present.

246. Survey of History of Neuroscience: Its Impact on Psychology and Medicine. (2 to 4) Lecture, one hour; discussion, two hours. Development of experimental neuroscience from ancient concepts of nervous system through medieval, Renaissance, and Enlightenment eras to mid-20th century. Emphasis on landmarks in history of human brain and behavior demonstrating multidisciplinary approaches to contemporary social contexts.

250. History of Medical Psychology. (2) Lecture, one hour. Examination of themes underlying modern mental health theories. Beginning with review of contemporary thinking, lectures focus on various factors shaping present concepts of mental disorders and provide a framework for understanding current issues.

596. Directed Individual Studies in Medical History. (2 to 12) Investigation of subjects in medical history selected by students with advice and direction of instructor. Individual reports and conferences.

NEUROLOGY

School of Medicine

UCLA
C-128 Reed Neurological Research Center
Box 951769
Los Angeles, CA 90095-1769

(310) 206-6584
<http://neurology.medsch.ucla.edu/>

Chairs

Robert C. Collins, M.D. (*Frances Stark Professor of Neurology*), *Chair*

Mark A. Goldberg, M.D., Ph.D., *Vice Chair, Harbor-UCLA*

John Keeseey, M.D., *Vice Chair*

Claude G. Wasterlain, M.D., *Vice Chair, Sepulveda VA*

Scope and Objectives

Neurology is the medical science dealing with the normal and diseased nervous system. Neurological disorders are often associated with significant disability, morbidity, and mortality. Their higher incidence in association with greater longevity of the population, increased awareness, improved diagnostic methods, and other factors place neurological disorders among the major medical problems today. The Department of Neurology and the Reed Neurological Research Center provide means for a coordinated basic science and clinical research approach to neurological disorders, patient care, and neurological education.

The department instructs medical students throughout the four years. Emphasis in the first year is on basic aspects of neuroanatomy, chemistry, and physiology; in the second year, neurological history taking and neurological examination of afflicted patients are stressed. The third year consists of a clerkship, and the fourth year provides electives in neurology, including an advanced clinical clerkship.

For further details on the Department of Neurology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

Neurology

Upper Division Course

199. Special Studies. (2 to 8) Discussion, one to two hours; laboratory, four to six hours. Individual projects carried out under direction of a faculty member. Special studies in neurology, with appropriate objectives, readings, laboratory work, or other assignments designed for proper training of students.

NEUROSCIENCE

*Interdepartmental Undergraduate Program
College of Letters and Science*

UCLA
1506D Gonda Center
Box 951761
Los Angeles, CA 90095-1761

(310) 206-2349
<http://www.lifesci.ucla.edu/neurosci/>

Michael S. Levine, Ph.D., *Chair*

Professors

Arthur P. Arnold, Ph.D. (*Physiological Science*)

Utpal Banerjee, Ph.D. (*Molecular, Cell, and Developmental Biology*)

Jackson Beatty, Ph.D. (*Psychology*)

Nicholas C. Brecha, Ph.D., *in Residence (Neurobiology)*

Larry L. Butcher, Ph.D. (*Psychology*)

Scott H. Chandler, Ph.D. (*Physiological Science*)

Michael H. Chase, Ph.D., *in Residence (Physiology)*

Marie-Françoise Chesselet, M.D. Ph.D. (*Neurology*)

Robert C. Collins, M.D. (*Neurology*)

Edwin L. Cooper, M.D. (*Neurobiology*)

Jeffrey L. Cummings, Ph.D., *in Residence (Neurology)*

Joseph J. DiStefano III, Ph.D. (*Computer Science, Medicine*)

Bruce H. Dobkin, M.D. (*Neurology*)

V. Reggie Edgerton, Ph.D. (*Physiological Science*)

Gaylord D. Ellison, Ph.D. (*Psychology*)

Christopher J. Evans, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Gordon L. Fain, Ph.D. (*Physiological Science, Ophthalmology*)

Michael S. Fanselow, Ph.D. (*Psychology*)

Debra B. Farber, Ph.D., *in Residence (Ophthalmology)*

Jack L. Feldman, Ph.D. (*Physiological Science, Neurobiology*)

Joaquin M. Fuster, M.D., Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

C.R. Gallistel, Ph.D. (*Psychology*)

Roger A. Gorski, Ph.D. (*Neurobiology*)

Carlos V. Grijalva, Ph.D. (*Psychology*)

Alan D. Grinnell, Ph.D. (*Physiology*)

Volker Hartenstein, Ph.D. (*Molecular, Cell, and Developmental Biology*)

Keith Holyoak, Ph.D. (*Psychology*)

Franklin B. Krasne, Ph.D. (*Psychology*)

Michael S. Levine, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

John K.H. Lu, Ph.D. (*Obstetrics and Gynecology*)

Neil A. Martin, M.D. (*Surgery/Neurosurgery*)

Paul E. Micevych, Ph.D. (*Neurobiology*)

Istvan Mody, Ph.D. (*Neurology, Physiology*)

Peter M. Narins, Ph.D. (*Physiological Science*)

Edward M. Ornitz, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Michael J. Raleigh, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Arnold B. Scheibel, M.D. (*Neurobiology*)

John D. Schlag, M.D. (*Neurobiology*)

Gary W. Small, M.D. (*Psychiatry and Biobehavioral Sciences*)

Judith L. Smith, Ph.D. (*Physiological Science*)

Allan J. Tobin, Ph.D. (*Physiological Science, Neurology*)

Arthur W. Toga, Ph.D. (*Neurology*)

Jaime R. Villablanca, M.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Eran Zaidel, Ph.D. (*Psychology*)

Lonnie K. Zeltzer, M.D. (*Pediatrics, Anesthesiology*)

S. Larry Zipursky, Ph.D. (*Biological Chemistry*)

Associate Professors

James R. Boulter, Ph.D., (*Psychiatry and Biobehavioral Sciences*)

Kym F. Faull, Ph.D. (*Psychiatry and Biobehavioral Sciences*)

Itzhak Fried, M.D., Ph.D. (*Surgery/Neurosurgery*)
 Barry H. Guze, M.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Sally J. Krasne, Ph.D. (*Physiology*)
 Mario Mendez, M.D., Ph.D., in *Residence (Neurology)*
 Thomas J. O'Dell, Ph.D., in *Residence (Physiology)*
 Paul O'Lague, Ph.D. (*Molecular, Cell, and Developmental Biology*)
 Nigel Maidment, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Diane M. Papazian, Ph.D. (*Physiology*)
 Gregory S. Payne, Ph.D. (*Biological Chemistry*)
 Stanley J. Schein, Ph.D., M.D. (*Psychology*)
 James A. Waschek, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Joseph B. Watson, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*

Assistant Professors

Susan Y. Bookheimer, Ph.D. (*Psychiatry and Biobehavioral Sciences*)
 Jeff Bronstein, M.D., Ph.D. (*Neurology*)
 Andrew C. Charles, M.D., in *Residence (Neurology)*
 Christopher S. Colwell, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Ana Maria Correa, Ph.D., in *Residence (Anesthesiology)*
 Stephan A. Engel, Ph.D. (*Psychology*)
 Milan Fiala, Ph.D. (*Medicine*)
 Alan Garfinkel, Ph.D. (*Medicine, Physiological Science*)
 David L. Glanzman, Ph.D. (*Physiological Science*)
 Larry F. Hoffman, Ph.D., in *Residence (Surgery)*
 Barbara Knowlton, Ph.D. (*Psychology*)
 Harley I. Kornblum, M.D., Ph.D. (*Molecular and Medical Pharmacology*)
 Xin Liu, Ph.D. (*Pathology and Laboratory Medicine*)
 Gary W. Mathern, M.D., in *Residence (Surgery/Neurosurgery)*
 Michael S. Mega, M.D., Ph.D., in *Residence (Neurology)*
 Sheila Nirenberg, Ph.D. (*Neurobiology*)
 Patricia E. Phelps, Ph.D. (*Physiological Science*)
 Uma Rao, M.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Sanjaya Saxena, M.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Barney A. Schlinger, Ph.D. (*Physiological Science*)
 Igor Spigelman, Ph.D. (*Dentistry*)
 Jeffrey L. Twiss, M.D., Ph.D. (*Pathology and Laboratory Medicine*)
 Alexander Van der Bliek, Ph.D. (*Biological Chemistry*)
 Nancy L. Wayne, Ph.D. (*Physiology*)
 Geraldine A. Weinmaster, Ph.D. (*Biological Chemistry*)
 Cui-Wei Xie, M.D., Ph.D. (*Psychiatry and Biobehavioral Sciences*)

Adjunct Associate Professors

Charles L. Wilson, Ph.D. (*Neurology*)
 Jen Yu Wei, Ph.D. (*Medicine/Digestive Diseases*)

Scope and Objectives

Neuroscience seeks to understand the brain in health and in disease. Topics of fundamental interest include perception, cognition, learning, memory, motor control, and regulation of body function. The undergraduate interdepartmental program seeks to explore the principles and concepts of this broad range of nervous system function at many levels of analysis, including molecular, cellular, synaptic, network, computational, and behavioral.

Undergraduate Study

Neuroscience B.S.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 140, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.5 or better. Students are encouraged to fulfill the preparation requirements prior to enrollment in courses for the major. Transfer students are counseled on an individual basis.

In fulfilling the college general education requirements, students are encouraged to select courses that complement the major; Psychology 10 is recommended as a social sciences elective. They are also encouraged to take a statistics course (e.g., Statistics 10 or approved lower or upper division equivalent).

Transfer Students

To be admitted as Neuroscience majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

The Major

The following 12 courses are required for the Neuroscience major. Consult respective departmental or program listings for course descriptions:

Group 1: Neuroscience M101A-M101B-M101C, M102, Chemistry and Biochemistry 153A, 153L.

Group 2: Three four-unit area electives (one from each area) as follows:

Area 2A: One *behavioral and cognitive neuroscience* course from Neuroscience M119L, 197A, Organismic Biology, Ecology, and Evolution 129, 132, Psychology 110, 112A, 118, 119A, 119B, 119D, 119E, 119G, 119J, 119M, 120, 124A, 186A, 186B.

Area 2B: One *systems and integrative neuroscience* course from Computer Science M196B, Molecular, Cell, and Developmental Biology 171, Neuroscience M119N, M130, M174, 197B, Organismic Biology, Ecology, and Evolution M166, 167, M173, Physiological Science 111B, C125, 126, 138, 142, C143, C144, C145, Psychology 119F.

Area 2C: One *molecular, cell, and developmental neuroscience* course from Molecular, Cell, and Developmental Biology 138, C139, M185A, Neuroscience M148, 151, 197C, Organismic Biology, Ecology, and Evolution M158, Physiological Science 147.

Group 3: One research-related course from the following: Neuroscience 101L (one term) or 199 (two terms in the same laboratory: one term applies toward Group 3 and one toward Group 4) or 199HA and 199HB (both terms in the same laboratory: one term applies toward Group 3 and one toward Group 4) or Psychology M181A-M181B (with approval of the neuroscience curriculum committee before start of project: one term applies toward Group 3 and one toward Group 4).

Group 4: Two additional elective courses from the Group 2 or 3 list or from Chemistry and Biochemistry 130B, 153C, Molecular, Cell, and Developmental Biology 104, CM156, C174A through C174F (two courses at two units each), CM185B, Neurobiology/Medical History 246, Physiological Science C100, C135.

Psychology 115 cannot be substituted for Neuroscience M101A; however, Physiological Science 111A can be substituted. Students may not apply both Molecular, Cell, and Developmental Biology 171 and Neuroscience M148/Physiological Science M148 toward the major; only one of the courses may be applied.

No more than eight courses may be from any one department. A maximum of eight units of Neuroscience 199 or 199H (in any combination) may be applied toward the major. All required and elective courses must be taken for a letter grade, and a C average must be maintained in all upper division courses taken for the major.

Honors Program

The honors program provides exceptional Neuroscience majors with the opportunity to do research culminating in an honors thesis. Requirements for admission include completion of at least 40 units toward the preparation for the major with a 3.2 grade-point average and an overall GPA of 3.2 at UCLA. Applications and program requirements are available in the Neuroscience Undergraduate Office, 1506D Gonda Center. Completed applications should be submitted at least two weeks prior to the term in which students plan to begin the honors program. After completion of all requirements and with the recommendation of the faculty sponsor and a second reader of the thesis, the chair confers honors at graduation.

Neuroscience Minor

The Neuroscience minor is designed to allow students in other majors an opportunity to explore the interdisciplinary field of neuroscience in a structured and rigorous way, while pursuing a major field of study in another discipline at the same time.

To enter the minor, students must have an overall grade-point average of 2.0 or better and a 2.5 GPA in the requisite courses for Neuroscience M101A.

Required Upper Division Courses (31 units): Neuroscience M101A-M101B-M101C (five units each) and four elective courses (16 units) selected from M102 or from Group 2, 3, or 4 as listed under the Neuroscience major.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Neuroscience

See the Neuroscience Interdepartmental Graduate Program for the graduate course offerings.

Upper Division Courses

M101A-M101B-M101C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Physiological Science M180A-M180B-M180C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, one hour. P/NP or letter grading:

M101A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: Chemistry 14C or 30 or former course 10D (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. Not open for credit to students with credit for Physiological Science 111A. 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.

M101B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115, Life Sciences 3, 4. 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.

M101C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisite: course M101B (or Molecular, Cell, and Developmental Biology M175B or Physiological Science M180B or Psychology M117B) or Physiological Science 111A or Psychology 115. 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.

M102. Introduction to Functional Anatomy of Central Nervous System. (4) (Formerly numbered M132.) (Same as Psychology M117K.) Lecture, two hours; laboratory, two hours. Requisite: Life Sciences 2. Not open to freshmen. Overview of human nervous system; relation of behavior to higher cognitive function. Development of primate and human brain during past few million years; evolutionary aspects of neuroanatomical structures and effects of behavior and cultural attitudes of modern man. P/NP or letter grading.

103. Neuroscience for Physicists, Mathematicians, and Engineers. (4) Lecture, three hours. Introduction to the brain and neural function; mathematical models and computer simulations of neural networks. Biophysics of neurons, engineering approaches to neural control systems.

M119L. Human Neuropsychology. (4) (Same as Psychology M119L.) Lecture, three hours. Requisites: courses M101A and M101C (or Psychology 115), Psychology 120. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

M119N. The Visual System. (4) (Same as Psychology M119N.) Lecture, three hours. Requisite: course M101A or Molecular, Cell, and Developmental Biology 171 or Physiological Science 111A or Psychology 115. The ability to image and analyze the visual world is a truly remarkable feat. Coverage of anatomy and physiology of visual processing from the retina to visual cortex through lectures, extensive reading, and discussions.

M130. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M191, Physiological Science M181, Psychiatry M191, and Psychology M117J.) 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. Underlying brain systems involved in psychiatric syndromes and neurological disorders, including schizophrenia, depression, bipolar disorders, obsessive/compulsive disorder, eating disorders. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments.

M148. Molecular and Cellular Physiology of Neurons. (5) (Same as Physiological Science M148.) Lecture, four hours; outside study, 11 hours. Requisite: course M101A or Physiological Science 111A. Advanced treatment of selected topics in cellular neurophysiology.

151. Transgenic Models and Gene Transfer Technology in Understanding and Treatment of Neuropsychiatric Disease. (4) Lecture, three hours. Requisite: course M101B. Genetic defects in neuropsychiatric disease; how genome is experimentally manipulated to understand more about role of genes in normal development of brain and in disease. Required student participation in discussions.

M174. Biomedical Systems/Biocybernetics Research Laboratory. (4) (Same as Computer Science CM196L.) Lecture, one hour; laboratory, three hours; outside study, eight hours. Requisite: Computer Science M196B. Special laboratory techniques and experience in biocybernetics research. Laboratory instruments, their use, design, and/or modification for research in life sciences. Special research hardware, firmware, software. Use of simulation in experimental laboratory. Laboratory automation and safety. Comprehensive experiment design. Radioactive isotopes and kinetic studies. Experimental animals, controls. Letter grading.

194. Independent Study of Neuroscience Literature. (2) Library research, six hours minimum. Requisite: course M101A. Directed independent library research with a faculty member. Written proposal must be submitted prior to start of course, with a paper required at end of term. May not be applied toward elective requirements for the major and may not be taken concurrently with course 199, 199HA, or 199HB. P/NP grading.

196H. Honors in Neuroscience. (4) Lecture, one hour; discussion, two 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 the major. Must be taken during Winter Quarter of academic year that student enrolls in courses 199HA/199HB. Letter grading.

197A-197B-197C. Special Topics in Neuroscience. (4-4-4) (Formerly numbered 197.) Lecture, three hours. Requisite: course M101A. Topics on one or more aspects of neuroscience. May be applied as an elective only in the specific area of group 2. **197A.** Behavioral and Cognitive Neuroscience; **197B.** Systems and Integrative Neuroscience; **197C.** Molecular, Cell, and Developmental Neuroscience.

199. Independent Research in Neuroscience. (4) Laboratory, 12 hours minimum. Requisite: course M101A. Limited to seniors and juniors with grades of B (3.0) or better. Directed independent research with a faculty member. Maximum of eight units of courses 199, 199HA, 199HB may be applied toward the major.

199HA. Honors Thesis in Neuroscience. (4) Laboratory, 12 hours minimum. Requisite: course M101A. Limited to neuroscience honors program students. Directed independent research involving extensive reading and research in the field of proposed honors thesis. For departmental honors, students must also take course 196H. Maximum of eight units of courses 199, 199HA, 199HB may be applied toward the major. In Progress grading (credit to be given only on completion of course 199HB).

199HB. Honors Thesis in Neuroscience. (4) Laboratory, 12 hours minimum. Requisite: course 199HA. Continued reading and research that culminate in honors thesis. For departmental honors, students must also take course 196H. Maximum of eight units of courses 199, 199HA, 199HB may be applied toward the major.

Course List

Chemistry and Biochemistry

130B. Organic Chemistry: Reactivity and Synthesis, Part II

153C. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation

Computer Science

M196B. Modeling and Simulation of Biological Systems

Molecular, Cell, and Developmental Biology

104. Cell and Molecular Biology Laboratory

138. Developmental Biology

C139. Molecular Cell Biology

CM156. Human Genetics

171. Principles of Neurobiology

C174A-C174G. Advanced Topics in Cell and Molecular Biology

M185A. Immunology

CM185B. Intermediate Immunology

Organismic Biology, Ecology, and Evolution

129. Animal Behavior

132. Field Behavioral Ecology

M158. Cell Biology

M166. Animal Physiology

167. Regulatory Physiology

M173. Anatomy and Physiology of Sense Organs

Physiological Science

C100. Experimental Statistics

111B. Foundations in Physiological Science

C125. Comparative Endocrinology: Molecular to Behavioral

126. Biological Clocks

C135. Dynamical Systems Modeling of Physiological Processes

138. Neuromuscular Physiology and Adaptation

142. Sensorimotor Physiology

C143. Neuromotor Control of Posture and Movement

C144. Neural Control of Physiological Systems

C145. Neural Mechanisms Controlling Movement

147. Neurobiology of Learning and Memory

Psychology

110. Fundamentals of Learning

112A. Basic Processes of Motivated Behavior
 118. Comparative Psychobiology
 119A. Neuropsychopharmacology
 119B. Human Neurophysiology
 119D. Behavioral Pharmacology
 119E. Stress and Bodily Disease
 119F. Neuron Circuitry and Behavior
 119G. Psychobiology of Pain and Pain Inhibition
 119J. Ethology: Behavior and Learning
 119M. Physiological Psychology of Learning
 120. Cognitive Psychology
 124A. Sensation and Perception
 M181A-M181B. Research in Contemporary Problems
 in Mental Retardation
 186A. Cognitive Science Laboratory: Introduction to
 Theory and Simulation
 186B. Cognitive Science Laboratory: Neural Net-
 works

Volker Hartenstein, Ph.D. (*Molecular, Cell, and
 Developmental Biology*)
 Vincente Honrubia, M.D. (*Surgery*)
 Carolyn R. Houser, Ph.D., in *Residence*
 (*Neurobiology*)
 Bruce D. Howard, M.D. (*Biological Chemistry*)
 Franklin B. Krasne, Ph.D. (*Psychology*)
 Michael S. Levine, Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 John C. Mazziotta, M.D., Ph.D. (*Molecular and Medical
 Pharmacology, Neurology, Radiological Sciences*)
 Paul E. Micevych, Ph.D. (*Neurobiology*)
 Istvan Mody, Ph.D. (*Neurology, Physiology*)
 Peter M. Narins, Ph.D. (*Physiological Science*)
 Richard W. Olsen, Ph.D. (*Molecular and Medical
 Pharmacology*)
 William M. Pardridge, M.D. (*Medicine*)
 Michael E. Phelps, Ph.D. (*Molecular and Medical
 Pharmacology*)
 Russell E. Poland, Ph.D. (*Psychiatry and
 Biobehavioral Sciences*)
 Leonard H. Rome, Ph.D. (*Biological Chemistry*)
 Arnold B. Scheibel, M.D. (*Neurobiology, Psychiatry
 and Biobehavioral Sciences*)
 John D. Schlag, M.D. (*Neurobiology*)
 Jerome M. Siegel, Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 Gary W. Small, M.D. (*Psychiatry and Biobehavioral
 Sciences*)
 Enrico Stefani, M.D., Ph.D. (*Anesthesiology,
 Physiology*)
 Allan J. Tobin, Ph.D. (*Neurology, Physiological
 Science*)
 Arthur W. Toga, Ph.D. (*Neurology*)
 Julio L. Vergara, Ph.D. (*Physiology*)
 Jacques J. Vidal, Ph.D. (*Computer Science*)
 Harry V. Vinters, M.D. (*Pathology and Laboratory
 Medicine*)
 Claude G. Wasterlain, M.D., in *Residence*
 (*Neurology*)
 Peter C. Whybrow, M.D. (*Psychiatry and Biobehavioral
 Sciences*)
 Charles D. Woody, M.D., in *Residence* (*Neurobiology,
 Psychiatry and Biobehavioral Sciences*)
 Eran Zaidel, Ph.D. (*Psychology*)
 S. Larry Zipursky, Ph.D. (*Biological Chemistry*)

Igor Spigelman, Ph.D. (*Dentistry, Oral Biology*)
 Joseph B. Watson, Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)

Assistant Professors

Susan Y. Bookheimer, Ph.D. (*Psychiatry and
 Biobehavioral Sciences*)
 Jeff Bronstein, M.D., Ph.D. (*Neurology*)
 Dean V. Buonomano, Ph.D. (*Neurobiology*)
 Ellen M. Carpenter, Ph.D., in *Residence*
 (*Neurobiology, Psychiatry and Biobehavioral
 Sciences*)
 Susana Cohen-Cory, Ph.D., in *Residence*
 (*Neurobiology, Psychiatry and Biobehavioral
 Sciences*)
 Christopher S. Colwell, Ph.D. (*Psychiatry and
 Biobehavioral Sciences*)
 Ana Maria Correa, Ph.D., in *Residence*
 (*Anesthesiology*)
 Stephen A. Engel, Ph.D. (*Psychology*)
 Alan Garfinkel, Ph.D. (*Medicine, Physiological
 Science*)
 Daniel H. Geschwind, M.D., Ph.D. (*Neurology*)
 Jack Judy, Ph.D. (*Electrical Engineering*)
 Barbara Knowlton, Ph.D. (*Psychology*)
 Harley I. Kornblum, M.D., Ph.D. (*Molecular and
 Medical Pharmacology*)
 Xin Liu, M.D., Ph.D. (*Molecular and Medical
 Pharmacology, Pathology and Laboratory Medicine*)
 William P. Melega, Ph.D. (*Molecular and Medical
 Pharmacology*)
 Jonathan R. Monck, Ph.D. (*Physiology*)
 Sheila Nirenberg, Ph.D. (*Neurobiology*)
 Thomas Otis, Ph.D. (*Neurobiology*)
 James A. Waschek, Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 Patricia E. Phelps, Ph.D. (*Physiological Science*)
 Dario Ringach, Ph.D. (*Neurobiology*)
 N. Carolyn Schanen, M.D., Ph.D., (*Human Genetics,
 Pediatrics*)
 Felix E. Schweizer, Ph.D. (*Neurobiology*)
 Jeffrey L. Twiss, M.D., Ph.D. (*Pathology and
 Laboratory Medicine*)
 Desmond Smith, M.D., Ph.D. (*Molecular and Medical
 Pharmacology*)
 Rhonda R. Voskuhl, M.D. (*Neurology*)
 Nancy L. Wayne, Ph.D. (*Physiology*)
 Geraldine A. Weinmaster, Ph.D. (*Biological
 Chemistry*)
 Cui-Wei Xie, M.D., Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 Xianjie Yang, Ph.D., in *Residence* (*Neurobiology,
 Ophthalmology*)

NEUROSCIENCE

Interdepartmental Graduate Program
 School of Medicine

UCLA
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Arthur P. Arnold, Ph.D., *Chair*

Professors

Arthur P. Arnold, Ph.D. (*Neurobiology, Physiological
 Science*)
 Utpal Banerjee, Ph.D. (*Molecular, Cell, and
 Developmental Biology*)
 Francisco J. Bezanilla, Ph.D. (*Physiology*)
 Lutz Birnbaumer, Ph.D. (*Anesthesiology, Biological
 Chemistry*)
 Mariel Birnbaumer, Ph.D. (*Anesthesiology,
 Physiology*)
 Nicholas C. Brecha, Ph.D., in *Residence* (*Medicine,
 Neurobiology*)
 Anthony T. Campagnoni, Ph.D., in *Residence*
 (*Psychiatry and Biobehavioral Sciences*)
 Scott H. Chandler, Ph.D. (*Physiological Science*)
 Michael H. Chase, Ph.D., in *Residence* (*Physiology*)
 Marie-Francoise Chesselet, M.D., Ph.D. (*Neurology*)
 Robert C. Collins, M.D. (*Neurology*)
 Jeffrey L. Cummings, M.D. (*Neurology*)
 Jean S. de Vellis, Ph.D., in *Residence* (*Neurobiology,
 Psychiatry and Biobehavioral Sciences*)
 V. Reggie Edgerton, Ph.D. (*Neurobiology,
 Physiological Science*)
 Jerome Engel, M.D., Ph.D. (*Neurobiology, Neurology*)
 Christopher J. Evans, Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 Gordon L. Fain, Ph.D. (*Ophthalmology, Physiological
 Science*)
 Michael S. Fanselow, Ph.D. (*Psychology*)
 Debora B. Farber, Ph.D., in *Residence*
 (*Ophthalmology*)
 Jack L. Feldman, Ph.D. (*Physiological Science,
 Neurobiology*)
 Robin S. Fisher, Ph.D., in *Residence* (*Neurobiology,
 Psychiatry and Biobehavioral Sciences*)
 Joaquin M. Fuster, M.D., Ph.D., in *Residence*
 (*Psychiatry and Biobehavioral Sciences*)
 C.R. Gallistel, Ph.D. (*Psychology*)
 Roger A. Gorski, Ph.D. (*Neurobiology*)
 Carlos V. Grijalva, Ph.D. (*Psychology*)
 Alan D. Grinnell, Ph.D. (*Physiological Science,
 Physiology*)
 Ronald M. Harper, Ph.D. (*Neurobiology*)

Professors Emeriti

Carmine D. Clemente, Ph.D. (*Neurobiology*)
 Samuel Eiduson, Ph.D. (*Psychiatry and Biobehavioral
 Sciences*)
 Lawrence Kruger, Ph.D. (*Anesthesiology,
 Neurobiology*)

Associate Professors

James R. Boulter, Ph.D., in *Residence* (*Psychiatry and
 Biobehavioral Sciences*)
 Mark S. Cohen, Ph.D. (*Neurology, Psychiatry and
 Biobehavioral Science, Radiological Sciences*)
 Joseph L. Demer, M.D., Ph.D. (*Ophthalmology,
 Neurology*)
 Kym F. Faull, Ph.D., in *Residence* (*Chemistry and
 Biochemistry, Psychiatry and Biobehavioral
 Sciences*)
 Itzhak Fried, M.D., Ph.D., in *Residence* (*Neurosurgery,
 Psychiatry and Biobehavioral Sciences*)
 Cameron B. Gundersen, Ph.D. (*Molecular and Medical
 Pharmacology*)
 David L. Glanzman, Ph.D. (*Neurobiology,
 Physiological Science*)
 David A. Hovda, Ph.D. (*Neurosurgery*)
 Daniel L. Kaufman, Ph.D. (*Molecular and Medical
 Pharmacology*)
 Sally J. Krasne, Ph.D. (*Physiology*)
 Andrew F. Leuchter, M.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 Nigel T. Maidment, Ph.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 James T. McCracken, M.D., in *Residence* (*Psychiatry
 and Biobehavioral Sciences*)
 Thomas J. O'Dell, Ph.D. (*Physiology*)
 Diane M. Papazian, Ph.D. (*Physiology*)
 Gregory S. Payne, Ph.D. (*Biological Chemistry*)
 Stanley J. Schein, M.D., Ph.D. (*Psychology*)
 Barney A. Schlinger, Ph.D. (*Physiological Science*)
 Alcino J. Silva, Ph.D. (*Neurobiology*)
 Ligia Toro, Ph.D. (*Anesthesiology*)

Adjunct Professor

Dennis J. McGinty, Ph.D. (*Psychology*)
 Valeriy I. Nenov, Ph.D. (*Neurosurgery*)

Adjunct Associate Professor

Charles L. Wilson, Ph.D., (*Neurology*)

Adjunct Assistant Professor

Valeriy I. Nenov, Ph.D. (*Neurosurgery*)

Scope and Objectives

The goal of the interdepartmental graduate Neuroscience Program is to educate students for careers in neuroscience research and teaching. Students completing this program should be able to address both traditional and novel problems in neuroscience, armed with contemporary concepts and techniques. The program recognizes that neuroscience studies the structure and organization of nervous systems; intercellular and intracellular communication, including the cellular and molecular basis of neurotransmitter production and reception; development, including the molecular and cellular basis of trophic interactions; behavior; cognition; and the neurobiological and molecular bases of neurological and neuropsychiatric disorders.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

None.

Doctoral Degree

Admission

Successful applicants to the program leading to the Ph.D. degree in Neuroscience must satisfy the University minimum requirements. In addition, Graduate Record Examination (GRE) or Medical College Admission Test (MCAT) scores are required. Recommended preparation includes mathematics through calculus and at least one year each of general chemistry, organic chemistry and biochemistry, physics, and basic biology, including molecular and cell biology. Three letters of recommendation are required.

Major Fields or Subdisciplines

Molecular, cellular, developmental, systems, behavioral, and clinical neuroscience.

Course Requirements

First-year students take a five-course sequence (Neuroscience M201, M202, M203, M204, M205) and participate in at least two laboratory rotations. Students also attend a "Meet the Professors" presentation series and enroll in a three-quarter seminar series, Neuroscience 210A-210B-210C.

Second-year students take at least one quarter of biomathematics (either Biomathematics 160, 170A, 170B, Physiological Science CM200, or Psychology 250A), as well as three courses from a menu of advanced neuroscience courses. In the second or third year, students take an additional three quarters of Neuroscience 211A-211B-211C.

Written and Oral Qualifying Examinations

A written qualifying examination is required following completion of the core requirements, generally by the beginning of the second year. The objective of the examination is to test basic knowledge and ability to relate knowledge in different neuroscience areas, to locate and interpret literature, and to apply research problems.

After passing the written qualifying examination, students, in consultation with the adviser, choose the doctoral committee to administer the University Oral Qualifying Examination.

Neuroscience

Graduate Courses

M201. Neuroanatomy: Structure and Function of Nervous System. (4) (Same as Neurobiology M202.) Lecture, three hours; laboratory, three hours. Requisite: Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166. Anatomy of central and peripheral nervous system at the cellular histological and regional systems level. Emphasis on contemporary experimental approaches to morphological study of nervous system in discussions of circuitry and neurochemical anatomy of major brain regions. Consideration of representative vertebrate and invertebrate nervous systems.

M202. Cellular Neurophysiology. (4) (Same as Physiological Science M202.) Lecture, three hours; discussion, one hour. Requisites: Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166, Physiological Science 111A or M180A or Physics 6B. 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.

M203. Molecular Neurobiology. (4) (Same as Psychiatry M203.) Lecture, three hours; discussion, one hour. Preparation: basic biochemistry. Requisites: Biological Chemistry 201A-201B. Introduction to neurochemistry for neuroscience students. Topics include protein structure and function, lipid structure and metabolism, nucleic acids/molecular biology.

M204. Cellular and Molecular Developmental Neurobiology. (4) (Same as Neurobiology M204, Physiology M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Requisites: courses M201, M202, and M203, or Biological Chemistry 201A-201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

M205. Behavioral and Systems Neuroscience. (4) (Same as Physiological Science M205 and Psychology M205Z.) Lecture, three hours. Requisites: courses M201, M202, M203, M204. Introduction to fundamentals of behavioral and systems neuroscience, with emphasis on role of behavioral analysis in understanding the functioning of nervous system and identifying anatomical circuits, cell physiological processes, and molecular mechanisms that mediate behaviorally defined functions.

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-210B-210C. Introduction to Current Literature in Neuroscience. (2-2-2) Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading. **210A.** Corequisites: courses M201, M202, M203. **210B.** Corequisite: course M204. **210C.** Corequisite: course M205.

211A-211B-211C. Evaluation of Research Literature in Neuroscience. (2-2-2) Requisites: courses M201, M202, M203, M204, M205. Advanced critical analysis of current research in neuroscience. S/U grading.

215. Seminar: Neuroscience. (2) Topics of current importance presented for discussion. S/U grading.

M230. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Physiological Science M210 and Physiology M210.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Requisite: course M202 or Physiology M209A. 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.

M233. Mechanisms and Relief of Pain. (2) (Same as Oral Biology M204.) 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.

M240. Cellular and Molecular Neurochemistry. (4) (Same as Biological Chemistry M221, Neurobiology M221, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

M244. Cell and Tissue Neurobiology. (4) (Same as Neurobiology M209B.) Lecture, three hours; laboratory, three hours. Designed for graduate students. Introductory course for students planning to conduct cell biology or neurobiology research, with focus on cell biology and tissue organization of central and peripheral nervous system. Emphasis on normal structure of neurons, glia, and meninges.

M246. Neuroactive Peptides: Molecular Biology to Function. (2) (Same as Medicine M235 and Neurobiology M235.) Presentation of current knowledge of gut and brain peptides by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides. Review of current information about each of the major gut and brain peptides. S/U or letter grading.

M247. Neural Control of Cardiopulmonary Function. (4) (Same as Physiological Science M247.) Lecture, two hours; discussion, two hours. Requisites: Physiological Science 111A, 111B or 133 or 142 or M180A, M180B. Cardiorespiratory homeostasis is accomplished via central nervous system (CNS) control of respiratory and circulatory pumping systems. Focus on CNS mechanisms underlying (1) generation of respiratory rhythm, sympathetic and parasympathetic tone, (2) determination of patterns of motor outflow, and (3) responses to changes in behavioral state or afferent signals. Emphasis on critical reading of literature.

254. Interdisciplinary Research Seminar. (2) Lectures and discussions on many different disciplinary approaches to knowledge of brain function in order to broaden experience of students studying in fields other than that of lecture; new information in depth from students in fields closely related to subject discussed. S/U grading.

M255. Functional Organization of Behavior. (2) (Same as Psychiatry M255.) 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.

257. Structure and Function of Limbic System. (2) Current knowledge of mammalian limbic system presented by surveying studies of its developmental anatomy, intrinsic synaptic organization, synaptic chemistry, afferent and efferent circuits, and dysfunctions in memory and cognition association with limbic system function. S/U or letter grading.

M259. Neurobiology of Sleep. (3) (Same as Psychiatry M249 and Psychology M296.) Lecture, one hour; discussion, two hours. Critical review of primary research publications concerning neural basis of sleep. Discussion of neural and biochemical control of REM and NREM sleep after reviewing sleep behavior and phenomenology, including developmental and comparative aspects. Presentation of relevant clinical phenomena. S/U or letter grading.

M260. Neuromuscular Factors in Movement Regulation. (4) (Same as Physiological Science M260.) Requisite: Physiological Science 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.

M261. Neuronal Circuit Analysis. (2) (Same as Neurobiology M261.) Lecture, two hours; discussion, one hour. Seminar with strong emphasis on specific reading assignments. Integrated view of neuronal circuit analysis at advanced level; layout and performance of a variety of networks serving cognitive or motor functions.

M262. Neural Systems for Motor Control. (4) (Same as Physiological Science M240.) Requisite: Physiological Science C143. Advanced topics on neural mechanisms related to control of posture, locomotion, and highly skilled arm and hand movements. Emphasis on role of movement-dependent feedback at spinal segments and within sensorimotor areas of cerebral cortex, with respect to modification of motor output.

M263. Neuronal Mechanisms Controlling Rhythmic Movements. (4) (Same as Physiological Science M263.) Requisite: Physiological Science C145. 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.

M266A-M266B-M266C. Seminars: Cellular Neuroscience. (2 to 4 each) (Same as Physiological Science M295A-M295B-M295C.) 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.

M267. Advanced Magnetic Resonance Imaging. (4) (Same as Biomedical Physics M266 and Psychiatry M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

271. Neurobiology of Disease. (2) Analysis of clinical neurological and psychiatric disorders from perspective of basic neuroscience.

M272. Neuroimaging and Brain Mapping. (4) (Same as Physiological Science M272 and Psychology M213.) Lecture, three hours; outside study, nine hours. Recommended preparation: mathematics and computer background. 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.

M273. 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.

274. Computational Neuroscience. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses M201, M202. Systematic introduction to computational neuroscience and hands-on experience in neural simulations. Computational models at synaptic, neuronal, and network levels. Sensory, motor, memory, and attentional systems and some higher cognitive functions, including language and consciousness. S/U or letter grading.

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.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Methods in Neuroscience Public Education. (2) Seminar, one hour; fieldwork, six hours. Designed for juniors/seniors and graduate students. Training and supervised practicum for students in teaching, presentation techniques, and public outreach of neuroscience principles. Hands-on experience through fieldwork in approved community setting. Students assist in preparation of educational materials and development of innovative programs. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged.

599. Dissertation Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged. Designed for students requiring special instruction or time to work on dissertation.

NURSING

School of Nursing

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<http://www.nursing.ucla.edu/>

Marie J. Cowan, R.N., Ph.D., F.A.A.N., *Dean*
Adeline M. Nyamathi, R.N., Ph.D., F.A.A.N.,
Associate Dean for Academic Affairs
Geraldine V. Padilla, Ph.D., *Associate Dean for Research*

Professors

Betty L. Chang, R.N., D.N.Sc., F.A.A.N.
Marie J. Cowan, R.N., Ph.D., F.A.A.N.
Kathleen A. Dracup, R.N., D.N.Sc., F.A.A.N. (*Lulu Wolf Hassenplug Professor of Nursing*)
Jacquelyn H. Flakerud, R.N., Ph.D., F.A.A.N.
Deborah Koniak-Griffin, R.N., Ed.D., F.A.A.N.
Charles E. Lewis, M.D., Sc.D.
Mary A. Lewis, R.N., Dr.P.H., F.A.A.N.
Adeline M. Nyamathi, R.N., Ph.D., F.A.A.N.
Geraldine V. Padilla, Ph.D.
Gwen M. van Servellen, R.N., Ph.D., F.A.A.N.
Donna L. Vredevoe, Ph.D.

Professors Emeriti

Olive Y. Burner, R.N., Ph.D.
Barbara A. Davis, R.N., Ed.D.
Dorothy E. Johnson, R.N., M.P.H.
Harriet C. Moidel, R.N., M.A.

Agnes A. O'Leary, R.N., M.P.H.
Sharon J. Reeder, R.N., Ph.D., F.A.A.N.
Maria W. Seraydarian, Ph.D.
Donna F. Ver Steeg, R.N., Ph.D., F.A.A.N.
Frances M. Wiley, R.N., M.N.

Associate Professors

Nancy L.R. Anderson, R.N., Ph.D.
Linda P. Sarna, R.N., D.N.Sc., F.A.A.N.
Anne K. Wuerker, R.N., Ph.D.
Lina K. Zahr, R.N., D.N.Sc.

Assistant Professors

Jill P. Berg, R.N., Ph.D.
Mary P. Cadogan, R.N., Dr.P.H.
Margaret A. Compton, R.N., Ph.D.
Lynn V. Doering, R.N., D.N.Sc.
Karen H. Gyllys, R.N., Ph.D.
MarySue V. Heilemann, R.N., Ph.D.
Donna K. McNeese-Smith, R.N., Ed.D.
Roberta K. Oka, R.N., Ph.D.
Susan R. Opas, R.N., Ph.D.
Wendie A. Robbins, R.N., Ph.D.
Dorothy J. Wiley, R.N., Ph.D., *in Residence*
Mary A. Woo, R.N., D.N.Sc.

Lecturers

Vera J. Bahry, R.N., M.S.N.
Caron Burch, R.N., M.S.N.
Nancy J. Bush, R.N., M.N.
Mary M. Canobbio, R.N., M.N.
Elizabeth Cattell, R.N., M.N.
Corrine S. Collins, R.N., M.N.
Mary Day, R.N., M.S.N.
Felicia Forrest, R.N., M.S.N.
Jan M. Fredrickson, R.N., M.N.
Carol L. Gemberling, R.N., M.N.
Virginia Hart-Kepler, R.N., M.N.
Susan M. Huser, R.N., M.S.
Joyleen Y. Martinez, R.N., M.S.N.
Kathy McCloy, R.N., M.S.N.
Ronda D. Mintz-Binder, R.N., M.N.
Dale R. Perry, R.N., M.S.N.
Deborah A. Rice, R.N., M.N.
Patricia Russell, R.N., M.P.H.
Dawn S. Stone, R.N., M.N.

Adjunct Associate Professor

Colleen K. Keenan, R.N., Ph.D.

Adjunct Assistant Professor

Suzette Cardin, R.N., D.N.Sc.

Scope and Objectives

The UCLA School of Nursing gives direction to interested potential applicants through monthly open counseling sessions. Students interested in the academic programs offered are urged to attend a counseling session or request a copy of the *Announcement of the UCLA School of Nursing* by writing to the Student Affairs Office, School of Nursing, UCLA, Box 951702, Los Angeles, CA 90095-1702 (310-825-7181, Tuesday through Thursday).

History and Accreditation

In 1949 The Regents of the University authorized the School of Nursing as one of the professional schools of the UCLA Center for the Health Sciences. This action paved the way for the development of an undergraduate basic program in Nursing leading to the Bachelor of Science degree and made possible the establishment of a graduate program leading to the Master of Science degree. In 1966 the Master of Nursing (M.N.) degree was established as an alternate option to the M.S. degree. The Master of Science degree program was discontinued in 1971. The Regents approved the Doctor of Nursing Science (D.N.Sc.) degree

program in 1986, and in Fall Quarter 1987 the first doctoral students were admitted. In 1996 the Office of the President and The Regents approved the change in the master's degree designation from M.N. to Master of Science in Nursing (M.S.N.); the change in doctoral degree designation from D.N.Sc. to Ph.D. in Nursing was approved in 1995.

The B.S. degree curriculum was revised in 1997 to meet the educational needs of students who are registered nurses with Associate Degrees or diplomas in nursing. The first group of students began their studies in the summer of 1997.

The School of Nursing became an agency member of the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing in 1952. The National League for Nursing Accrediting Commission (NLNAC, 350 Hudson Street, New York, NY 10014, 212-989-9393, ext. 153) has granted full accreditation to the programs since 1954. The master's nurse practitioner program has Board of Registered Nursing approval.

Undergraduate Study

Nursing B.S.

The baccalaureate program leading to the Bachelor of Science degree provides for a close interweaving of general and professional education. The physical, social, and emotional health aspects of nursing are emphasized throughout the curriculum. Clinical nursing experience under the guidance of faculty members is provided in hospitals, outpatient clinics, homes, and community health centers.

Admission

The School of Nursing strives to attract a culturally and ethnically diverse student population. Admission, beginning in the junior year, is based on licensure as a registered nurse, completion of requisite courses, scholarship, and attainment of a passing score on four Regents College Examinations. Students must have grades of C or better in requisite courses and an overall grade-point average of 3.0 or better. Three letters of recommendation are also required. Diverse life experiences, including previous employment, volunteer work, and community service which reflect leadership, responsibility, multicultural involvement, multilingual abilities, and other unusual skills and knowledge are evaluated. Consideration is also given to social and economic disadvantage such as educational background, heavy work schedule during school, housing conditions, family responsibilities, and mastery of physical disabilities. Completed applications should reflect clearly identified career goals and documentation of potential in advanced practice nursing.

Applications for acceptance to the baccalaureate program must be filed no later than November 30 for the next Fall Quarter. The School of Nursing admits students each Fall Quarter. In

addition to the regular *UC Application for Undergraduate Admission and Scholarships* which must be returned in the self-addressed envelope included in the packet, an application must be filed with the school by November 30. This application is available directly from the Student Affairs Office, School of Nursing, UCLA, Box 951702, Los Angeles, CA 90095-1702.

Degree Requirements

Students must complete 180 quarter units of college work and satisfy the general University requirements as follows:

(1) Completion of all required general education courses as specified for completion both prior to admission and/or at UCLA: human anatomy (one course), sociocultural anthropology (one course), humanities (one or more courses), general chemistry (one college-level course), English composition (two courses), mathematics (one course), introductory or general microbiology with laboratory (one course), human nutrition (one course), introductory physics (one course or one year of high school physics with laboratory, with a grade of B or better), human physiology (one course), introductory psychology (one course), introductory sociology (one course), and electives as needed.

(2) Completion of a block of 30 units of credit by examination administered by the Regents College Examination Service in Adult Nursing, Fundamentals of Nursing, Maternal and Child Nursing-AD, and Psychiatric/Mental Health Nursing (this unit credit applies to the Nursing major only).

(3) Completion of 76 to 88 units of lower and upper division coursework in residence, including Biostatistics 100A, Chemistry and Biochemistry 14B, Epidemiology 100, Life Sciences 2, 3, Nursing C100A, 102, 104, 105, C120, 190, 192, 193, 195, 196, and one or more courses from C100B, C110F, C111F, C112, C113A, C113B, C114F, C115F, C116F, C117F, C123, C130, C132F, and three four-unit electives.

The curriculum at UCLA must be completed with a minimum overall grade-point average of 2.0 (C) or better in all courses taken while a student in the School of Nursing.

All required nursing courses in the school must be completed with a grade of C or better in each course.

Study Lists

Students may not enroll in more than four courses per term unless a petition is approved in advance by the associate dean.

Honors

Dean's Honors

Dean's Honors are awarded annually to undergraduate students completing the academic year with distinction. To be eligible students must achieve an overall grade-point average of 3.75 on a minimum of 36 graded units of work completed during the academic year.

Honors at Graduation

Honors are awarded at graduation to students with a superior overall grade-point average. The levels of honors and the requirements for each level are: *summa cum laude*, an overall average of 3.817; *magna cum laude*, 3.715; *cum laude*, 3.566. To be eligible students must have completed at least 98 University of California units for a letter grade. See the quarterly *Schedule of Classes* for the most current calculations of Latin honors.

School of Nursing Faculty Award

The Faculty Award for excellence in nursing, established in 1965, is awarded to a student graduating from the bachelor's and the master's program with the highest grade-point average in all nursing courses.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The School of Nursing offers the Master of Science in Nursing (M.S.N.) degree as well as a concurrent degree with the John E. Anderson Graduate School of Management.

Admission

The following is required of applicants to the M.S.N. program:

(1) Either graduation from a recognized college or university having a National League for Nursing-accredited baccalaureate nursing program satisfactory to the School of Nursing and to the Graduate Division, or graduation with a baccalaureate degree in nursing from an international institution with a nursing program satisfactory to the School of Nursing and to the Graduate Division. If admitted under the latter, applicants may be required to enroll in certain undergraduate nursing courses which generally may not be applied toward requirements for advanced degrees.

(2) Status as a licensed registered nurse. Prior to entry into any clinical practicum, evidence of current licensure as a registered nurse in the State of California is mandatory.

(3) An upper division statistics course or a lower division statistics course with content equivalent to Biostatistics 100A must be completed before entering the school.

(4) An upper division nursing research course taken at a National League for Nursing-accredited institution and equivalent to Nursing 193 must be completed before entering the school.

(5) An upper division physical assessment course taken at a National League for Nursing-accredited institution and equivalent to Nursing 192 must be completed before entering the school (not required of students selecting the nursing administration specialty).

(6) Professional and/or academic competence in nursing attested through three letters of recommendation.

(7) A satisfactory scholarship record.

(8) Since written and verbal communication skills are basic to the practice of nursing, it is essential that applicants read, write, and speak English well. International applicants from a country in which English is not the first language and medium of instruction, whether a licensed registered nurse in the U.S. or not, are required to pass the Test of English as a Foreign Language (TOEFL) with a score of 560 or higher (scores must be submitted prior to consideration for admission).

(9) All international applicants who are not licensed registered nurses in the U.S. prior to consideration for admission are required to pass the Commission on Graduates of Foreign Nursing Schools (CGFNS) examination.

Prospective students interested in the Master of Science in Nursing program must file two applications: (1) *Application for Graduate Admission* and (2) *Application for Admission to the School of Nursing*. Both applications may be obtained from the Student Affairs Office. The application deadline for priority consideration is December 15; February 1 is the final deadline.

M.B.A./M.S.N.

The School of Nursing and the John E. Anderson Graduate School of Management offer a concurrent degree program designed for students interested in employment in all sectors of the health care delivery system, including hospitals, corporate health care headquarters, home health care agencies, and long-term care facilities, as well as policy-making bodies and consulting firms. Applicants must request application materials from both the M.B.A. Admissions Office, John E. Anderson Graduate School of Management, and the School of Nursing Student Affairs Office.

M.S.N. Curriculum for Certified Nurse Practitioners/Midwives

The School of Nursing offers the opportunity for applicants with a B.S. degree in Nursing and certification in California as an adult nurse practitioner (N.P.), family N.P., pediatric N.P., women's health care N.P. or a nurse midwife (C.N.M.), to earn the M.S.N. degree in one year. Students meet all the same admission requirements for the master's degree except for an upper division physical assessment course, and must provide evidence of certification as an N.P. or C.N.M. prior to consideration for admission. While students who follow this curriculum are held to the school minimum of 44 units for the M.S.N., up to eight units may be waived

via petition based on skill and knowledge obtained through certification training. Course requirements include Nursing C200A-C200B, 204, C220, 225 (not required for students with a BRN furnishing number), C230, 237D or 238C or 239C, 264 (C.N.M. students take course 236), 437D or 438D or 439D, 597 and four units of theory elective.

Areas of Study

The School of Nursing offers graduate studies in the following areas:

- (1) Acute care.
- (2) Administration: nursing administration, nursing administration/occupational health.
- (3) Chronic care: gerontology, oncology.
- (4) Primary care: family, nurse-midwifery, occupational and environmental health nursing, pediatric.

Students in the acute, family, gerontology, and oncology nurse practitioner specialties may choose the neuropsychiatric subspecialty. All students may add preparation in consultation, education, or management to their clinical requirement.

Course Requirements

A minimum of three core courses (eight to nine units) and additional coursework in the 100, 200, and 400 series are required for each area of clinical specialization. A total of four units of 500-series courses may be applied toward the total course requirement for the degree.

A minimum grade-point average of 3.0 is required. Grades of B are required in graduate clinical nursing courses in order to advance to the next clinical course in a series. A minimum of three quarters of full-time enrollment (eight units per quarter) is required for academic residence.

Core Requirements

Core Courses. Nursing 204, C220, and 264 (students in nurse-midwifery take Nursing 236). Additional core courses for all options except nursing administration: Nursing C200A-C200B, 225, C230 (Nursing C200A, and C230 are not required for nurse-midwifery; Nursing C200A, 225, and C230 are not required for nursing administration/occupational health).

Clinical Specialty Theory Courses. Nursing C210F, C211F, C212, C213A, C213B, 213C, C214F, C215F, C216F, C217F, 219A, 219B, C223, C232F, 233F, 234, 235, 236, 241F, 242F, 243F, 244F. Course requirements vary for each specialty area; not all courses are required in each specialty.

Advanced Practice Theory Courses. Nursing 218A, 218B, 218C, 237A through 237E, 238A, 238B, 238C, 239A, 239B, 239C.

Clinical Practicum/Residency Courses. Nursing 416, 418A through 418D, 434, 437A through 437F, 438A through 438D, 439A through 439D, 441, 442.

Specialty Requirements

Additional course requirements vary according to specialty area selected:

Acute Care Specialty. The goal of the acute care specialty is to prepare nurses to assume an advanced practice role as a clinical nurse specialist or a nurse practitioner in acute care nursing. At least two years of prior experience in acute care nursing are highly recommended. Graduates are expected to function as acute care clinicians, educators, consultants, or researchers and to become leaders in a variety of inpatient and outpatient health care settings. Required courses include Nursing C200A-C200B, 204, C216F, C217F, C220, C230, 239A, 239B, 239C, 264, 416, 439A, 439B, 439C, and four units of theory elective. Additional required courses for the acute care nurse practitioner include Nursing 225, 439D.

Family Specialty. The family specialty prepares family nurse practitioners to provide primary health care for individuals throughout the life span. The focus is on collaborative, interdisciplinary practice to assure comprehensive quality health care and health maintenance in outpatient, work site, home health, nursing home, and hospital settings. Emphasis is on the assessment, treatment, and evaluation of the client's responses to actual or potential health problems which may be chronic or acute and include primary prevention and health promotion. Required courses include Nursing C200A-C200B, 204, C210F, C211F, C212, C220, 225, C230, 239A, 239B, 239C, 264, 439A through 439D, and four units of theory elective. An elective experience in the clinical nurse specialist role is also available.

Gerontology Specialty. The gerontology specialty prepares nurses to assume an advanced practice role as nurse practitioners to meet the increased demands for leadership in health care for older persons, particularly those challenged by chronic illness. Emphasis is on the comprehensive assessment, treatment, and evaluation of the client and family. Advanced knowledge and skills in pathophysiology and psychosocial concepts guide theory-based practice, with the goal of optimizing functional status. Interdisciplinary collaboration and care management are emphasized. Required courses include Nursing C200A-C200B, 204, C220, 225, C230, C232F, 233F, 239A, 239B, 239C, 264, 439A through 439D, and four units of theory elective. An elective experience in the clinical nurse specialist role is also available.

Neuropsychiatric Subspecialty. The neuropsychiatric subspecialty prepares nurses to assume an advanced practice role as a nurse practitioner in community and inpatient settings. The focus is on the primary care of adults with chronic cognitive, addictive, and affective dysfunctions. Students select both a specialty (acute care, family, gerontology, or oncology nurse practitioner) and the neuropsychiatric nurse practitioner subspecialty. Graduates are expected to function as clinicians, educators, case managers, or researchers and to become leaders in a variety of health care settings. Required courses include those listed under the acute, family, gerontology, or oncol-

ogy nurse practitioner specialties and Nursing 241F, 242F, 441, 442.

Nurse-Midwifery Specialty. The nurse-midwifery specialty prepares certified nurse-midwives to provide care to women, newborns, and their families. The focus is on independent and collaborative practice to assure comprehensive quality health care and health maintenance throughout the childbearing, interconceptional, perimenopausal, and newborn periods. Care is provided in outpatient, home, and inpatient settings. Emphasis is on the assessment, diagnosis, treatment, and evaluation of the client's responses to actual or potential health problems and includes primary prevention. Required courses include Nursing C200A, 204, C220, 225, C230, 234, 235, 236, 237A through 237E, 434, 437A through 437F.

Nursing Administration Specialty. The nursing administration specialty focuses on organizational theory, health services and financial management, and the practice of nursing administration within acute, ambulatory care, and/or community-based settings. Students gain the basic knowledge and skills required of nursing administrators in a volatile health care environment. Nursing content develops the knowledge of advanced management practice needed to plan and evaluate nursing services. Health services and financial management content provides a framework for organizing, directing, and coordinating health care resources.

The program requires both theory and management practicums, including a 10-week administrative residency. Stipends for the residency program may be provided by the institutions in which the residency is completed. Individualized plans for practicums are available. Coursework includes courses taken in the School of Nursing, School of Public Health, and the John E. Anderson Graduate School of Management. Required courses include Nursing 204, 218A, 218B, 218C, 219A, 219B, C220, 418A through 418D, and a minimum of 16 units of theory electives including a course in organizational theory and human resource management.

Nursing Administration/Occupational Health Specialty. The nursing administration/occupational health specialty integrates principles of occupational health and administration of occupational health programs. Requirements are met through a combination of courses and practicums specific to creating a healthy work environment. The specialty focuses on organizational theory, budgeting, strategic planning, leadership and management of occupational health programs, regulatory requirements, and research, as well as health promotion, illness/accident prevention, hazard control, screening, surveillance, and rehabilitation of adult workers.

The program provides both theory and occupational management practicums, including a 10-week administrative residency. Stipends for the residency program may be provided by the institutions in which the residency is com-

pleted. Individualized plans for practicums are available. Required courses include Nursing C200B, 204, 213A, C213B, 218A, 218B, 218C, 219A, 219B, C220, 264, 418A through 418D, Environmental Health Sciences 250, 251, Epidemiology 100.

Occupational and Environmental Health Nursing Specialty. The occupational and environmental health nursing specialty integrates principles of occupational and environmental health assessment and care with primary ambulatory care of adult groups. Practitioners evaluate the individual as seen within the work setting as well as within the family and community group. Primary focus and emphasis are on health status assessment, health promotion, illness/accident prevention, hazard control, screening, surveillance, and rehabilitation of adult workers. Requirements are met through a combination of courses and experiences specific to the delivery of occupational and environmental health care services. Required courses include Nursing C200A-C200B, 204, C211F, C213A, C213B, 213C, C220, 225, C230, 239A, 239B, 239C, 264, 439A through 439D, Environmental Health Sciences 200A, 251, 254, 259, 259D, and Epidemiology 100 or equivalent. An elective experience in the clinical nurse specialist role is also available.

Oncology Specialty. The oncology specialty trains advanced practice nurses to provide leadership in the field of oncology nursing. This option includes a focus on nursing care of critically and chronically ill cancer patients and their families in a variety of settings and across the health/illness continuum (prevention, diagnosis, treatment, rehabilitation, palliative care). Students undertake intensive individualized preparation in either the role of nurse practitioner or clinical nurse specialist. Required courses include Nursing C200A-C200B, 204, C214F, C215F, C220, C230, 239A, 239B, 239C, 264, 416, 439A, 439B, 439C, and four units of theory elective. Additional required courses for the oncology nurse practitioner include Nursing 225, 439D.

Pediatric Specialty. This specialty prepares pediatric nurse practitioners to assume leadership roles in the health care of children. Emphasis is on the assessment, diagnosis, treatment, and evaluation of children's actual or potential health problems. Content stresses care for acute and chronic illnesses as well as primary prevention. Required courses include Nursing C200A-C200B, 204, C212, C220, C223, 225, C230, 238A, 238B, 238C, 264, 438A through 438D, and four units of theory elective. An elective experience in the clinical nurse specialist role is also available.

Comprehensive Examination Plan

Successful completion of the comprehensive examination is required. The examination is given in written form during Spring Quarter. Students are eligible to take the examination once they are advanced to candidacy and may repeat the examination twice. Retakes only are offered during Summer and Winter Quarters.

Students must complete all requirements for the degree within one calendar year after advancement to candidacy.

Thesis Plan

None.

Doctoral Degree

Admission

Priority for admission to the program leading to the Ph.D. degree in Nursing is given to graduates of accredited master's degree programs in nursing. Those admitted to doctoral study with a bachelor's degree in nursing and a master's degree in a nonnursing field are required to make up clinical specialty deficiencies by taking clinical courses in one of the current master's advanced practice programs. Such courses may be taken concurrently with doctoral courses. Individuals admitted with a bachelor's degree in nursing are required to complete a program of master's courses in nursing at UCLA as a requisite to entry into doctoral courses.

Applicants to the Ph.D. degree program must provide evidence of the following:

- (1) A master's degree in nursing; a Bachelor of Science degree in Nursing and a master's degree in a nonnursing field; or a Bachelor of Science degree in Nursing. Degrees must be from a National League for Nursing-accredited program satisfactory to the School of Nursing and the Graduate Division. Students who are accepted with deficiencies are required to complete appropriate master's courses.
- (2) A scholarship record satisfactory to the Graduate Division and to the School of Nursing with a minimum grade-point average of 3.5.
- (3) A combined verbal, quantitative, and analytic score of 1,500 on the Graduate Record Examination (GRE), taken within the past five years. Exceptions to this score may be considered when there is compelling evidence in other areas.
- (4) An upper division statistics course with content equivalent to Biostatistics 100A or Biomathematics 170A.
- (5) A graduate-level nursing research course with content equivalent to Nursing 205.
- (6) A four-unit graduate-level nursing theory development course.
- (7) A minimum score of 560 on the Test of English as a Foreign Language (TOEFL) for applicants from countries in which English is not the primary language and medium of instruction (scores must be submitted prior to consideration for admission).
- (8) A passing score on the nursing and English portions of the Commission on Graduates of Foreign Nursing Schools (CGFNS) examination for international applicants who are not licensed as registered nurses in the U.S., prior to consideration for admission.

(9) Status as a licensed registered nurse; evidence of current licensure as a registered nurse in the State of California is mandatory.

(10) Four letters of reference affirming the applicant's potential for scholarly, investigative, and creative endeavors in nursing.

(11) Examples of scholarly papers and/or creative works.

(12) A statement of educational objectives, specific focus of research, and program and career goals.

(13) Curriculum vitae.

Prospective students interested in the Ph.D. program must file two applications: (1) *Application for Graduate Admission* and (2) *Application for Admission to the School of Nursing*. Both applications may be obtained from the Student Affairs Office. Applications are accepted for Fall Quarter admission only. The application deadline for priority consideration is December 15; February 1 is the final deadline.

Major Fields or Subdisciplines

In the doctoral program, students focus their study in one of two areas: biobehavioral research or health systems research.

Students who choose biobehavioral research focus on studies that describe, explain, and predict biologic and behavioral factors which relate to health promotion and disease prevention. Students who choose health systems research focus on studies that examine the function, structure, process, and outcome of a range of multidisciplinary health delivery systems such as hospitals, nursing homes, and community-based organizations. Both research areas incorporate human diversity and the influence of the psychosocial and physical environments.

Course Requirements

Core Requirements. The following courses are required of all students in the Ph.D. program:

(1) Nursing science: Nursing 202, 206A-206B.

(2) Nursing research: Nursing 207, 208, 299A, 299B-299C, 299D.

(3) One statistics sequence (recommended minimal sequences: Education 230B, 230C, and 231A. For additional quantitative: Education 231B; for additional qualitative: see Anthropology or sociology offerings.)

Cognate Requirements. Twenty-four units of cognate courses relevant to the major area of study (biobehavioral research, health systems research) are taken. A minimum of four units and a maximum of 12 units are taken in nursing. The remainder are taken in support discipline areas.

Written and Oral Qualifying Examinations

Written Qualifying Examination. The written qualifying examination must be passed after completion of the basic core courses. The examination evaluates three areas of knowledge:

(1) the basic concepts of nursing science; (2) nursing research methods and analysis; and (3) the basic concepts of the student's focused area of study. Normally no more than one reexamination is permitted.

Oral Qualifying Examination. The University Oral Qualifying Examination, taken after completing the course requirements and successfully passing the written qualifying examination, evaluates students' dissertation proposals. The initial step is selection of a doctoral committee. Students are responsible for obtaining the consent of four or more faculty members to serve on the committee as certifying members. Qualifications of members must be consistent with students' area of research and special interests and also with the requirements for doctoral committees as stated in the *Standards and Procedures for Graduate Study at UCLA*. Additional members, including those from an institution or clinical agency representing the student's clinical and research interests, may be appointed as noncertifying members by petition if the doctoral program committee and the student agree that additional experts are needed. The graduate adviser of the doctoral program committee must give approval of members consenting to serve on the doctoral committee before student seeks approval of the dean of the Graduate Division.

Nursing

Upper Division Courses

C100A-C100B. Biobehavioral Foundations of Health Assessment. (3-3) Lecture, two hours. Theories of health behaviors in relation to assessment of epidemiological, psychological, and developmental disorders across life span. Analysis of preventive health, disease screening, risk evaluation, and health promotion theories and interventions. Concurrently scheduled with courses C200A-C200B. Letter grading. **C100A.** Requisite: course 192 or approved physical assessment course. **C100B.** Requisite for acute care, family, gerontology, nurse midwifery, occupational health, oncology, and pediatric specialty students: course C100A.

102. Professional Nursing in Culturally Diverse Communities. (5) Lecture, four hours; community experience, one hour. Assistance for registered nurses in transition to professional nursing role (i.e., from caring for individuals to caring for families and communities). Emphasis on delivery of acute and chronic community-based care and mental health services in multicultural society. Examination of concepts of professional nursing and cultural and human diversity, as well as ethical and political issues. Letter grading.

104. Health and Illness Behaviors across Culturally Diverse Communities. (4) (Formerly numbered 104A, 104B.) Lecture, four hours. Requisite: course 102. Examination of basic concepts of health and illness from a biobehavioral and health systems framework. Nursing theory as it relates to roles, stress, loss, self-concept, and pain among culturally diverse populations. Letter grading.

105. Human Physiology. (4) Lecture, four hours; discussion, one hour. Designed for nursing students. Lecture and discussion, with emphasis on a correlative approach to anatomy and physiology of human body. Letter grading.

C110F. Theoretical Foundations of Family Nursing. (4) Lecture, three hours; selected field experiences. Theoretical and research-based content in family health and individual development throughout life span, emphasized in relationship to specific health maintenance and health problem issues of ambulatory populations. Concurrently scheduled with course C210F. Letter grading.

C111F. Theoretical Foundations of Family Nursing. (4) Lecture, three hours; selected field experiences. Requisite: course C110F. Continuation of course C110F. Concurrently scheduled with course C211F. Letter grading.

C112. Health-Related Family Theory. (2) Lecture, two hours. Overview of conceptual frameworks related to contemporary family structure and functioning, with particular emphasis on health. Identification of limitations of current theory and applicability of current knowledge to various problems encountered in care of families. Concurrently scheduled with course C212. Letter grading.

C113A. Occupational Health Nursing Role and Theory. (2) Lecture, two hours. Introduction to multidisciplinary occupational health environment, including work settings, occupational health nursing scope and standards of practice, and legal and regulatory issues that affect occupational health nursing. Concurrently scheduled with course C213A. Letter grading.

C113B. Occupational Health Programs. (2) Lecture, two hours. Requisite: course C113A. Program planning, evaluation, and management of occupational health programs, including analysis of individual leadership styles and management concepts. Assessment of economic, political, and other factors that affect occupational health and safety programs. Concurrently scheduled with course C213B. Letter grading.

C114F. Human Responses to Cancer. (4) Lecture, three hours; selected field experiences. Cancer-related research and theory from variety of disciplines, including nursing, analyzed and evaluated for application to clinical practice, with emphasis on nursing assessment and intervention of responses to cancer and cancer treatment. Concurrently scheduled with course C214F. Letter grading.

C115F. Human Responses to Cancer. (4) Lecture, three hours; selected field experiences. Requisite: course C114F. Application of cancer-related theory/research to clinical practice, with emphasis on assessment and intervention of nursing care problems in response to cancer and cancer treatment. Focus on issues affecting nursing care in prevention/screening, diagnosis, treatment, symptom management, rehabilitation, and quality of life related to responses to major cancers. Concurrently scheduled with course C215F. Letter grading.

C116F. Human Responses to Critical Illness. (4) Lecture, three hours; discussion, one hour. Biobehavioral theories and research of critical illness. Nursing aspects of selected dysfunctions and implications for critical care advanced practice nurses. Concurrently scheduled with course C216F. Letter grading.

C117F. Human Responses to Critical Illness. (4) Lecture, three hours; discussion, one hour. Requisite: course C116F. Builds on pathophysiologic concepts and nursing management of critically ill adults presented in course C116F. Emphasis on synthesis of research, theory, and experiential knowledge and skills to provide advanced preparation for critical care advanced practice nurses. Concurrently scheduled with course C217F. Letter grading.

C120. Theories of Instruction and Learning in Nursing. (3) Lecture, two hours. Theories of learning, curriculum and program development, and principles and techniques of evaluation. Consideration of needs of diverse populations in relation to educational activities. Description of educational opportunities for advanced practitioner in clinical nursing, staff development/continuing education, and academia. Concurrently scheduled with course C220. Letter grading.

C123. Childhood Development: Research and Application to Nursing. (2) Lecture, two 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. Concurrently scheduled with course C223. Letter grading.

C130. Advanced Pathophysiology. (4) Lecture, four hours. Prerequisite: course 105 or equivalent taken within past five years. Operative mechanisms and control of major portions of human organ systems (i.e., normal human physiology with application to pathophysiology). Builds on basic concepts of cell- and system-oriented physiology; presentation of emerging and topical issues affecting advanced practice and clinical management. Concurrently scheduled with course C230. Letter grading.

C132F. Human Responses to Aging and Chronic Illness. (4) Lecture, three hours; field experiences. Pathophysiologic concepts and nursing management of chronically ill older adults. Nursing aspects of selected dysfunctions and implications for advanced practice nurses. Concurrently scheduled with course C232F. Letter grading.

M158. Culture, Illness, and Healing. (4) (Same as Anthropology M168.) Lecture, four hours. Medical anthropology is organized around holistic exploration of ways in which health, illness, and medical practices are socially and culturally mediated. Topics include comparing illness experiences, understandings about health and illness, patterns of care seeking, therapeutic practices, and medical systems in context of different social and cultural settings, including our own. P/NP or letter grading.

190. Community Health Nursing. (8) (Formerly numbered 190F.) Lecture, three hours; clinical, 15 hours. Clinical concentration in multicultural community health nursing settings: public health, rehabilitation, mental health centers, occupational health, and schools. Theoretical content focuses on the community as a context for understanding the relationship between health status of individuals and groups with the psychosociophysical environment. Letter grading.

192. Physical Assessment. (4) Lecture, three hours; laboratory, three hours. Designed to provide in-depth review and synthesis of physical assessment skills and knowledge covering the life span. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

193. Introduction to Research. (4) Lecture, four hours. Introduction to planning a research project based on a simple question. Rules for definition of terms, alternative methods of writing purposes, selecting a sample, choosing a data collection instrument, planning for data analysis, protection of human rights, reading research reports, and writing a research proposal. P/NP or letter grading.

195. Nursing Management. (3) Lecture, two hours; field study, three hours. Prerequisites: course 104, Biostatistics 100A, Epidemiology 100. Management theory applied to nursing practice. Acquisition of basic knowledge of management concepts and skills as practiced in organizational structures and community health care settings. Letter grading.

196. Issues in Providing Health Care to Culturally Diverse Populations. (4) Lecture, three hours; discussion, one hour. Open to non-nursing students with consent of instructor. Theoretical and experiential course designed to provide a base for understanding issues of providing health care to culturally diverse populations, with emphasis on strategies to facilitate intercultural/intracultural communication and intergroup/intragroup dynamics in health care settings. P/NP or letter grading.

199. Special Studies in Nursing. (2 to 16) Tutorial, to be arranged. Limited to seniors. Individual study of a problem in the field of nursing. May be repeated for credit, but only four units may be applied toward degree requirements. P/NP or letter grading.

Graduate Courses

C200A-C200B. Biobehavioral Foundations of Health Assessment. (3-3) (Formerly numbered 200A-200B.) Lecture, two hours. Theories of health behaviors in relation to assessment of epidemiological, psychological, and developmental disorders across life span. Analysis of preventive health, disease screening, risk evaluation, and health promotion theories and interventions. Concurrently scheduled with courses C100A-C100B. Letter grading. **C200A.** Prerequisite: course 192 or approved physical assessment course. **C200B.** Prerequisite for acute care, family, gerontology, nurse midwifery, occupational health, oncology, and pediatric specialty students: course C200A.

201. Health-Related Quality of Life. (2) Lecture, two hours. Theoretical foundations of health-related quality of life as an outcome of disease, treatment, and style of care. Analysis of meaning, dimensions, predictors, measures, ethical dilemmas, cultural diversity issues, and biobehavioral foundations of health-related quality of life. Letter grading.

202. Philosophical Foundations of Science of Nursing. (4) Lecture, four hours. Designed for Ph.D. students. Intended to explore major schools of thought in contemporary Western philosophy of science, with emphasis on ways in which these schools may and do influence nursing science and practice. S/U or letter grading.

203. History of Nursing Thought. (2) Lecture, two hours. Analysis and evaluation of contextual forces which influenced development of discipline of nursing. Examination of nursing's historical influence on sociopolitical environment. Letter grading.

204. Research Design and Critique. (4) Lecture, 90 minutes; discussion, 90 minutes. Preparation: one statistics course. Research process and critique of research, with emphasis on quantitative research designs. Consideration of strengths and weaknesses of selected survey, quasi-experimental and true experimental designs, theoretical frameworks, identification and control of variables, measurement instruments, sampling methods, data analysis, and interpretation of results. Letter grading.

205. Advanced Research Methods. (4) Lecture, four hours. Preparation: one statistics course. Prerequisites: courses 193, 204. Research process and development of research proposals, including quantitative and qualitative approach to designs. Students encouraged to develop research proposal for clinical or basic research problem related to nursing care or variables affecting such care. Letter grading.

206A-206B. Nursing Theory Development. (4-4) Seminar, three hours. Preparation: four units of nursing theory. Prerequisite: course 202 or philosophy of science course (may be taken concurrently). Focus on major issues involved in development of nursing knowledge, including content and methods of developing nursing theory. In Progress and S/U or letter grading.

207. Research in Nursing: Measurement of Clinical Variables. (4) Lecture, two hours; discussion, two hours. Prerequisites: courses 204, 205. Analysis of methods of measurement of physiological and psychosocial variables relevant to clinical nursing research, with emphasis on purposes, underlying assumptions, strengths, and limitations of measurement techniques. Analysis of techniques to develop reliability, validity, sensitivity of measurement instruments. Letter grading.

208. Research in Nursing: Measurement of Outcomes. (4) Lecture, three hours; field application, six to eight hours. Prerequisites: courses 206A, 207. Measurement theories, including topics related to scaling and tool development as they apply to outcomes. Emphasis on opportunity to develop knowledge and skills through course content and individualized direct involvement in a clinical research project. S/U or letter grading.

209. Human Diversity in Health and Illness. (2) Lecture, two 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.

210. Theoretical Foundations of Family Nursing. (2) Lecture, two hours. Theoretical and research-based content in family health and individual development throughout life span, emphasized in relationship to specific health maintenance and health problem issues of ambulatory populations. Letter grading.

C210F. Theoretical Foundations of Family Nursing. (4) (Formerly numbered 210F.) Lecture, three hours; selected field experiences. Theoretical and research-based content in family health and individual development throughout life span, emphasized in relationship to specific health maintenance and health problem issues of ambulatory populations. Concurrently scheduled with course C110F. Letter grading.

211. Theoretical Foundations of Family Nursing. (2) Lecture, two hours. Prerequisite: course 210. Continuation of course 210. Letter grading.

C211F. Theoretical Foundations of Family Nursing. (4) (Formerly numbered 211F.) Lecture, three hours; selected field experiences. Prerequisite: course C110F/C210F. Continuation of course C210F. Concurrently scheduled with course C111F. Letter grading.

C212. Health-Related Family Theory. (2) (Formerly numbered 212.) Lecture, two hours. Overview of conceptual frameworks related to contemporary family structure and functioning, with particular emphasis on health. Identification of limitations of current theory and applicability of current knowledge to various problems encountered in care of families. Concurrently scheduled with course C112. Letter grading.

C213A. Occupational Health Nursing Role and Theory. (2) Lecture, two hours. Introduction to multidisciplinary occupational health environment, including work settings, occupational health nursing scope and standards of practice, and legal and regulatory issues that affect occupational health nursing. Concurrently scheduled with course C113A. Letter grading.

C213B. Occupational Health Programs. (2) Lecture, two hours. Prerequisite: course C113A/C213A. Program planning, evaluation, and management of occupational health programs, including analysis of individual leadership styles and management concepts. Assessment of economic, political, and other factors that affect occupational health and safety programs. Concurrently scheduled with course C113B. Letter grading.

213C. Health Assessment, Research, and Health Promotion in Occupational Health. (3) Lecture, three hours. Prerequisites: courses C113A/C213A, C113B/C213B. Clinical practice issues in occupational health nursing, including adult workforce health issues, adult workforce health assessment, and special populations at risk. Health promotion and research in occupational health. Letter grading.

214. Human Responses to Cancer. (2) Lecture, two hours. Cancer-related research and theory from variety of disciplines, including nursing, analyzed and evaluated for application to clinical practice, with emphasis on nursing assessment and intervention of responses to cancer and cancer treatment. Letter grading.

C214F. Human Responses to Cancer. (4) (Formerly numbered 214F.) Lecture, three hours; selected field experiences. Cancer-related research and theory from variety of disciplines, including nursing, analyzed and evaluated for application to clinical practice, with emphasis on nursing assessment and intervention of responses to cancer and cancer treatment. Concurrently scheduled with course C114F. Letter grading.

215. Human Responses to Cancer. (2) Lecture, two hours. Application of cancer-related theory/research to clinical practice, with emphasis on assessment and intervention of nursing care problems in response to cancer and cancer treatment. Focus on issues affecting nursing care in prevention/screening, diagnosis, treatment, symptom management, rehabilitation, and quality of life related to responses to major cancers. Letter grading.

C215F. Human Responses to Cancer. (4) (Formerly numbered 215F.) Lecture, three hours; selected field experiences. Requisite: course C114F/C214F. Application of cancer-related theory/research to clinical practice, with emphasis on assessment and intervention of nursing care problems in response to cancer and cancer treatment. Focus on issues affecting nursing care in prevention/screening, diagnosis, treatment, symptom management, rehabilitation, and quality of life related to responses to major cancers. Concurrently scheduled with course C115F. Letter grading.

216. Human Responses to Critical Illness. (2) Lecture, two hours. Biobehavioral theories and research of critical illness. Nursing aspects of selected dysfunctions and implications for critical care advanced practice nurses. Letter grading.

C216F. Human Responses to Critical Illness. (4) (Formerly numbered 216F.) Lecture, three hours; discussion, one hour. Biobehavioral theories and research of critical illness. Nursing aspects of selected dysfunctions and implications for critical care advanced practice nurses. Concurrently scheduled with course C116F. Letter grading.

217. Human Responses to Critical Illness. (2) Lecture, two hours. Requisite: course 216. Builds on pathophysiological concepts and nursing management of critically ill adults presented in course 216. Emphasis on synthesis of research, theory, and experiential knowledge and skills to provide advanced preparation for critical care advanced practice nurses. Letter grading.

C217F. Human Responses to Critical Illness. (4) (Formerly numbered 217F.) Lecture, three hours; discussion, one hour. Requisite: course C116F/C216F. Builds on pathophysiological concepts and nursing management of critically ill adults presented in course C216F. Emphasis on synthesis of research, theory, and experiential knowledge and skills to provide advanced preparation for critical care advanced practice nurses. Concurrently scheduled with course C117F. Letter grading.

218A. Nursing Administration Theory. (4) Lecture, four hours. Application of organizational, communication, leadership, and management theories in health care systems, including content related to organizational structure, health care delivery models, and research design and methodologies. Letter grading.

218B. Nursing Administration Theory. (4) Lecture, four hours. Requisite: course 218A. Focus on synthesizing organizational and management theories in relation to health economics and finance, quality of care, resource management, informatics, law, policy, and ethics. Letter grading.

218C. Nursing Administration Theory. (4) Lecture, four hours. Requisite: course 218B. Theories related to organizational development and change, political action, marketing, and public relations and the media, including ethics of decision making and local, national, and international markets. Letter grading.

219A. Essentials of Accounting and Budgeting in Health Care Organizations. (4) Lecture, four hours. Highly desirable preparation: functional competency in use of an electronic spreadsheet (e.g., LOTUS or EXCEL). Designed for graduate nursing administration program students. Theories of management, organization, and administration presented in relation to techniques of accounting, budgeting, finance, and health care economics. Focus on definition of terms and concepts, followed by practical applications within a variety of health care settings. Letter grading.

219B. Operations Planning and Control for Nursing Administrators. (4) Lecture, four hours. Preparation: functional competency in use of integrated spreadsheet/database/graphics software (e.g., LOTUS or EXCEL). Requisite: course 219A. Exposure to concepts, issues, and analytic techniques of C-B-A/C-E-A, CQI monitoring, decision making, forecasting, productivity determinations, and program planning and evaluation for nurse administrators. Emphasis on practical application of methods and techniques within health care arena. Letter grading.

C220. Theories of Instruction and Learning in Nursing. (3) (Formerly numbered 220.) Lecture, two hours. Theories of learning, curriculum and program development, and principles and techniques of evaluation. Consideration of needs of diverse populations in relation to educational activities. Description of educational opportunities for advanced practitioner in clinical nursing, staff development/continuing education, and academia. Concurrently scheduled with course C120. Letter grading.

222. Immunosuppression and Patient Care. (2) Lecture, two hours. Research related to immunosuppression, its causes, clinical manifestations, and modifiers. Special emphasis on physiologic and pathophysiological mechanisms of immunosuppression as a basis for information used in patient education and clinical decisions, and supportive treatments and modifiers. Letter grading.

C223. Childhood Development: Research and Application to Nursing. (2) (Formerly numbered 223.) Lecture, two 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. Concurrently scheduled with course C123. Letter grading.

224. Health-Related Problems of Vulnerable Populations. (2) Lecture, two hours. Health-related research and models focusing on health promotion and health intervention, and health ethics and policy regarding vulnerable populations. Emphasis on vulnerable or at-risk social groups in the U.S. Letter grading.

225. Pharmacology for Advanced Practice Nurses. (4) Lecture, four hours. Knowledge of and skills in pharmacology necessary for advanced practice nurses who have clients/patients with stable acute or chronic conditions. Letter grading.

229. Biologic/Psychologic Interface in Health and Illness. (2) Lecture, two hours. Interaction of physiologic, behavioral, and psychosocial factors in illness, and theory and research underlying these factors, including differential influence of gender, ethnicity, and culture. Letter grading.

C230. Advanced Pathophysiology. (4) (Formerly numbered 230.) Lecture, four hours. Requisite: course 105 or equivalent taken within past five years. Designed for graduate nursing students. Operative mechanisms and control of major portions of human organ systems (i.e., normal human physiology with application to pathophysiology). Builds on basic concepts of cell- and system-oriented physiology; presentation of emerging and topical issues affecting advanced practice and clinical management. Concurrently scheduled with course C130. Letter grading.

231. Special Topics in Cellular Physiology. (2) Lecture, two hours. Requisite: course C230. Designed for graduate nursing students. Functional organization and genetic control of human cell. Letter grading.

232. Human Responses to Aging and Chronic Illness. (2) Lecture, three hours. Pathophysiological concepts and nursing management of chronically ill older adults. Nursing aspects of selected dysfunctions and implications for advanced practice nurses. Letter grading.

C232F. Human Responses to Aging and Chronic Illness. (4) (Formerly numbered 232F.) Lecture, three hours; field experiences. Pathophysiological concepts and nursing management of chronically ill older adults. Nursing aspects of selected dysfunctions and implications for advanced practice nurses. Concurrently scheduled with course C132F. Letter grading.

233. Human Responses to Aging and Chronic Illness. (2) Lecture, two hours. Requisite: course 232. Biopsychosocial concepts and nursing management of healthy, disabled, and chronically ill older adults, addressing pathophysiological aspects of common health problems. Implications for advanced practice in gerontology/chronic care nursing. Letter grading.

233F. Human Responses to Aging and Chronic Illness. (4) Lecture, three hours; field experiences. Requisite: course C132F/C232F. Biopsychosocial concepts and nursing management of healthy, disabled, and chronically ill older adults, addressing pathophysiological aspects of common health problems. Implications for advanced practice in gerontology/chronic care nursing. Letter grading.

234. Health Assessment of Women: Primary Care. (3) Lecture, three hours. Requisite: course 192. Theoretical basis for health assessment and changes in women as related to primary care, with focus on physiologic, psychosocial, and behavioral factors and on theoretical components of nurse-midwifery management process. Common health problems other than those related to gynecology or reproduction included. Elements of primary care which focus on health promotion, education, disease prevention, and client advocacy. Letter grading.

235. Reproductive Endocrinology. (3) Lecture, two hours; seminar, one hour. Designed for nursing students. Current theory and research related to systematic evaluation of normal physiology. Highlights human growth and development, sexual differentiation, menstrual cycle, puberty, menopause, parturition, postpartum, lactation, placenta, and male and female reproduction. Letter grading.

236. Professional and Legal Issues in Nurse-Midwifery. (2) Lecture, two hours. Designed for graduate students in advanced practice in nurse-midwifery option of master's program. Current theory and research of advanced nursing roles, with emphasis on role of certified nurse/midwife. Organizational, administrative, legal, and ethical issues as required by certifying agencies. Letter grading.

237A. Primary Care of Women: Antepartum Management. (3) Lecture, three hours. Requisite: course 234. Presentation of theory and research on assessment and management of women during pregnancy, with emphasis on current nursing models of primary and independent/collaborative care of women/families during antepartum period. Review of management of normal pregnancy and health and social complications. Letter grading.

237B. Primary Care of Women: Intrapartum Management. (4) (Formerly numbered 237C.) Lecture, four hours. Requisite: course 237A. Critical analysis of theory, research, and knowledge related to primary and independent/collaborative care of intrapartum families. Management of spontaneous and assisted labors, birth, techniques of pain reduction, promotion of normal processes, and management of the newborn. Letter grading.

237C. Primary Care of Women: Postpartum and Newborn Management. (2) (Formerly numbered 237B.) Lecture, two hours. Requisite: course 237B. Theory, research, assessment, and management of common, low-risk, and high-risk conditions occurring during postnatal period and adaptation to extrauterine life, including neonatal physical assessment. Breast-feeding support and maternal/infant interactions. Letter grading.

237D. Primary Care of Women: Advanced Nurse-Midwifery Management. (2) Lecture, two hours. Requisite: course 237C. Synthesis of previous coursework, with focus on nurse-midwifery management of complications of intrapartum period and comanagement or referral as necessary. Basic theory of obstetric ultrasonography and appropriate use of information in pregnancy and parturition. Letter grading.

237E. Primary Care of Women: Family Planning and Gynecology Management. (4) Lecture, four hours. Requisite: course 234. Presentation of critical analysis and application of family planning and gynecological theory, knowledge, and research. Emphasis on assessment and primary care strategies with reference to social, legal, and ethical issues in nurse-midwifery management. Letter grading.

238A. Theoretical Foundations of Nursing of Children: Assessment and Health Guidance. (4) Lecture, four hours. Requisite: course C200B. Theory and research emphasize interaction among developmental level, family characteristics, and environmental milieu as it affects child well-being. Advanced science base for assessment and anticipatory guidance for children and families to promote child wellness and diagnose common childhood illnesses. Letter grading.

238B. Theoretical Foundations of Nursing of Children: Common Illnesses and Problems. (4) Lecture, four hours. Requisite: course 238A. Theory and research emphasize physiological and psychological basis for common childhood illnesses and problems; evaluation of alternative therapies in research literature also emphasized. Advanced science base for assessment, diagnosis, and management of common childhood illnesses and problems. Letter grading.

238C. Theoretical Foundations of Nursing of Children: Complex Health Problems. (4) Lecture, four hours. Requisite: course 238B. Advanced science base for assessment, diagnosis, and ambulatory management of complex chronic and acute childhood illnesses. Theory and research emphasize physiological basis for complex disease entities; evaluation of alternative therapies in research literature also emphasized. Letter grading.

239A. Biobehavioral Foundations of Acuity and Chronicity in Illness. (4) Lecture, four hours. Requisites: courses C200A-C200B. Organ systems approach to health maintenance and to acuity and chronicity in syndromes related to respiratory, cardiovascular, gynecological, and genitourinary organ systems. First of three-course sequence in diagnosis and management of commonly occurring medical and nursing health care problems managed by nurse practitioners in variety of clinical settings. Letter grading.

239B. Biobehavioral Foundations of Acuity and Chronicity in Illness. (4) Lecture, four hours. Requisite: course 239A. Organ systems approach to health maintenance and to acuity and chronicity in syndromes related to ocular, neurologic, endocrine, gastrointestinal, immunologic, hematologic, and dermatologic organ systems. Second of three-course sequence in diagnosis and management of commonly occurring medical and nursing health care problems managed by nurse practitioners in variety of clinical settings. Letter grading.

239C. Biobehavioral Foundations of Acuity and Chronicity in Illness. (4) Lecture, four hours. Requisite: course 239B. Review, analysis, and synthesis of current theory and research related to symptom meaning, presentation, and management. Special emphasis on acute and chronic problems across life span. Focus on advanced practice nursing assessment and intervention in common illness-associated symptoms. Letter grading.

241. Biobehavioral Foundations of Neuropsychiatric Assessment. (2) Lecture, three hours. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application to neuropsychiatric assessment. Exploration of research underlying assessment and diagnosis of cognitive, addictive, and affective dysfunctions, with emphasis on developing a nursing model. Letter grading.

241F. Biobehavioral Foundations of Neuropsychiatric Assessment. (4) Lecture, three hours; field experiences. Requisites or corequisites: courses C200A-C200B. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application to neuropsychiatric assessment. Exploration of research underlying assessment and diagnosis of cognitive, addictive, and affective dysfunctions, with emphasis on developing a nursing model. Letter grading.

242. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (2) Lecture, three 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 nursing model. Letter grading.

242F. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (4) Lecture, three hours; field experiences. Requisite: course 241F. 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 nursing model. Letter grading.

243. Theoretical Foundations of Complementary Health Care I. (2) Lecture, two hours. Overview of theories and research underlying commonly used therapeutic systems available in the U.S. Major emphasis on fundamental mind-body-environment theories and principles. Focus on categories of alternative systems within framework of Western clinical practice. Letter grading.

243F. Theoretical Foundations of Complementary Health Care I. (4) Lecture, four hours. Requisites: courses C200B, 225, C230. Overview of theories and research underlying commonly used therapeutic systems available in the U.S. Major emphasis on fundamental mind-body-environment theories and principles. Focus on categories of alternative systems within framework of Western clinical practice. Letter grading.

244. Theoretical Foundations of Complementary Health Care II. (2) Lecture, two hours. Continuation of course 243. Specifics of alternative therapies, body-mind principles, and traditional Chinese medicine assessment and diagnosis provided within framework of theory and research. Major emphasis on understanding integration of these complementary therapies with Western diagnosis and management. Letter grading.

244F. Theoretical Foundations of Complementary Health Care II. (4) Lecture, four hours. Requisite: course 243F. Continuation of course 243F. Specifics of alternative therapies, body-mind principles, and traditional Chinese medicine assessment and diagnosis provided within framework of theory and research. Major emphasis on understanding integration of these complementary therapies with Western diagnosis and management. Letter grading.

264. Professional Issues in Nursing. (3) Lecture, three hours. Requisite: course 418A or 438A or 439A. Concepts of collegial practice, interprofessional and intraprofessional relationships, legal issues, and socioeconomic aspects of health care delivery. Letter grading.

M273. Advanced Seminar: Medical Anthropology. (4) (Same as Anthropology M263Q, Community Health Sciences M244, and Psychiatry M273.) 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.

M290A-M290B-M290C. Child Abuse and Neglect. (2-2-1) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300.5A-M300.5B-M300.5C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, and Social Welfare M290E-M290F-M290G.) Lecture, two hours. Course M290A is requisite to M290B, which is requisite to M290C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. S/U or letter grading.

299A. Nursing Research Seminar. (4) Seminar, three hours. Preparation: one cognate area course. Requisites: courses 206A-206B, 207, 208. Seminar to assist students who are beginning careers in scientific research to understand issues of misconduct and scientific integrity. Highlights faculty expertise in research, culminating in communication and dissemination of their research. S/U grading.

299B-299C. Nursing Research Seminars. (1 to 4 each) Seminar, one hour; discussion, one to four hours. Preparation: statistics sequence in cognate area. Requisites: courses 206A-206B, 207, 208. Seminars to assist students throughout execution of their dissertations, beginning with selection of a researchable problem and culminating in communication and dissemination of their research. S/U grading.

299D. Nursing Research Seminar. (1 to 4) Seminar, one hour; discussion, one to four hours. Preparation: statistics sequence in cognate area. Requisites: courses 206A-206B, 207, 208, C220. Seminar to assist students to prepare for careers in academic settings, with focus on teaching. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

416. Advanced Practice Nursing: Acute Care Laboratory Practicum. (1) Laboratory, three hours. Required of acute care and oncology specialty students. Introduction to advanced practice diagnostic or therapeutic procedures and related indications, complications, and follow-up care in laboratory setting, including advanced electrocardiograms and chest X-ray interpretation, suturing, central and arterial line placement, intubation, bone marrow aspiration, and lumbar puncture. S/U grading.

418A. Nursing Administration Practicum. (2) Clinic practicum, six hours. Corequisite: course 218A. Analysis, evaluation, and application of organizational theory within leadership and management roles in organizations involved with health care. Provides a practice setting to apply theory, particularly content of course 218A, under supervision of a skilled preceptor. Letter grading.

418B. Nursing Administration Practicum. (2) Clinic practicum, six hours. Corequisite: course 218B. Synthesis and application of previous learning and organizational theories in development of organizational strategies in relation to health economics and finance, quality patient care, resource management, informatics, law, policy, and ethics. Provides a practice setting to apply theory, particularly content of course 218B, under supervision of a skilled preceptor. Letter grading.

418C. Nursing Administration Practicum. (2) Clinic practicum, six hours. Corequisite: course 218C. Participation in and evaluation of processes of project management, organizational development and change, political influence outside the organization, maximizing diverse relationships and relationships with physicians, administrators, and boards, marketing, dealing with the media, and ethics of administration decision making. Provides a practice setting to apply theory, particularly content of course 218C, under supervision of a skilled preceptor. Letter grading.

418D. Nursing Administration Residency (10 units). Seminar, two hours; clinic practicum, 32 hours. Requisite: course 418C. Students assume leadership role in planning, managing, and evaluating an administrative project, and demonstrate expertise in application and evaluation of organizational theories in multiple roles. Students also plan for future continuous personal and professional growth. Letter grading.

434. Health Assessment of Women: Primary Care Clinical Management. (2) Clinic practicum, six hours. Clinical experience in application of principles of health assessment and primary care of women, with focus on physiologic, psychosocial, and behavioral factors and on clinical components of nurse-midwifery management process. Common health problems other than those related to gynecology or reproduction included. Elements of primary care which focus on health promotion, education, disease prevention, and client advocacy. Letter grading.

437A. Nurse-Midwifery Clinical Management I. (4) Clinic, 11 hours; clinical conference, one hour. Corequisite: course 237A. Application of theory, knowledge, and research of primary care of women during antepartum period, with emphasis on counseling and screening for prevention and early detection of common risk conditions that may complicate prenatal period. Letter grading.

437B. Nurse-Midwifery Clinical Management II. (4) (Formerly numbered 437C.) Clinic, 12 hours. Corequisite: course 237B. Application of current theory, research, and knowledge relevant to nurse-midwifery care and management of childbearing family during intrapartum and immediate newborn periods. Letter grading.

437C. Nurse-Midwifery Clinical Management III. (4) (Formerly numbered 437B.) Clinic, 12 hours. Corequisite: course 237C. Application of knowledge to management of postpartum women and newborns, with emphasis on interventions to assist with breastfeeding and counseling about interconceptional family planning and prevention of complications in newborn's transition to extrauterine life. Letter grading.

437D. Nurse-Midwifery Clinical Management IV. (4) Clinic, 12 hours. Corequisite: course 237D. Synthesizing previous coursework and clinical work, students continue to practice assessment and management of intrapartum family. Special emphasis on management of complications in intrapartum period and on interpretation and utilization of ultrasonography in clinical settings. Letter grading.

437E. Primary Care of Women: Family Planning and Gynecology Clinical Management. (4) Clinic, 11 hours; clinical conference, one hour. Corequisite: course 237E. Primary care for gynecology, family planning, sexually transmitted diseases, and premenopausal and perimenopausal women/families. Principles of prevention, assessment, diagnosis, treatment, and counseling applied in clinical experiences, case studies, and skills laboratories. Letter grading.

437F. Primary Care of Women: Nurse-Midwifery Integration. (8) Clinic, 24 hours (10 weeks) or 40 hours (six weeks). Requisite: course 437E. Students assume management responsibility for full scope of nurse-midwifery practice, providing continuity and comprehensive obstetric care to the childbearing woman, care to the newborn, family planning, and gynecologic care to the well woman. Students expected to implement one of the functional aspects of clinical nurse specialist role (i.e., educator, practitioner, researcher, or consultant). Letter grading.

438A. Advanced Practice Nursing in Care of Children: Wellness Care. (2) Clinic practicum, six hours. Requisite: course 238A. Development of expanded skills in comprehensive assessment and provision of anticipatory guidance for children and families to promote child wellness. Application of theory and research in provision of wellness care throughout childhood years. Letter grading.

438B. Advanced Practice Nursing in Care of Children: Management of Common Illnesses. (4) Clinic practicum, 12 hours. Requisite: course 238B. Development of expanded skills in comprehensive assessment and management of common childhood illnesses and problems; students continue to gain skills in promoting child wellness. Application of theory and research in care of common illnesses throughout childhood years. Letter grading.

438C. Advanced Practice Nursing in Care of Children: Management of Complex Health Problems. (4) Clinic practicum, 12 hours. Requisite: course 238C. Development of expanded skills in assessment and ambulatory management of complex acute and chronic childhood illnesses. Application of theory and research in provision of care for complex acute and chronic illnesses throughout childhood years. Letter grading.

438D. Pediatric Primary Care: Residency. (9) Clinic practicum, 27 hours. Requisites: courses 238C, 438C. Students assume primary responsibility for planning, managing, and evaluating care of children. Research, theory, and clinical knowledge analyzed, integrated, and applied to care of children and families with actual or potential health problems. Letter grading.

439A. Advanced Practice Nursing: Clinical Practicum. (2) Clinic practicum, six hours. Corequisite: course 239A. Advanced practice nursing in critical care, family, gerontology/chronic care, occupational health, and oncology. Nursing management and evaluation of health problems in selected populations. Developmental needs of clients in relation to family, social, and cultural structures. Letter grading.

439B. Advanced Practice Nursing: Clinical Practicum. (4) Clinic practicum, 12 hours. 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. Letter grading.

439C. Advanced Practice Nursing: Clinical Practicum. (4) Clinic practicum, 12 hours. Corequisite: course 239C. Third clinical practicum course for advanced practice nurses, with focus on nursing assessment and intervention in common illness-associated symptoms. Special emphasis on acute and chronic problems across life span, including review and analysis of current theory and research. Letter grading.

439D. Advanced Practice Nursing: Residency. (9) Clinic practicum, 27 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. Letter grading.

441. Neuropsychiatric Subspecialty Clinical Seminar. (1) Clinical seminar, one hour; self-study, two hours. Requisites: courses 241F, 242F. Designed for advanced practice nurses in any adult nurse practitioner specialty. Neuropsychiatric assessment, treatment, and case presentations in selected populations with addictive, affective, and cognitive dysfunctions in relation to family, social, and cultural structures. S/U grading.

442. Neuropsychiatric Subspecialty Clinical Seminar. (1) Clinical seminar, one hour; self-study, two hours. Requisite: course 441. Designed for advanced practice nurses in any adult nurse practitioner specialty. Continuation of course 441. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA assistant dean 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 eight units may be applied toward M.S.N. degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (4 to 8). Tutorial, to be arranged. Opportunity for individual graduate nursing students to pursue special studies or research interests. May be repeated for credit, but only four units may be applied toward graduate degree requirements. S/U grading.

597. Individual Study for Comprehensive Examination. (4 to 8) Tutorial, to be arranged. May be repeated once for credit, but only four units may be applied toward M.S.N. degree requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. Individualized faculty supervision of Ph.D. dissertation research by student's chair. May be repeated for credit, but only eight units may be applied toward Ph.D. degree requirements. S/U grading.

OBSTETRICS AND GYNECOLOGY

School of Medicine

UCLA
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Box 951740
Los Angeles, CA 90095-1740

(310) 794-1884
<http://www.obgyn.medsch.ucla.edu/>

Chairs

Alan H. DeCherney, M.D., *Executive Chair*
Teichiro Fukushima, M.D., *Vice Chair, King/Drew*
Howard L. Judd, M.D., *Vice Chair, Olive View-UCLA*
Lawrence Platt, M.D., *Vice Chair, Cedars-Sinai*
Michael G. Ross, M.D., *Vice Chair, Harbor-UCLA*

Scope and Objectives

The medical student program in obstetrics and gynecology is designed to provide firm background in the essentials of women's health. Through a combination of didactic instruction and supervised clinical experience, students acquire the relevant clinical skills of history taking and physical examination and learn reproductive physiology from infancy to the postmenopausal period; antepartum, intrapartum, and postpartum obstetric care; and recognition and management of various gynecologic disorders. Third-year students work in ambulatory clinics and on inpatient services during a six-week core clerkship. Greater depth of experience is provided by elective clerkships during the fourth year which emphasize subspecialties such as maternal/fetal medicine, reproductive endocrinology, gynecologic oncology, and family planning.

For further details on the Department of Obstetrics and Gynecology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

OPHTHALMOLOGY

School of Medicine

UCLA
2-142 Jules Stein Eye Institute
Box 957000
Los Angeles CA 90095-7000
(310) 825-5053
<http://www.medsch.ucla.edu/som/jsei/>

Chairs

Bartly J. Mondino, M.D. (*Wasserman Professor of Ophthalmology*), *Chair*
Sherwin J. Isenberg, M.D. (*Grace and Walter Lantz Endowed Professor*), *Vice Chair, Harbor-UCLA*
Arthur L. Rosenbaum, M.D., *Vice Chair*

Scope and Objectives

Ophthalmology is the medical science that encompasses knowledge concerning the eyes and the visual system. Derived from many basic and clinical fields, this knowledge must be synthesized by the physician and applied to the prevention, diagnosis, medical management, and surgical therapy of ocular disease.

In response to the steadily increasing incidence and growing importance of ocular disorders, the Department of Ophthalmology and the Jules Stein Eye Institute (including the Doris Stein Eye Research Center) are closely coordinated to form a comprehensive center for research in the sciences related to vision, for the care of patients with disease of the eyes and related structures, and for education in the broad field of ophthalmology.

The Department of Ophthalmology provides instruction to medical students during the second, third, and fourth years. Through lectures, demonstrations, discussions, and the opportunity to observe patients and review data on cases with a variety of ocular conditions, students gain knowledge and experience in ophthalmology.

For further details on the Department of Ophthalmology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

ORAL BIOLOGY

School of Dentistry

UCLA
63-050 Dentistry
Box 951668
Los Angeles, CA 90095-1668
(310) 825-1955
http://www.dent.ucla.edu/sod/depts/oral_bio/

George W. Bernard, D.D.S., Ph.D., *Chair*

Professors

George W. Bernard, D.D.S., Ph.D.
Douglas Junge, Ph.D.
Lawrence E. Wolinsky, D.D.S., Ph.D.

Professors Emeriti

Colin K. Franker, Ph.D.
Louis J. Goldberg, D.D.S., Ph.D.

Associate Professors

Francesco Chiappelli, Ph.D.
Robert Chiu, Ph.D.
Jacob Fleischmann, M.D.
Kenneth T. Miyasaki, D.D.S., M.S., Ph.D.

Assistant Professors

Susan A. Haake, D.M.D., M.D.S., Ph.D.
George Huang, Ph.D.
Wenyuan Shi, Ph.D.
Igor Spigelman, Ph.D.

Adjunct Professor

Bernard G. Sarnat, M.D., M.S., D.D.S.

Adjunct Associate Professor

Carol A. Bibb, Ph.D., D.D.S.

Adjunct Assistant Professors

Anahid Jewett, Ph.D.
Diana Messadi, D.D.S., Ph.D.
Shen Pang, Ph.D.

Scope and Objectives

Oral biology is that area of knowledge which deals with the development, structure, and function of the oral tissues and their interrelationships with other organ systems in normal and disease states. It is a multidisciplinary field that includes cell biology, morphology, molecular biology, biochemistry, neuroscience, immunology, microbiology, and virology. The objective of the graduate program is to provide students with a sound foundation in these areas in order to pursue an academic or research career.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Oral Biology offers the Master of Science (M.S.) degree in Oral Biology.

Admission

In addition to meeting the general admission requirements set by the Graduate Division, applicants to the M.S. program must have received a B.S., D.D.S., or D.M.D. degree, or the equivalent, with strong background in basic sciences, including two years of chemistry (inorganic, organic, and biological chemistry), one year of biology, and one year of physics.

Applicants must submit three letters of recommendation, at least two of which should be from science faculty familiar with their scholarly abilities, and a statement of purpose describing the applicant's background, work experience, research interests, and career goals.

Applicants may apply for a combined D.D.S./M.S. or advanced certificate training/M.S. by making simultaneous application for graduate study in the Oral Biology Department and for admission to the School of Dentistry and to the certificate programs. A separate application must be submitted to Graduate Admissions/Student and Academic Affairs. Applicants must be accepted by both of the concerned units in order to participate in a combined program.

Areas of Study

Bacterial and fungal pathogenesis, biochemistry, calcified tissue metabolism and developmental biology, immunology, neuroscience, pharmacology and therapeutics, and virology.

Course Requirements

A total of 36 units is required to satisfy the degree requirements. Eight core courses (Oral Biology 201A-201B-201C, 205, 215, 260, and 275) are required and should be taken during the first year of graduate study.

Additional elective courses (a minimum of five units), either at the upper division or graduate level, essential to the research area must be taken.

Eight units of courses 596 and 598 may be applied toward the total requirement, but only four units may be applied toward the minimum graduate course requirement.

Comprehensive Examination Plan

None.

Thesis Plan

The thesis is intended to demonstrate the student's ability to design and carry out a research project and analyze and present the resulting data. Results are expected to be of publishable scientific quality. The subject of the thesis must be approved by the graduate adviser and research mentor. At the end of the first year of study, students should prepare and send a proposal of the research project to the graduate adviser.

Doctoral Degree

Admission

In addition to meeting the general admission requirements set by the Graduate Division, applicants to the program leading to the Ph.D. degree in Oral Biology must have received a B.S., D.D.S., or D.M.D. degree, or the equivalent, with strong background in basic sciences, including two years of chemistry (inorganic, organic, and biological chemistry), one year of biology, and one year of physics. The Graduate Record Examination (GRE) General Test is required for admission.

Applicants must submit three letters of recommendation, at least two of which should be from science faculty familiar with their scholarly abilities, and a statement of purpose describing the applicant's background, work experience, research interests, and career goals.

Applicants may apply for a combined D.D.S./Ph.D. or advanced certificate training/Ph.D. by

making simultaneous application for graduate study in the Oral Biology Department and for admission to the School of Dentistry and to the certificate programs. A separate application must be submitted to Graduate Admissions/Student and Academic Affairs. Applicants must be accepted by both of the concerned units in order to participate in a combined program.

Major Fields or Subdisciplines

Bacterial and fungal pathogenesis, biochemistry, calcified tissue metabolism and developmental biology, immunology, neuroscience, pharmacology and therapeutics, and virology.

Course Requirements

In the first two years, Oral Biology 201A-201B-201C, 205, 206, 215, and 275 are required. Two laboratory rotations (Oral Biology 596) and the seminar (Oral Biology 260) are also required.

In the second year, students are expected to choose an area of emphasis and continue to take additional required and elective courses (a minimum of four to five courses). A menu of the second-year curriculum in each area of emphasis is available in the program office.

Written and Oral Qualifying Examinations

By the beginning of the second year of study, students are responsible, with the advice and consent of the graduate adviser, for organizing the guidance committee. Faculty members constituting the guidance committee include the student's research mentor and two others from the student's areas of emphasis. The guidance committee is responsible for approving the course of the student's doctoral study and conducting a review of the student's progress. The members of the guidance committee plus one more faculty member serve on the doctoral committee: three members must be from the Oral Biology Department and one member must be from a department outside the School of Dentistry.

After the completion of the core course requirements, a broad essay-type examination in the major areas of oral biology and cell biology is given by the graduate training committee. Based on the result of the written qualifying examination as well as performances in coursework, recommendations are made to the student to (1) continue with the Ph.D. program requirements, (2) schedule a retake of the written qualifying examination, (3) be directed to the M.S. program, or (4) be terminated. Permission to retake the examination is granted by the graduate training committee no more than two times.

After satisfactory completion of the written qualifying examination, it is expected that the University Oral Qualifying Examination be completed, preferably by the end of the summer of the second year.

The examination consists of a proposal that outlines the dissertation research, providing a review of the literature, a statement of the aims

of the research, and a description of the planned research activities. Discussion of the written proposal is followed by a question and answer period on general topics related to oral biology.

The guidance committee's decision to advance the student to candidacy, to allow for repeating the examination, or to disqualify from the program is based on the quality of the written proposal, the adequacy of the oral presentation, the overall record at UCLA as reflected in coursework, and the research ability as judged by an abstract of the research submitted with the proposal and the research mentor's written assessment.

Oral Biology

Graduate Courses

201A-201B-201C. Advanced Oral Biology. (3-2-3) Lecture, three hours/two hours/three hours:

201A. Ontogenesis. (3) Lecture, three hours. Evolutionary perspective of cellular development from simple molecules that were formed during the first billion years of the Earth to development of cells, tissues, and organs of invertebrates and vertebrates. Development of vertebrate feeding apparatus from a comparative anatomical and physiological point of view, followed by embryogenesis of orofacial and dental structures of humans. S/U or letter grading.

201B. Homeostasis in Oral Systems. (2) Lecture, two hours. Normal regulatory functions of various oral systems. Topics include mechanisms of salivary secretion and nonspecific salivary protective mechanisms; integrative action of oral sensory systems such as touch, pain, and taste; normal control of movements in jaw and face. Letter grading.

201C. Pathobiology. (3) Lecture, three hours. Molecular basis for pathogenic processes in tissues of the 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.

M203. Oral Embryology and Histology. (4) (Same as Neurobiology M229.) Lectures and laboratory instruction in development and histological structure of facial region and oral and peri-oral organs and tissues.

M204. Mechanisms and Relief of Pain. (2) (Formerly numbered 204.) (Same as Neuroscience M233.) 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.

205. Methodology in Research Design and Data Analysis. (4) Lecture, two hours; discussion, one hour; computer laboratory, one hour. 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 Ph.D. research.

206. Current Topics in Oral Immunology. (1) 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.

209. Scientific Ethics. (2) Lecture, one hour; laboratory, one hour. Required course in scientific ethics for graduate students in Oral Biology M.S. and Ph.D. programs and for NRSA trainees in School of Dentistry. Letter grading.

211. Biology of the Temporomandibular Joint. (2) Anatomy, histology, physiology, and biomechanics of the temporomandibular joint (TMJ) and related musculature. Pain mechanisms, sensorimotor integration, and motor mechanisms in TMJ function, and current methods of TMJ imaging.

215. Fundamentals of Immunology. (2) Basic cellular and molecular mechanisms involved in responses mediated by immune effectors, with emphasis on immunopathology involved in autoimmunity, cancer, and immunodeficiency syndromes.

226A-226B. Craniofacial Growth and Development. (2-2) 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 which aid their understanding and analysis of course content that has application to their specific and professional fields. In Progress grading.

227. Dental Embryology and Histology. (2) Description and interpretation of important stages in development of the 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 the orofacial apparatus which are of significance to clinical dental specialists.

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.

M234. Seminar: Developmental Neuroendocrine-immunology. (2) (Same as Neurobiology M234.) 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 a developmental perspective. S/U or letter grading.

260. Oral Biology Seminar. (2) Seminar, one hour; outside research, one hour. Research seminar to discuss faculty and student research of oral biology and related disciplines. Discussion of basic sciences related to oral biology, involving participants in important areas of investigation. 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.

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.

M293. Major Concepts in Oncology. (4) (Same as Microbiology and Immunology M293 and Pathology M293.) Lecture, three hours. Designed for graduate students contemplating research in oncology. Topics include cancer pathophysiology, genetics, membranes, macromolecular synthesis and control, cell cycle, growth control; physical, chemical, and viral oncogenesis, epidemiology of cancer; tumor immunology; principles of cancer surgery, radiation therapy, and chemotherapy. S/U or letter grading.

596. Directed Individual Study or Research. (2 to 8) S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4 to 8) S/U grading.

598. Thesis Research and Preparation. (2 to 8) S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 8) S/U grading.

ORGANISMIC BIOLOGY, ECOLOGY, AND EVOLUTION

College of Letters and Science

UCLA
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Los Angeles, CA 90095-1606
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<http://www.lifesci.ucla.edu/bio/>

Blaire Van Valkenburgh, Ph.D., *Chair*

Professors

Clifford F. Brunk, Ph.D.
Donald G. Buth, Ph.D.
Martin L. Cody, Ph.D.
Franz Engelmann, Ph.D.
Arthur C. Gibson, Ph.D.
Elma González, Ph.D.
Malcolm S. Gordon, Ph.D.
William M. Hamner, Ph.D.
Henry A. Hespenheide, Ph.D.
Kenneth A. Nagy, Ph.D.
Park S. Nobel, Ph.D.
Philip W. Rundel, Ph.D.
Charles C. Taylor, Ph.D.
Blaire Van Valkenburgh, Ph.D.
Eduardo Zeiger, Ph.D.

Professors Emeriti

Albert A. Barber, Ph.D.
George A. Bartholomew, Ph.D.
Joseph Cascarano, Ph.D.
Nicholas E. Collias, Ph.D.
Wilbur T. Ebersold, Ph.D.
Eric B. Edney, Ph.D.
Arthur W. Haupt, Ph.D.
Thomas R. Howell, Ph.D.
J. Lee Kavanau, Ph.D.
F. Harlan Lewis, Ph.D.
O. Raynal Lunt, Ph.D.
Austin J. MacInnis, Ph.D.
Leonard Muscatine, Ph.D.
Bernard O. Phinney, Ph.D.
Charles A. Schroeder, Ph.D.
Richard W. Siegel, Ph.D.
Henry J. Thompson, Ph.D.
Peter P. Vaughn, Ph.D.
Boyd W. Walker, Ph.D.
Samuel G. Wildman, Ph.D.

Associate Professors

Robert M. Gibson, Ph.D.
Richard K. Vance, Ph.D.
Robert Wayne, Ph.D.
Richard Zimmer, Ph.D.

Assistant Professors

Peggy Fong, Ph.D.
Graham Forrester, Ph.D.
David K. Jacobs, Ph.D.
Peter N. Nonacs, Ph.D.

Scope and Objectives

Organismic biology touches every aspect of modern life, and understanding how living organisms are adapted to their environments is the major challenge of the discipline. To meet this challenge, the Department of Organismic Biology, Ecology, and Evolution offers undergraduate and graduate instruction at all levels of biology — from regulatory and physiological processes within organisms through the natural ecology and behavior of living organisms and to the population and community dynam-

ics of multiple species. All of these subject areas address practical problems facing the world today, and all influence human decisions on matters ranging from conservation of the environment to advancement of medical science.

The Bachelor of Science degrees combine essential background studies in mathematics, chemistry, and physics with a general introduction to all of the biological subjects, as well as advanced in-depth exposure to some of them. The Master of Arts and Ph.D. degrees provide opportunities for advanced, concentrated study. The Master of Arts degree requires, in addition to specified coursework, completion of either a comprehensive examination or the performance of original research culminating in a thesis. The Ph.D. degree requires independent and innovative research that ultimately results in a dissertation.

Undergraduate Study

Students may earn a Bachelor of Science degree in one of four different majors within the department: Biology (general biology); Ecology, Behavior, and Evolution; Marine Biology; and Plant Biology. The majors build on similar lower division introductory courses and differ primarily in the upper division requirements. The Biology major is designed for students who desire exposure to a wide range of biological subjects and for students who later seek admission to health sciences-related professional schools. The remaining three majors — Ecology, Behavior, and Evolution, Marine Biology, and Plant Biology — provide more specialized instruction and strong preparation for employment or subsequent graduate study in the respective disciplines.

Biology B.S.

The Biology major is designed for students with a broad interest in biology who desire to pursue careers in a wide range of biological and related fields. It provides excellent background preparation for postgraduate training in medicine and other health sciences, in tracks leading to academic and public service careers in biology, in biological industries, and even in nonbiological careers such as business, agriculture, and law. Emphasis is on breadth of training to expose students to all levels of modern biology.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 14O, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in

separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Biology majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

The Major

Required: Two morphology and systematics/ecology, behavior, and evolution courses (Microbiology and Molecular Genetics 101/101L, Organismic Biology, Ecology, and Evolution 103, 105, 110, 116, 120, 122, C126, 129, 130, C135, 136); two developmental and molecular biology/physiology courses (Molecular, Cell, and Developmental Biology 138, C141, 144, 171, Organismic Biology, Ecology, and Evolution 121, 128, C134A or 134B, 146, M158, 162, M166, 167, 179); two additional upper division courses in molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 193) or organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192); Chemistry and Biochemistry 153A, 153L; three additional upper division courses in atmospheric sciences (one course from Atmospheric Sciences 101, 102, 104, or 130), chemistry, mathematics (except Mathematics 104, 106), microbiology, molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 193), organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192, 199), physics, physiological science (except Physiological Science 193, 195A, 195B, 196), or from Biomathematics 110, Biostatistics 100B, Earth and Space Sciences 116, Geography 112, Psychology 115. Courses selected must include two laboratory courses (Organismic Biology, Ecology, and Evolution 101A, 103, 105, 110, 136, M158, 162, M166, 167, 181).

Additional Requirements

(1) A maximum of eight units of the Organismic Biology, Ecology, and Evolution 190 series or four units of Organismic Biology, Ecology, and Evolution 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied.

(2) Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. Biology majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

Ecology, Behavior, and Evolution B.S.

The Ecology, Behavior, and Evolution major is appropriate for students preparing for graduate study in ecology, behavior, and evolution or for employment in areas such as environmental biology, animal behavior, conservation, teaching, museum work, and governmental positions dealing with environmental issues of wide importance and impact. A strong field component involving study in terrestrial and marine locales such as coastal, desert, and mountain environments in California and the Southwest and in the Neotropics is required.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 140, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A (31A, 31B, and 32A must be taken to satisfy the calculus requirement); Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Ecology, Behavior, and Evolution majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

The Major

Required: One morphology and systematics course (Organismic Biology, Ecology, and Evolution 103, 105, 110, or 130); one physiology course (Organismic Biology, Ecology, and Evolution 146, 162, M166, or 167); one additional laboratory course (Organismic Biology, Ecology, and Evolution 103, 105, 110, 136, 146, 162, M166, 167, or 181); three ecology, behavior, and evolution courses (Organismic Biology, Ecology, and Evolution C119, 120, 122, 129, C135); one field quarter consisting of two to four courses from the Field Biology Quarter (FBQ), Marine Biology Quarter (MBQ), or equivalent; Chemistry and Biochemistry 153A, 153L; two or more upper division courses in chemistry, geography, geology, mathematics (except Mathematics 104, 106), microbiology, organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolu-

tion 192, 199I), or physics (recommended: taxon-oriented courses such as Organismic Biology, Ecology, and Evolution 107, 111, 112, 113A, 114, C115, 152; other courses in ecological, behavioral, and evolutionary processes such as Organismic Biology, Ecology, and Evolution 116, 117, 122, M127, 128, C134A, in addition to courses listed above).

Courses offered as part of the Field Biology Quarter (FBQ) are open to all qualified students, but strict priority is given to students who are Ecology, Behavior, and Evolution majors, are graduating seniors, have taken a broad range of ecology, behavior, and evolution coursework, and have maintained a high grade-point average.

Additional Requirements

(1) Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. Ecology, Behavior, and Evolution majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

(2) As requisites for the Marine Biology Quarter, students must have a 3.0 overall grade-point average and have taken Statistics 10 or equivalent. Preference for the Marine Biology Quarter is given to Ecology, Behavior, and Evolution and Marine Biology majors. It is strongly recommended that students complete Organismic Biology, Ecology, and Evolution C109/C215 prior to applying for the Marine Biology Quarter.

Marine Biology B.S.

The Marine Biology major is designed for students who wish to specialize in the area of marine sciences. Completion of this major provides students with both an excellent background in biology and specialization in various disciplines such as oceanography, subtidal and intertidal ecology, and physiology of marine organisms. Graduates are well prepared for postgraduate opportunities in the marine sciences, many other areas of biology, and medicine. The major provides valuable field experience with concomitant individual research opportunities in marine biology.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 140, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C; Earth and Space Sciences 15 or Atmospheric Sciences 6 or 6A; Statistics 10 or equivalent.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same

course, are subject to dismissal from the major.

Transfer Students

To be admitted as Marine Biology majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

The Major

Required: Chemistry and Biochemistry 153A, Organismic Biology, Ecology, and Evolution C109; one laboratory course (Organismic Biology, Ecology, and Evolution 110, M158, or 181); one marine organismic biology course (Organismic Biology, Ecology, and Evolution 101A, 105, 112, or 137); one physiology course (Organismic Biology, Ecology, and Evolution 128, 162, M166, 167, or 179); one ecology, behavior, and evolution course (Organismic Biology, Ecology, and Evolution 116, C119, 120, 122, 129, C135, or 136); one field quarter consisting of four courses from the Marine Biology Quarter (MBQ) or equivalent field studies given elsewhere (for a 16-unit equivalent, see undergraduate adviser); two physical, chemical, or geological oceanography courses from Anthropology M116Q, Atmospheric Sciences 102, 103, 104, 130, Chemistry and Biochemistry 103, Earth and Space Sciences 100, 116, 119, 153, Geography 100, 101, 103, 123, 130, Mechanical and Aerospace Engineering 103 (strongly recommended), 150A.

Additional Requirements

(1) Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. Marine Biology majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

(2) As requisites for the Marine Biology Quarter, students must have a 3.0 overall grade-point average and have taken Statistics 10 or equivalent. Preference for the Marine Biology Quarter is given to Ecology, Behavior, and Evolution and Marine Biology majors. It is strongly recommended that students complete Organismic Biology, Ecology, and Evolution C109/C215 prior to applying for the Marine Biology Quarter.

Plant Biology B.S.

The Plant Biology major prepares students for postgraduate programs and careers in plant biology, including environmental biology, ecology, agricultural sciences, plant physiology, and cellular biology. Students select key courses to obtain a sound, broad foundation in plant biology, learning state-of-the-art research techniques. They are also given opportunity to

participate in individual supervised research projects using plants as experimental organisms.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 14O, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Plant Biology majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

The Major

Required: Chemistry and Biochemistry 153A, Organismic Biology, Ecology, and Evolution 146 or 162; one laboratory course (Organismic Biology, Ecology, and Evolution 101A, 103, 105, 110, M158, 162, M166, or 167); one plant morphology or anatomy course (Organismic Biology, Ecology, and Evolution 101A, 103, or 152); two molecular or cellular plant biology courses (Molecular, Cell, and Developmental Biology C141, C150, M170, Organismic Biology, Ecology, and Evolution 121); one ecology or evolution course (Organismic Biology, Ecology, and Evolution 120, 122, 128, 130, or 133); one field quarter course involving research in plant biology (Organismic Biology, Ecology, and Evolution 118, 124, 128, or 148) or a laboratory internship (Organismic Biology, Ecology, and Evolution 190 series or 199) which requires a written paper on some aspect of plant research; two additional upper division courses in chemistry, computer science, geography, microbiology, molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 193), or organismic biology, ecology, and evolution (except Organismic Biology, Ecology, and Evolution 192, 199I).

Additional Requirements

(1) A maximum of eight units of the Organismic Biology, Ecology, and Evolution 190 series or four units of Organismic Biology, Ecology, and Evolution 199 may be applied toward the

major. Credit for 199 courses from other departments may not be applied.

(2) Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. Plant Biology majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

Field Biology

The department offers two quarter-long programs of advanced courses in field biology: the Field Biology Quarter (FBQ) and the Marine Biology Quarter (MBQ). These programs focus on the biology of organisms living in their natural environments, emphasize independent student research projects, and take place at field sites away from the UCLA campus. The course composition varies somewhat from year to year, but each program always carries 16 units of course credit. The Field Biology Quarter occurs during Spring Quarter and involves some combination of Organismic Biology, Ecology, and Evolution 103, 107, 113B, 114, C115, 118, 124, C125, C126, 131, 132, and 134B. The Marine Biology Quarter occurs during Fall Quarter and includes some combination of Organismic Biology, Ecology, and Evolution 102, C104, 106, 123, 147, 148, 163, 164, and 165. To participate, students must enroll in all courses in the respective program. Participants in both programs are selected by personal interview during Fall or Winter Quarter. Information and applications are available in the Undergraduate Advising Office.

Honors Program

An overall grade-point average of 3.4 and a 3.4 in the major are required for graduation with honors. Highest honors are awarded to majors who have a GPA of 3.6 overall and a 3.6 in the major at graduation and who have successfully completed Organismic Biology, Ecology, and Evolution 190A-190B.

Computing Specialization

Majors in Biology, Ecology, Behavior, and Evolution, Marine Biology, and Plant Biology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, 10C, 30, and 60, and (3) completing one course from Computer Science M196B, Geography 168, Organismic Biology, Ecology, and Evolution C159, Psychology 186A, or 186B. A grade of C– or better is required in each course, with a combined grade-point average in the specialization of at least 2.0. Students must petition for admission to the program and are advised to do so after completing Program in Computing 10B (petitions should be filed in the Undergraduate Advising Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Organismic Biology, Ecology, and Evolution offers the Master of Arts (M.A.) degree in Biology, with specialization in a wide spectrum of fields.

Admission

Applicants who plan to enter graduate school are urged to seek the advice of faculty members in their field of interest.

The department encourages applications from students in all areas of science, but expects successful applicants to have or to acquire a background comparable to the requirements for the bachelor's degree in biology at UCLA. A background in chemistry, physics, and mathematics is desirable. Deficiencies in these or other subjects should be made up at the earliest opportunity. Undergraduates who are prospective applicants should remedy their deficiencies by preparatory study at an appropriate institution. The Graduate Division or the department may initially restrict applicants with less distinguished accomplishments.

All applicants must take the General Test (verbal, quantitative, and analytical) of the Graduate Record Examination (GRE). The Subject Test in Biology is also required.

Three letters of recommendation are required. These should be from professors, supervisors, or others who may provide an evaluation of the applicant's accomplishments or potential in research, teaching, and related scholarly activities.

Applications, departmental brochures, and additional information may be obtained from the Graduate Affairs Office, Department of Organismic Biology, Ecology, and Evolution.

Students are admitted in the Fall Quarter only. Applications are reviewed by the department's admissions committee which advises prospective sponsors about the desirability of admission.

Areas of Study

Study consists of coursework and research within the department and within related programs in biochemistry, geology, microbiology, and molecular biology on campus. Opportunities are also available off campus for intensive study of marine biology at a marine science center in Fall Quarter, field biology in Spring Quarter, and tropical biology through courses

offered by the Organization for Tropical Studies.

Course Requirements

The program consists of at least nine courses completed in graduate standing, of which at least five must be graduate (200 series) courses. The remainder may be courses in the 100, 200, or 500 series. No more than two 596 courses (eight units) may be applied toward the nine courses required for the degree; only one 596 course (four units) may be applied toward the minimum five graduate courses required. Courses graded S/U may not be applied toward the minimum requirement, except that an S/U-graded course outside the major and applicable to the degree may be applied, provided that no more than one such course is taken per quarter.

Specific course requirements are established individually for students by the guidance committee.

Comprehensive Examination Plan

Students who select this plan must take a three-hour examination prepared and graded by the committee or committee chair and approved by the graduate adviser. The examination is graded pass or fail. For students who fail, recommendation for or against a second examination must be made by the graduate adviser.

Thesis Plan

A thesis reporting the results of an original investigation, written to conform to the requirements of the Graduate Division, is presented to and approved by the master's thesis committee of three faculty. Before beginning work on the thesis, approval of the subject and general plan must be obtained from the thesis committee.

Doctoral Degree

Admission

See Admission under Master's Degree above. Applicants are admitted to the program leading to the Ph.D. degree in Biology in the Fall Quarter only. Applications are reviewed by an admissions committee following a January 1 deadline. The admission committee advises prospective sponsors about the desirability of admissions.

Major Fields or Subdisciplines

See Areas of Study under Master's Degree.

Course Requirements

Students must enroll for full-time study as defined by the University. Doctoral students must complete a minimum of 20 units of graduate-level courses (200 series).

Written and Oral Qualifying Examinations

Departmental Written Qualifying Examination. Students are required to take the departmental written qualifying examination during their first year in residence.

The examination consists of two parts: Part I examines the breadth of understanding (conceptual and synthetic) of the diversity of specialized subjects within integrative biology and is coupled to two graduate courses (Organismic Biology, Ecology, and Evolution M200A, 200B). Part II is designed to test students' ability to read critically and evaluate the literature in their chosen scientific specialty.

Oral Qualifying Examination. The University Oral Qualifying Examination is conducted by the doctoral committee as prescribed by the Graduate Division. It includes students' preparation, presentation, and defense of an original written research proposal. The examination is graded pass, fail, or repeat. A failure results in dismissal. The repeat is graded pass/fail. The examination must be completed by the end of the third year following first registration.

Organismic Biology, Ecology, and Evolution

Lower Division Courses

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.

11. Biomedical Research Issues in Minority Communities. (4) 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.

13. Evolution of Life. (4) Lecture, three hours; discussion, one hour. Not open to life sciences majors. Limited to 100 students. Introduction to biology within the framework of evolutionary theory. Relationships of evolutionary thought to other areas of knowledge and society. Natural selection and origin of variation examined in context of genetics, molecular biology, physiology, phylogeny, population dynamics, behavior, and ecology. Emphasis on critical role of historical processes.

21. Field Biology. (4) Lecture, three hours; discussion, two hours, or field trips, three to four hours. Recommended preparation: course 2. Not open for credit to students with credit for course 122, former course 6, or Life Sciences 1. Introduction to natural history of Western North America, especially Southern California. Classification, distribution, and ecology of common plants and animals.

25. Oceans. (4) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for Earth and Space Sciences 15. Physical and chemical processes that take place in oceans, with emphasis on their effects on organisms.

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.

Upper Division Courses

101A. Biology of Lower Plants. (6) Lecture, four hours; laboratory, six hours. Requisite: Life Sciences 1. Introduction to biology of algae, fungi, and bryophytes, with emphasis on form, function, and development, and role of lower plants in the environment. Students are strongly encouraged to take both courses 101A and 101B since these represent a course sequence surveying the entire plant world as appropriate background for upper division courses in plant biology.

101B. Biology of Vascular Plants. (6) Lecture, three hours; laboratory, six hours. Requisite: Life Sciences 1. Introduction to the diversity in form and reproduction of vascular plants, with emphasis on development, evolution, and function. Students are strongly encouraged to take both courses 101A and 101B since these represent a course sequence surveying the entire plant world as appropriate background for upper division courses in plant biology.

102. Biology of Marine Invertebrates. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Morphology, systematics, life histories and natural history, ecology, behavior, and physiology of marine invertebrates. Given off campus at a marine science center.

103. Plant Evolution and Systematics. (4) Lecture, three hours; laboratory, three hours. Requisites: Life Sciences 1, 2, 3, 4. Evolution, systematics, morphology, principles of taxonomy, phylogeography, phylogenetic analysis, speciation, and natural history of plants. P/NP or letter grading.

C104. Experimental Invertebrate Zoology. (6) Lecture, two hours; laboratory, 12 hours. Requisite: Life Sciences 1. Advanced treatment of physiology, behavior, and ecology of invertebrates, with emphasis on independent laboratory and field investigations. Concurrently scheduled with course C212.

105. Biology of Invertebrates. (6) Lecture, three hours; laboratory/field trips, six hours. Requisite: Life Sciences 1. Introduction to systematics, evolution, natural history, morphology, and physiology of invertebrates.

106. Experimental Marine Invertebrate Biology. (4 or 6) Lecture, two hours; laboratory, 12 hours. Requisites: courses 105, and M166 or 167 (either may be taken concurrently). Offered either as a six-unit quarter-long course or as a four-unit Marine Biology Quarter course. Advanced course of natural history, physiology, biochemistry of invertebrates, with emphasis on independent laboratory and field investigations.

107. Entomology. (6 or 8) Requisite: Life Sciences 1. Offered either as a six-unit quarter-long course or as an eight-unit Field Biology Quarter course. Six-unit course has lecture, three hours; laboratory, six hours; additional field trips. Morphology, physiology, development, systematics, behavior, and ecology of insects. Eight-unit course covers same basic lecture and laboratory material in two and one-half intensive weeks, followed by extended field trip where students do individual field projects in insect biology.

C109. Introduction to Marine Science. (4) Lecture, three hours; laboratory, three hours; weekend field trips. Requisite: Life Sciences 1. Strongly recommended for prospective MBQ students. Introduction to physical, chemical, and biological aspects of marine science. Emphasis on biological systems and natural communities. Concurrently scheduled with course C215.

110. Vertebrate Morphology. (6) Lecture, three hours; laboratory, five hours. Requisites: Life Sciences 1, 2, 3, 4. Study of vertebrate morphology, function, and evolution from viewpoint of comparative anatomy of adult forms, biomechanics, development, and paleontology. Laboratory study of selected vertebrates.

111. Biology of Vertebrates. (4) Lecture, three hours; demonstration/field trips/discussion, three hours. Requisite: Life Sciences 1. Adaptations, behavior, and ecology of vertebrates.

112. Ichthyology. (4) Lecture, two hours; laboratory, six hours; field trips. Requisite: Life Sciences 1. Highly recommended: courses 110, 111. Biology of freshwater and marine fishes, with emphasis on their evolution, systematics, morphology, zoogeography, and ecology. Field trips examine fishes of the Southern California shoreline, tidepools, and coastal streams.

113A. Herpetology. (4) Lecture, three hours; laboratory, one hour; weekend field trips. Requisite: Life Sciences 1. Vertebrate zoology course restricted to biology of reptiles and amphibians of the world, covering current systematics, ecology, behavior, morphology, and physiology of these animals.

113B. Field Herpetology. (8) Requisite: Life Sciences 1. Recommended: course 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.

114. Ornithology. (4) Lecture, two hours; laboratory/discussion/field trips, six hours. Requisite: course 111. Limited enrollment. Systematics, distribution, physiology, behavior, and ecology of birds.

C115. Mammalogy. (4) Lecture, three hours; discussion, one hour; laboratory, three hours. Requisite: course 110 or 111. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Concurrently scheduled with course C213.

116. Conservation Biology. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, 2, 3, 4. 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.

117. Evolution of Vertebrates. (4) Lecture, three hours; laboratory, three hours. Requisite: course 110. Recommended: one general geology course. Fossil record of the evolution of vertebrates, with emphasis on paleobiology and morphology of tetrapods.

118. Plant Adaptations. (8) Lecture, one hour; field trip, 10 hours. Preparation: completion of preparation for the major courses. *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.

C119. Mathematical Ecology. (4) Lecture, three hours. Requisites: Mathematics 31A, 31B, 32A. Differential equation models of population growth explore theory of evolutionary ecology to determine why natural environments of the world support the kinds of living organisms they do and why organisms of the world possess the adaptations they do. Concurrently scheduled with course C219.

120. Evolution. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, Mathematics 3A and 3B, or 31A. Recommended: Life Sciences 4. 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 Biology and Evolution. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Not open to students with credit for former course 100A or Molecular, Cell, and Developmental Biology 144. Molecular biology, with emphasis on evolutionary aspects. DNA replication, RNA transcription, protein synthesis, gene expression, and molecular evolution.

122. Ecology. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, Mathematics 3A and 3B, or 31A. 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.

123. Marine Ecology. (4 or 8) Lecture, five hours; laboratory, 15 hours. Recommended requisite: course 122. *Offered either as an eight-unit quarter-long course or as a four-unit five-week intensive course given off campus as part of Marine Biology Quarter*. 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.

124. Field Ecology. (4 or 8) Lecture, two hours; laboratory or field trip, 10 hours. Requisite: Life Sciences 1. Recommended: courses 111, 120, 122. *Offered either as a four-unit quarter-long course with weekend field trips or as a single field trip conducted between quarters, followed by lectures and tutorials for three weeks. When course is given as part of Field Biology Quarter, it is eight units and lasts for five weeks*. Field and laboratory research in ecology; collection, analysis, and write-up of numerical data, with emphasis on design and execution of field studies.

C125. Tropical Animal Communication. (4 or 8) Requisite: Life Sciences 1. *Offered either as a four-unit quarter-long course or as an eight-unit Field Biology Quarter course*. Four-unit course has lecture, three hours; discussion, two hours. 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. Concurrently scheduled with course C225.

C126. Behavioral Ecology. (4 or 8) Requisites: course 120 or 122 or 129, Life Sciences 1, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. *Offered either as a four-unit quarter-long course or as an eight-unit Field Biology Quarter course*. Four-unit course has lecture, three hours; discussion, three hours. Animal communication behavior, island biogeography, and evolution of social behavior. Eight-unit course covers same basic lecture material in five intensive weeks, followed by extended field trip where students do individual projects in behavioral ecology. Concurrently scheduled with course C227.

M127. Soils and Environment. (5) (Same as Environment M127 and Geography M127.) Lecture, five hours; discussion, one hour; field trips. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L. 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. Letter grading.

128. Plant Physiological Ecology. (4) Lecture, three hours; laboratory, three hours; one two-day field trip. Requisites: Life Sciences 1, Physics 1C 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: Life Sciences 1, 4. 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.

130. Principles of Systematic Biology. (4) Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1. Recommended: courses 120, C135. Concepts, principles, and methods of comparative biology as they apply to the inference of evolutionary relationships among organisms. Principles and application of biological nomenclature.

131. Insect Ecology. (4 or 8) Lecture, two hours; laboratory or field trip, eight hours. Requisite: Life Sciences 1. Recommended: courses 120, 122. *Offered either as a four-unit quarter-long course with weekend field trips or as an eight-unit Field Biology Quarter course with amount of fieldwork increased accordingly*. Analysis of ecological roles of insects in terrestrial communities, with emphasis on interactions with both plants and vertebrates. Group and individual field projects.

132. Field Behavioral Ecology. (8) Lecture, two hours; laboratory/field trip, 10 hours. Requisite: Life Sciences 1. 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.

133. Vegetation and Ecosystem Dynamics. (4) Lecture, three hours. Requisite: Life Sciences 1. Introduction to form and functional relationships of major world vegetation types in relation to their physical environments.

C134A. Physiological Ecology of Desert Animals. (4) Lecture, three hours; laboratory, one hour; field trips, four hours. Requisite: Life Sciences 1. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in an arid habitat. Concurrently scheduled with course C214.

134B. Field Physiological Ecology of Desert Animals. (8) Requisite: Life Sciences 1. 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 an arid habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion.

C135. Population Genetics. (4) (Formerly numbered 135.) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Highly recommended: Mathematics 31A, 31B. 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. Ecology, Behavior, and Evolution Laboratory. (4) Lecture, two hours; laboratory, four hours; field trips. Requisites: course 120 or 122 or 129 (may be taken concurrently), Life Sciences 1, 4, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Strongly recommended: course 122. Designed for Ecology, Behavior, and Evolution majors. Laboratory and field exercises on population genetics, growth, and regulation; competition and predation; behavioral interactions; species' diversity and distribution. Methodological aspects from theoretical models and computer simulations to laboratory and garden experiments to fieldwork. Mandatory field trips, including two weekend trips.

137. Chemical Communication. (4) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A, 14B/14BL, 14C/14CL, and 140, or 20A, 20B, 20L, 30, 30L, and 130A/130AL, Life Sciences 1, 2, 3. 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.

CM145. Advanced Paleontology. (4) (Same as Earth and Space Sciences CM118.) Lecture, three hours. Requisite: course 110 or 117 or Earth 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. Concurrently scheduled with course CM245. P/NP or letter grading.

146. Physicochemical Biology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, Physics 1C or 6C. Physicochemical analysis of physiology of cells and organelles, with emphasis on membranes, thermodynamics of solute and water movement, light absorption, and subcellular energy transduction. Letter grading.

147. Biological Oceanography (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 3. Lectures include physical, chemical, and biological factors affecting abundance and distribution of organisms in marine environment. Laboratory includes experimental studies of local marine organisms, with emphasis on primary and secondary production and nutrient flux.

148. Biology of Marine Plants. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 3. 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 a marine science center.

C151A. Tropical Ecology. (4) Requisite: Life Sciences 1. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of a range of tropical forest habitats. Discussion of such themes as biogeography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. Concurrently scheduled with course C221A. P/NP or letter grading.

C151B. Field Tropical Ecology. (8) Requisite: Life Sciences 1. 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 a tropical forest habitat. Concurrently scheduled with course C221B.

152. Functional Plant Anatomy. (4) Lecture, three hours; laboratory, six hours. Requisites: Life Sciences 1, 2, 3, 4. Structure and functional significance of various cell and tissue types in higher plants, plus patterns of growth and differentiation in roots, stems, leaves, flowers, and fruits.

M158. Cell Biology. (6) (Same as Physiological Science M158.) Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 3, 4. Cell biology of eukaryotic cells, with emphasis on correlation of structure and function at molecular, organellar, and cellular levels. Letter grading.

C159. Computational Biology. (4) Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 1, 4. Introduction to computational biology. Topics include statistical and mathematical analysis, computer simulation, use of Internet for remote databases, and connections to supercomputers, with emphasis on biological applications and individual or group projects. Concurrently scheduled with course C275.

162. Plant Physiology. (6) Lecture, four hours; laboratory, four hours. Requisites: Life Sciences 1, 2, 3. Basic aspects of plant function, including photochemical, biochemical, and physiological aspects 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.

163. Biology of Marine Tetrapods. (4) Five-week intensive course. Lecture, five hours; laboratory and fieldwork, 15 hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 3. Highly recommended: course 111. 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 a marine science center.

164. Field Biology of Marine Fishes. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Recommended: Mathematics 3A, 3B, 3C. Selected aspects of natural history, ecology, and behavior of the diverse assemblage of local marine fishes. Fieldwork strongly emphasized. Given off campus at a marine science center.

165. Ecological Physiology of Marine Vertebrates. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 3. Recommended: Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Introduction to physiological adaptations of marine vertebrates to major physicochemical variables in the oceans of the world and to major marine habitats. Given off campus at a marine science center. Letter grading.

M166. Animal Physiology. (6) (Same as Physiological Science M166.) Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, 153A, Life Sciences 1, 2, 3, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for course 167 or Molecular, Cell, and Developmental Biology M170 or to physiological science majors. Introduction to physiological principles, with emphasis on organ systems and intact organisms. Letter grading.

167. Regulatory Physiology. (6) Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 2, 3, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for course M166 or Molecular, Cell, and Developmental Biology M170 or to physiological science majors. Introduction to whole animal and organ physiology. Primary considerations to neuronal and endocrine regulations of body functions and integration of organ systems. Letter grading.

M173. Anatomy and Physiology of Sense Organs. (4) (Same as Physiological Science M173.) Lecture, three hours; discussion, one hour. Requisites: Molecular, Cell, and Developmental Biology 171 (or Physiological Science 111A) or M175A-M175B (or Physiological Science M180A-M180B). 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.

179. Invertebrate Endocrinology. (4) Lecture, three hours. Comprehensive treatment of invertebrate endocrinology. Letter grading.

181. Parasitology. (6) Lecture, three hours; laboratory, six hours. Requisites: Life Sciences 1, 3. Introduction to principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man. Letter grading.

182. Field Community and Population Ecology. (4) Lecture, five hours; field study, seven hours. Corequisites: courses 183, 184, 199. Introduction to experimental field research, with emphasis on investigating communities and populations of native plants and animals to reveal their structures, their relationships to individual members, and environmental factors in their success and limitation. Given off campus as part of UC Environmental Biology Supercourse.

183. Applied Conservation Biology. (4) Lecture, five hours; field study, seven hours. Corequisites: courses 182, 184, 199. Introduction to complexities and realities of natural resource exploitation and preservation, with emphasis on trade-offs between economic benefits and ecosystem stability and sustainability. Given off campus as part of UC Environmental Biology Supercourse.

184. Physiological Ecology. (4) Lecture, five hours; field study, seven hours. Corequisites: courses 182, 183, 199. Examination of functional means by which animals and plants cope with their environments, and physiological limits determining boundary conditions of ecological niches. Emphasis on unifying principles describing regulatory features of animals and plants, and responses of species in extreme environments. Given off campus as part of UC Environmental Biology Supercourse.

188. Seminar: Biology and Society. (2) 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.

CM189A-CM189B. Theoretical Behavioral Ecology. (4-4) (Same as Anthropology CM189A-CM189B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM189A is requisite to CM189B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a pace and mathematical level that allows students to grasp this information. Within each area of theory (e.g., kin selection, optimal foraging theory, etc.), presentation of basic corpus of models so that students understand assumptions that underlie the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM295A-CM295B.

190A-190D. Honors Research in Organismic Biology, Ecology, and Evolution. (2 to 4 each) Individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Organismic Biology, Ecology, and Evolution Department faculty for at least two terms and for a total of at least eight units. In Progress grading (credit to be given only on completion of course 190B). Students may elect to enroll in additional research through courses 190C-190D (letter grading). A report on progress must be presented to undergraduate adviser each term a 190 course is taken. Eight units may be applied toward departmental majors.

192. Teaching Practicum in Organismic Biology, Ecology, and Evolution. (1 to 4) Limited to junior/senior departmental majors. Training and supervised practicum for advanced undergraduates in teaching biology. Students serve as junior teaching assistants and assist in preparation of materials and development of innovative programs. Consult Undergraduate Office for further information. May not be applied toward course requirements for departmental majors. P/NP or letter grading.

199. Special Studies. (2 to 16) Preparation: submission of written proposal outlining the study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal should be worked out in consultation with instructor and submitted for approval to undergraduate adviser before the day instruction begins in that term. At end of term a report describing progress of the study or research and signed by the student and instructor must be presented to undergraduate adviser. Students who wish to take more than eight units of course 199 in any one term must obtain authorization from department chair and appropriate dean. Only one 199 course may be applied toward departmental majors.

199I. Independent Studies in Application of Biology. (2 to 4) Discussion, one hour; fieldwork, five to 12 hours. Independent studies course to be supervised by Field Studies Office, fieldwork site, and faculty adviser. Consult Undergraduate Office for more information. May not be applied toward requirements for departmental majors. May be repeated for a maximum of eight units. Each repetition must have its own analytical focus or show progression of research. P/NP grading.

Graduate Courses

M200A. Evolutionary Biology. (4) (Same as Earth and Space Sciences M216.) 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, Behavior, and Functional Ecology. (4) (Formerly numbered Biology 200B, 200C.) Lecture, two hours; discussion, two hours. Principles and current topics in ecology, behavioral biology, and plant and animal physiology. Topics may include island biogeography, habitat selection, community structure, disturbance ecology, life history evolution, social behavior, sexual selection, foraging theory, energetics, photosynthesis, water relations, chemical ecology, endocrinology, physiological ecology, and adaptation-al biology. 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 a marine science center.

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.

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 the living animal and its habitat. Given off campus at a marine science center.

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.

208. Advanced Vertebrate Morphology. (4) Lecture, two hours; laboratory, eight hours. Requisite: course 110. Emphasis on a 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.

209. Behavior of Arthropods. (4) Lecture, three hours; discussion, one hour. Requisite: course 105 or 107. 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.

210. Advanced Ornithology. (4) Lecture, two hours; laboratory, two hours; fieldwork, two hours. Requisite: course 114. 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).

C212. Experimental Invertebrate Zoology. (6) Lecture, two hours; laboratory, 12 hours. Requisite: Life Sciences 1. Advanced treatment of physiology, behavior, and ecology of invertebrates, with emphasis on independent laboratory and field investigations. Concurrently scheduled with course C104.

C213. Mammalogy. (4) Lecture, three hours; discussion, one hour; laboratory, three hours. Requisite: course 110 or 111. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Concurrently scheduled with course C115.

C214. Physiological Ecology of Desert Animals. (4) Lecture, three hours; laboratory, one hour; field trips, four hours. Requisite: Life Sciences 1. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in an arid habitat. Concurrently scheduled with course C134A.

C215. Introduction to Marine Science. (4) Lecture, three hours; laboratory, three hours; weekend field trips. Requisite: Life Sciences 1. Strongly recommended for prospective MBQ students. Introduction to physical, chemical, and biological aspects of marine science. Emphasis on biological systems and natural communities. Concurrently scheduled with course C109.

216. Quantitative Methods in Behavior and Ecology. (4) Lecture, two hours; laboratory, six hours. Requisite: course 122 or 129. Quantitative methods of data collection and analysis in behavioral and ecological research. Lectures review general nature of quantitative problems that arise in behavior and ecology and statistical methods used to solve them. Laboratory exercises emphasize analysis, using comprehensive statistical software routines on personal microcomputers, of the kinds of data that frequently arise in field biological research.

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 a marine science center.

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 a marine science center.

C219. Mathematical Ecology. (4) Lecture, three hours. Requisites: Mathematics 31A, 31B, 32A. Differential equation models of population growth explore theory of evolutionary ecology to determine why natural environments of the world support the kinds of living organisms they do and why organisms of the world possess the adaptations they do. Concurrently scheduled with course C119.

C221A. Tropical Ecology. (4) Requisite: Life Sciences 1. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of a range of tropical forest habitats. Discussion of such themes as biogeography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. Concurrently scheduled with course C151A. S/U or letter grading.

C221B. Field Tropical Ecology. (8) Requisite: Life Sciences 1. 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 a tropical forest habitat. Concurrently scheduled with course C151B.

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 a marine science center.

C225. Tropical Animal Communication. (4 or 8) Requisite: Life Sciences 1. Offered either as a four-unit quarter-long course or as an eight-unit Field Biology Quarter course. Four-unit course has lecture, three hours; discussion, two hours. 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. Concurrently scheduled with course C125. S/U or letter grading.

C227. Behavioral Ecology. (4 or 8) Requisites: course 120 or 122 or 129, Life Sciences 1, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Offered either as a four-unit quarter-long course or as an eight-unit Field Biology Quarter course. Four-unit course has lecture, three hours; discussion, three hours. Animal communication behavior, island biogeography, and evolution of social behavior. Eight-unit course covers same basic lecture material in five intensive weeks, followed by extended field trip where students do individual projects in behavioral ecology. Concurrently scheduled with course C126. S/U or letter grading.

M231. Molecular Evolution. (4) (Same as Earth 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 the 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. Advanced Ecology. (4) Lecture, three hours; discussion, one hour; field trip, three hours. Requisite: course 122. Concepts and topics in ecology, evolutionary or behavioral ecology, or theoretical ecology. Topics vary from year to year and may include island biogeography, tropical biology, biodiversity, modeling in ecology, habitat selection, community structure and organization, and ecology and evolution of reproductive rates. May be repeated for credit. S/U or letter grading.

C235. Population Genetics. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Highly recommended: Mathematics 31A, 31B. 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. Letter grading.

236. Seminar: Marine Molecular Biology. (4) Discussion, 10 hours. Requisite: course 224. Seminar on current issues and work in marine molecular biology. Given off campus at a marine science center.

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 a marine science center.

243. Animal Communication. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Open to qualified undergraduates with consent of instructor. 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 of the sensory modalities. Examples of communication systems using visual, auditory, chemical, electrical, and magnetic cues, with emphasis on biological adaptations for efficiently signaling species-specific information.

244. Advanced Insect Physiology. (4) Lecture, two hours; laboratory, five hours. Requisite: course 168. Detailed discussion of current problems in insect physiology, with advanced laboratory.

CM245. Advanced Paleontology. (4) (Same as Earth and Space Sciences CM218.) Lecture, three hours. Requisite: course 110 or 117 or Earth 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. Concurrently scheduled with course CM145. 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.

251. Seminar: Systematics. (2) Discussion, 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.

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) Discussion, three hours. Seminar on current approaches to herpetology. Main theme varies from year to year in areas such as biogeography, ecology, behavior, environmental physiology.

260. Seminar: Biology of Terrestrial Vertebrates. (2) Seminar, two hours. S/U or letter grading.

263. Seminar: Population Genetics. (2 or 4) Discussion, three to six hours. Seminar on topics of current interest in population genetics, such as kin selection, sociobiology, cultural evolution, conservation genetics, etc.

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.

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) Discussion, three hours. Advanced study of specific topics in animal ecology and related fields.

270. Seminar: Environmental Physiology. (2) S/U grading.

271. Seminar: Phycology and Mycology. (2) Requisite: course 101A. 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.

272. Seminar: Marine Biology. (2) Seminar, two hours. S/U or letter grading.

273. Seminar: Entomology. (2) 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) Discussion of theoretical and empirical aspects of topics in behavioral ecology. S/U or letter grading.

C275. Computational Biology. (4) Lecture, three hours; laboratory, one hour. Requisites: Life Sciences 1, 4. Introduction to computational biology. Topics include statistical and mathematical analysis, computer simulation, use of Internet for remote databases, and connection to supercomputers, with emphasis on biological applications and individual or group projects. Concurrently scheduled with course C159.

279. Seminar: Evolutionary Biology. (2) Seminar, two hours; outside study, four hours. Requisite: course M231. Emphasis on a 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) 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.

288. Seminar: Plant Cell Biology. (2) Recommended preparation: course 162.

M290. 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.

CM295A-CM295B. Theoretical Behavioral Ecology. (4) (Same as Anthropology CM289A-CM289B.) Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course CM295A is requisite to CM295B. Students expected to do simple algebra, elementary calculus, and probability. A rich body of mathematical theory describing the evolution of animal behavior exists. Introduction to this body of theory at a pace and mathematical level that allows students to grasp this information. Within each area of theory (e.g., kin selection, optimal foraging theory, etc.), presentation of basic corpus of models so that students understand assumptions that underlie the models, and how main results are derived. Presentations supplemented by a survey of results printed in the literature, especially those derived using more advanced methods. Concurrently scheduled with courses CM189A-CM189B.

296. Seminar: Integrative Biology — Cellular, Organismic, and Population. (1 to 4) Discussion, 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 grading.

299. Seminar: Parasitology. (2) Seminar, two hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Preparation for Teaching Biology in Higher Education. (2) 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) 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) Given off campus at a marine science center.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

598. M.A. Thesis Research and Writing. (2 to 12) S/U grading.

599. Ph.D. Dissertation Research and Writing. (2 to 12) S/U grading.

ORGANIZATIONAL STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
4256 Bunche Hall
Box 951472
Los Angeles, CA 90095-1472

(310) 825-3862
<http://www.sscnet.ucla.edu/polisci/>

Faculty Advisory Committee

Bryan C. Ellickson, Ph.D. (*Economics*)
Oscar Grusky, Ph.D. (*Sociology*)
Eric H. Monkkonen, Ph.D. (*History*), *Chair*

Scope and Objectives

Organizations are multifaceted and can usefully be explored from more than one disciplinary perspective. The undergraduate specialization in Organizational Studies brings together students and faculty from the Departments of Economics, Geography, History, Political Science, Psychology, and Sociology who share an interest in modern organizations. The program gives students a solid grounding in the organizational perspectives and methods of at least two departments. The specialization must be taken in conjunction with a major in the social sciences.

Undergraduate Study

Organizational Studies Specialization

Students may elect to combine the Organizational Studies specialization with a departmental major and may petition to have the area of specialization recognized with the bachelor's degree.

The option of completing an individual major in Organizational Studies is also open to qualified students. For more information on individual majors, see the College of Letters and Science section of this catalog.

Students with a departmental major should seek advising in their major department. Those interested in the individual major should consult a Letters and Science counselor.

Courses within the specialization must be taken for a letter grade. The specialization must be taken in conjunction with a major in the division of social sciences.

Preparation for the Specialization

Required: At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1, 2; Geography 4; Psychology 10; Sociology 1, or M18 and 104 or equivalent.

Upper Division Requirements

Required: Nine upper division courses, including (1) at least three courses outside the major department selected from Management 190, Political Science 146D, Sociology 168, 173; (2) a minimum of three courses selected from one of the following suites within the major department: Economics 147A, 147B, 170, 171; Geography 148, M149; Political Science 141C, 142A, 142B, 146E; Psychology 135; Sociology 132, 135, 156, 182; (3) a minimum of three courses selected from one of the suites in item 2 in a department outside the major department; (4) internship experience in a governmental or service organization.

Professor Eric H. Monkkonen (9252 Bunche Hall, 310-825-3376) is the program adviser. For further information, contact the political science undergraduate counselor in the program office.

ORTHOPAEDIC SURGERY

School of Medicine

UCLA
76-134 Center for the Health Sciences
Box 956902
Los Angeles, CA 90095-6902
(310) 825-2744
<http://www.medsch.ucla.edu/som/deptlist.htm>

Chair

Gerald A.M. Finerman, M.D.

Scope and Objectives

The medical student program in orthopaedic surgery is designed to provide experience in understanding the diagnosis and management of disorders of the musculoskeletal system. Through a combination of didactic instruction and supervised clinical experience, students acquire the clinical skills of history taking and physical examination of the musculoskeletal system. Diagnosis and orthopaedic management of bone and soft tissue trauma, skeletal development defects, tumor, spinal disorders, hand and foot disorders, and arthritis are primary objectives. Third-year students work in ambulatory clinics and on inpatient services during their core surgical clerkship. Fourth-year electives provide the opportunity for in-

depth experience on rotations at the UCLA Medical Center and affiliated institutions and emphasize subspecialties such as joint replacement, sports medicine, orthopaedic oncology, metabolic bone disorders, hand and foot surgery, spinal surgery, and pediatric orthopaedics.

For further details on the Department of Orthopaedic Surgery and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

Orthopaedic Surgery

Upper Division Course

102. Gross Anatomy of the Human Body. (8) Lecture, three hours; laboratory, nine hours. Designed for dental and graduate students. Systemic and topographical human anatomy, with dissection of human cadaver. Emphasis on head and neck. P/NP grading.

Graduate Courses

205A-205B. Gross and Developmental Anatomy for Medical Students. (5-5) Lecture/laboratory, three four-hour sessions (16 weeks beginning in August). Designed for medical students. Open to nonmedical students with consent of instructor. Gross anatomy, embryology, and radiological anatomy of the human body as taught by lectures, demonstrations, and dissections. **205A.** Limbs, Thorax, and Abdomen (first eight weeks); **205B.** Pelvis, Head, and Neck.

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 the human body as taught by lectures, demonstrations, and dissections. Trunk and extremities; head and neck.

PATHOLOGY AND LABORATORY MEDICINE

School of Medicine

UCLA
13-145G Center for the Health Sciences
Box 951732
Los Angeles, CA 90095-1732
(310) 825-5719
<http://www.pathnet.medsch.ucla.edu/>

Jonathan Braun, M.D., Ph.D., *Chair*

Professors

Sanford H. Barsky, M.D.
Judith A. Berliner, Ph.D., *in Residence*
Jonathan Braun, M.D., Ph.D.
Alistair J. Cochran, M.D., *in Residence*
Kenneth Dorshkind, Ph.D.
Rita B. Effros, Ph.D., *in Residence*
Michael Fishbein, M.D.
Tomas Ganz, M.D.
Richard A. Gatti, M.D., *in Residence*
Oliver Hankinson, Ph.D., *in Residence*
Klaus J. Lewin, M.D.
Faramarz Naeim, M.D., *in Residence*
Donald E. Paglia, M.D.
Lawrence D. Petz, M.D., *in Residence*
Jonathan Said, M.D.
George S. Smith, M.D.
Harry V. Vinters, M.D.

Professors Emeriti

Marcel A. Baluda, Ph.D.
Walter F. Coulson, M.D.
Robert Y. Foos, M.D.
Harrison Latta, M.D.
Sidney C. Madden, M.D.
Julien L. Van Lancker, M.D.
M. Anthony Verity, M.D.
Roy L. Walford, M.D.

Associate Professors

Linda G. Baum, M.D., Ph.D.
Sunita M. Bhuta, M.D.
David A. Bruckner, Sc.D.
Thomas A. Drake, M.D., *in Residence*
Ben J. Glasgow, M.D.
Wayne W. Grody, M.D., Ph.D., *in Residence*
Sharon L. Hirschowitz, M.D.
James McBride, Ph.D.
Nagesh Rao, Ph.D., *in Residence*
Elizabeth A. Wagar, M.D.

Assistant Professors

Douglas P. Blackall, M.D.
Shikha Bose, M.D.
Galen Cortina, M.D., Ph.D.
Charles Lassman, M.D., Ph.D., *in Residence*
Xin Liu, M.D., Ph.D.
Paul Mischel, M.D.
Scott D. Nelson, M.D.
Agappan K.Rajasekaran, Ph.D.
Kathleen Sakamoto, Ph.D.
Jeffery L. Twiss, M.D.

Scope and Objectives

Pathology is, by definition, the science of disease. Its main purpose is to unravel disease mechanisms. Without it, progress in prevention, diagnosis, and therapy are left to chance. Yet, among medical disciplines, it is one of the youngest because scientific concepts of disease, based on direct observation of diseased organs, developed only in the last 150 years.

Once normal molecules, cells, and organs have been damaged, the result of the injury manifests itself by distortions of behavior at the molecular, cellular, and organ levels. The study of these injuries and reactions to injuries constitutes a body of knowledge well worth mastering for its own sake. Students, however, must also learn to use the existing tools or develop the new tools needed to dissect the events that follow injury. Although education in methodology is not, in principle, different in pathology from that in all other biomedical sciences, it is very different in scope.

A combined education in breadth and depth is indispensable; it is this education, as it is applied to injuries and reaction to injuries, that is the goal of the Ph.D. program in Experimental Pathology.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in

Program Requirements for the year in which they matriculate.

Master's Degree

Admission

Students are only accepted into the program for the purpose of obtaining a Ph.D. degree in Experimental Pathology. However, the department also awards a Master of Science degree in Experimental Pathology in cases where a student is unable to finish the full Ph.D. program but whose completed work is adequate to the standards and minimum requirements set for a master's degree.

Areas of Study

Consult the department.

Course Requirements

Students must complete the core courses and the six elective units required of all experimental pathology graduate students. The minimum number of units required is 36, and the minimum number of graduate units required is 35. The maximum number of units permitted in the 500 series is eight units, and the maximum number of 500-series units that may be applied toward the graduate course requirement is four units.

Students must take the written qualifying examination. An M.S. student must answer at least two thirds of the questions on the examination and pass with a minimum grade of B. Students have the same amount of time as Ph.D. students to complete the examination.

Students must execute an original scholarly research project, which must be approved by a committee of three faculty. Students then must write up the project as a thesis which requires approval of the same committee. The student and the faculty adviser must select two other faculty members for the committee. Members of the committee must be in the department

Comprehensive Examination Plan

Consult the department.

Thesis Plan

Consult the department.

Doctoral Degree

Admission

Admission to the program is through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

Major Fields or Subdisciplines

Consult the graduate adviser.

Course Requirements

First Year. Fall Quarter: Biological Chemistry CM253, one seminar course, one laboratory rotation.

Winter Quarter: Neurobiology M209A or Biological Chemistry CM267, one seminar course, one laboratory rotation.

Spring Quarter: Choice of elective (for students obtaining degrees in experimental pathology, this is normally four units of basic mechanisms of disease), one seminar course, one laboratory rotation.

Second Year. Fall Quarter: Pathology and Laboratory Medicine 250A. (Students who have not taken basic mechanisms take a taped course and the seminar.)

Winter Quarter: Six units from Pathology and Laboratory Medicine 234A through 234D; Pathology and Laboratory Medicine 250B.

Spring Quarter: Pathology and Laboratory Medicine 250C.

Written and Oral Qualifying Examinations

The written examination must be completed by the end of the second year, after the core course requirements are completed.

The examination consists of the submission of a written grant proposal related to the general areas of the student's dissertation, yet different from the dissertation. The format of the proposal is based on the first award application from the Public Health Service Grant application, with minor modifications. The proposal must be submitted by the middle of September of the student's second year. Students must take the University Oral Qualifying Examination by the end of September of that year.

Pathology and Laboratory Medicine

Upper Division Course

199. Special Studies. (2 to 6) Supervised laboratory research, 10 hours minimum. Students select instructor among eligible research faculty and carry out independent laboratory research project under instructor supervision. P/NP or letter grading.

Graduate Courses

200A. Dental Pathology. (3) Lecture, 90 minutes; laboratory, three hours. Fundamental causes of disease processes, using as examples selected lesions or diseases of major organ systems.

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215, Microbiology and Immunology 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.

231A. Pathological Anatomy and Physiology. (6) Lecture, two hours; discussion, six hours; laboratory, four hours; other, six hours. Preparation: completion of curriculum satisfying basic requirements for study of human pathology. Designed for graduate students. Lectures, demonstrations, and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides. Concentration in area of general pathology.

231B-231C. Pathophysiology of Disease. (6-6) Preparation: completion of curriculum satisfying basic requirements for study of human pathology. Requisite: course 200A. Designed for graduate students. Lectures, demonstrations, and individual study of a student loan collection of microscopic slide preparations and of specimens from recent autopsies. Kodachrome photomicrographs and projection of microslides. Concentration in area of general pathology. In Progress grading.

M237. Molecular and Cellular Foundations of Disease. (4) (Same as Biological Chemistry M237.) Lecture, two hours; discussion, 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. S/U or letter grading.

255. Mapping the Human Genome. (3) Lecture, 90 minutes; discussion, 90 minutes. 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.

M256. Seminar: Viral Oncology. (2) (Same as Microbiology and Immunology M256.) Advanced research seminar designed to consider current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

M257. Introduction to Toxicology. (4) (Same as Pharmacology M257.) Requisite: Pharmacology 241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems.

M258. 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).

M293. Major Concepts in Oncology. (4) (Same as Microbiology and Immunology M293 and Oral Biology M293.) Lecture, three hours. Designed for graduate students contemplating research in oncology. Topics include cancer pathophysiology, genetics, membranes, macromolecular synthesis and control, cell cycle, growth control; physical, chemical, and viral oncogenesis, epidemiology of cancer; tumor immunology; principles of cancer surgery, radiation therapy, and chemotherapy. S/U or letter grading.

M294. Molecular Basis of Cancer. (4) (Same as Microbiology and Immunology M294.) Lecture, three hours. Requisites: Biological Chemistry CM253, CM267, Microbiology and Immunology M229, Neurobiology M209A. Fundamental biological, genetic, and molecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer.

M294L. Cancer Histopathology Laboratory. (2) (Same as Microbiology M294L and Microbiology and Immunology M294L.) Lecture, one hour; laboratory, two hours. Requisites: course M294 (preferred) or M293, Biological Chemistry CM253, CM267, and Microbiology and Immunology M229 or Neurobiology M209A. Histopathological approaches to cellular or tissue alterations commonly observed in tumor progression. Introduction to characteristics that clearly distinguish between benign and malignant neoplasia, precancerous stages, carcinoma in situ, and frankly invasive and metastatic neoplasia.

298A-298B-298C. Current Research in Disease Mechanisms. (2-2-2) Seminar, 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.

596. Directed Individual Study or Research. (4 to 12) 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) Preparation: one year of pathology coursework. Individual study for qualifying examinations. S/U grading.

599. Preparation of Ph.D. Dissertation. (2 to 8) Preparation: completion of qualifying examinations and majority of Ph.D. research. Writing and completion of dissertation. S/U grading.

PEDIATRICS

School of Medicine

UCLA
12-335 Davies Children's Center
Box 951752
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(310) 825-4128
fax: (310) 206-4584
<http://www.peds.medsch.ucla.edu/>

Chairs

Edward R.B. McCabe, M.D., Ph.D., *Executive Chair*
Stephen A. Feig, M.D., *Executive Vice Chair*
Sherin Deraskar, M.D., *Vice Chair, Research*
Robert B. Ettenger, M.D., *Vice Chair, Clinical Affairs*,
UCLA Medical Center
Stuart Slavin, M.D., *Associate Vice Chair, Medical Education*
E. Richard Stiehm, M.D., *Vice Chair, Academic Affairs*,
UCLA Medical Center
Carol D. Berkowitz, M.D., *Interim Chair, Harbor-UCLA*
Frederick James, M.D., *Chair, King/Drew*
Mohammed Malekzadeh, M.D., *Interim Chair, Olive View-UCLA*
David L. Rimoin, M.D., Ph.D., *Chair, Cedars-Sinai*

Scope and Objectives

The Department of Pediatrics encompasses four teaching hospitals: UCLA, Harbor-UCLA, King/Drew, and Cedars-Sinai Medical Centers. The clinical program and teaching activities of the UCLA Medical Center are integrated with the Olive View-UCLA Medical Center. In the fundamentals of clinical medicine course, medical students receive detailed instruction in the techniques of the clinical examination of pediatric patients.

The required six-week clinical clerkship in pediatrics can be taken at any of the four medical centers. In-depth electives in the Department of Pediatrics are listed in the *School of Medicine Handbook of Clinical Courses*, as are the advanced clinical clerkships.

For further details on the Department of Pediatrics and a listing of the courses offered, see

the *Announcement of the UCLA School of Medicine*.

Pediatrics

Lower Division Course

88. Lower Division Seminar: Special Topics in Pediatrics. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in pediatrics approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Graduate Course

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215, Microbiology and Immunology 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 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.

PHARMACOLOGY

See Molecular and Medical Pharmacology

PHILOSOPHY

College of Letters and Science

UCLA
321 Dodd Hall
Box 951451
Los Angeles, CA 90095-1451
(310) 825-4641
<http://www.humnet.ucla.edu/humnet/phil/>

Barbara Herman, Ph.D., *Chair*

Professors

Joseph Almog, D.Phil.
Tyler Burge, Ph.D.
John Carriero, Ph.D.
Brian P. Copenhagen, Ph.D.
Barbara Herman, Ph.D. (*Gloria and Paul Griffin Professor of Philosophy*)
David Kaplan, Ph.D. (*Hans Reichenbach Professor of Scientific Philosophy*)
D. Anthony Martin
Calvin G. Normore, Ph.D.

Professors Emeriti

Marilyn McCord Adams, Ph.D.
Robert Merrihew Adams, Ph.D.
Rogers Albritton, Ph.D.
Keith S. Donnellan, Ph.D.
Philippa Foot, M.A.
Donald Kalish, Ph.D.
Herbert Morris, Ph.D.
Robert M. Yost, Ph.D.

Associate Professor

Gavin Lawrence, D.Phil.

Assistant Professors

Sean A. Kelsey, Ph.D.
Abraham S. Roth, Ph.D.
Seana Shiffrin, D.Phil.
Michael Thau, Ph.D.

Adjunct Professor

Richard Popkin, Ph.D.

Adjunct Assistant Professors

Andrew Hsu, Ph.D.
David C. Wilson, Ph.D.

Scope and Objectives

In a recent survey conducted by the Conference Board of the Associated Research Councils, UCLA's Philosophy Department was judged among the six best in the nation in terms of the quality of its faculty. It offers programs leading to the Bachelor of Arts and Ph.D. degrees.

"Philosopher," translated from the Greek, literally means "lover of wisdom." The term has come to mean someone who seeks knowledge, enlightenment, and truth. The undergraduate program is not directed at career objectives (although it is traditionally good preparation for law, theology, and graduate work in philosophy). Philosophy is taught to undergraduates primarily as a contribution to their liberal education. All of the lower and most of the upper division course offerings should be of interest and useful to students who are reflective about their beliefs or who wish to become so. It also provides the occasion to ponder the foundations of almost any other subject to which they are exposed — whether history, religion, government, law, or science.

The principal goal of the graduate program is to produce philosophers of high quality, thinkers informed by the great historical traditions of Western philosophers who can apply the methods of philosophical analysis to a broad range of current philosophical problems. Since all its graduate students hope to teach at the college or university level, the department is also committed to training clear, able, and stimulating teachers.

Undergraduate Study

Philosophy B.A.

Preparation for the Major

Required: Four lower division courses, including Philosophy 7 or 21, 22, 31, and one other philosophy course.

The Major

Required: Thirteen upper division (100 series) or graduate (200 series) philosophy courses (52 units), including Philosophy 100A, 100B, 100C. Seven of the 13 courses must be distributed among the groups into which the undergraduate and graduate courses are divided, in the following manner: two courses in each of three of the groups and one course in the remaining group.

Courses listed under Special Studies may be applied toward the major but not toward a group requirement. A maximum of eight units of course 199 may be applied toward the major but not toward a group requirement. Courses 100A, 100B, 100C may not be applied toward any group requirement. No course used to satisfy the major or preparation requirements may be taken on a P/NP basis.

Students intending to do graduate work in philosophy should consult both the graduate and undergraduate advisers.

Honors Program

On recommendation of the department faculty, honors in philosophy are awarded at graduation to a major whose grade-point average in upper division philosophy courses is 3.3 and who has completed two graduate courses in the 200 series (eight units) in philosophy with an average GPA of 3.5.

Philosophy Minor

To enter the Philosophy minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (eight units): Philosophy 7 or 21, and 22 or 31.

Required Upper Division Courses (24 units): Five courses, including at least one from each of three of the four groups into which the undergraduate and graduate courses are divided (Philosophy 100A, 100B, 100C apply toward Group I); one additional upper or lower division philosophy course.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The department does not accept students whose sole objective is the Master of Arts degree in Philosophy.

Areas of Study

Consult the department.

Course Requirements

For the Master of Arts, students must complete with grades of B or better at least nine upper division or graduate courses (36 units), includ-

ing Philosophy 199, of which five courses (20 units) must be in the philosophy series numbered between 200A and 290. The total course requirement must include Philosophy 200A-200B-200C and one designated course in logic. Consult the *Manual for Graduate Students in Philosophy* for the list of designated courses.

Courses in the 500 series may not be applied toward the course requirements for the M.A. in Philosophy.

Comprehensive Examination Plan

Students seeking the M.A. must pass the master's comprehensive examination, which consists of three different examinations. One is scheduled after each of the three first-year seminars. Consult the *Manual for Graduate Students in Philosophy* for further information about the examination. In case of failure, the examination may be repeated.

The examination is passed or failed as a whole, which does not necessarily require passing of all three parts.

Thesis Plan

None.

Doctoral Degree

Admission

Admission to the program leading to the Ph.D. degree in Philosophy requires approval both by the Graduate Division and by the Department of Philosophy. The University application should be sent directly to Graduate Admissions/Student and Academic Affairs. The departmental application, three letters of recommendation (on the official forms), official scores on the Graduate Record Examination (GRE) General Test (the Subject Test in Philosophy is not required), official scores from the Test of English as a Foreign Language (TOEFL) for applicants whose first language is other than English, and two official transcripts from each institution attended should be sent to the graduate counselor in the Philosophy Department. Departmental information and application can be obtained by writing to the department in September.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

A Ph.D. candidate must complete, with a grade of B or better, the three first-year seminars, plus 11 additional upper division and graduate courses in philosophy (not including individual studies courses), distributed as follows:

Logic. Two upper division or graduate courses in logic, one of which must be completed by the end of the first year, unless a preparatory course is necessary: Philosophy 135A plus one other designated course in either the Philosophy or Mathematics Department. Consult the *Manual for Graduate Students in Philosophy* for the list of designated courses.

History of Philosophy. One graduate course in history of philosophy, plus enough graduate or undergraduate courses (taken at UCLA or elsewhere) to make up an equivalent of Philosophy 100A, 100B, 100C. Specifically, each student must have studied (or now study) Plato, Aristotle, some important medieval philosopher, Descartes, some British empiricist, and Kant.

Ethics and Value Theory. One graduate-level course.

Metaphysics and Epistemology. One graduate-level course.

Special Area Requirement. Two designated graduate courses in one of two areas: metaphysics and epistemology or ethics. Consult the *Manual for Graduate Students in Philosophy* for further details.

Electives. As many courses as needed to fulfill the requirement of 11 additional upper division or graduate philosophy courses.

Group classification of a course is generally given by its catalog listing, but final classification of a course is determined by the instructor on the basis of its content and the departmental guidelines. Normally no substitutions for these courses are allowed, but students who have done graduate coursework elsewhere as graduate students may be permitted to substitute previous graduate coursework in exceptional cases.

Written and Oral Qualifying Examinations

The department does not require any written examination to be passed by students as a condition of advancement to candidacy. It does, however, require each student to take all three parts of the master's comprehensive examination by the end of the student's first year (according to the description and schedule given above) to give the department evidence of proficiencies and deficiencies.

For advancement to candidacy, students must pass a preliminary oral qualifying examination as described below.

In the second and third years, students must satisfy two special area requirements: one in metaphysics and epistemology and one in ethics. Students must take two specially designated graduate courses in one of the two areas and write a paper prepared in accordance with a specific format called a "proposition" in the other area.

The special course requirement in either metaphysics and epistemology or in ethics should be completed in the second year, and the proposition requirement covering the remaining area should be completed in the third year. Consult the *Manual for Graduate Students in Philosophy* for further details.

In the third year, students begin a new series of individual studies courses (Philosophy 596) in consultation with the dissertation supervisor to develop a well-defined dissertation project. A

doctoral committee is chosen and the University Oral Qualifying Examination is scheduled. The primary purpose of this examination is to determine whether students are able to complete the dissertation successfully. The scope of the examination varies according to the definiteness of the dissertation topic and the extent of the student's preliminary investigations. In case of failure, the doctoral committee makes a recommendation for or against allowing a second oral examination.

Philosophy

Lower Division Courses

1. Beginnings of Western Philosophy. (4) 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.

2. Introduction to Philosophy of Religion. (4) Lecture, three 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.

4. Philosophical Analysis of Contemporary Moral Issues. (4) 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.

5A. Philosophy in Literature. (4) 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 the Western tradition.

6. Introduction to Political Philosophy. (4) 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. (4) 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.

8. Introduction to Philosophy of Science. (4) 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.

9. Principles of Critical Reasoning. (4) Nature of arguments: how to analyze them and assess soundness of the reasoning they represent. Common fallacies that often occur in arguments discussed in light of what counts as a 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).

21. Skepticism and Rationality. (4) Lecture, three 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.

22. Introduction to Ethical Theory. (4) Lecture, three hours; discussion, one hour. 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.

31. Logic, First Course. (4) Lecture, three 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.

32. Logic, Second Course. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 31 (preferably in preceding term). Symbolic logic: extension of systematic development of course 31. Quantifiers, identity, definite descriptions.

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.

Upper Division Courses

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.

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.

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.

Group I: History of Philosophy

M101A. Plato — Earlier Dialogues. (4) (Same as Classics M146A.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato.

M101B. Plato — Later Dialogues. (4) (Same as Classics M146B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course M101A. Study of selected topics in middle and later dialogues of Plato.

M102. Aristotle. (4) (Same as Classics M147.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one philosophy course. Study of selected works of Aristotle.

M103A. Ancient Greek and Roman Philosophy. (4) (Same as Classics M145A.) Lecture, three hours; outside study, nine 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 the texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues.

M103B. Later Ancient Greek Philosophy. (4) (Same as Classics M145B.) Lecture, three hours; outside study, nine hours. Preparation: one course from 1, 100A, M101B, M102, M103A. Study of some major texts in Greek philosophy of the 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 hours; discussion, one hour. Preparation: one philosophy course. Development of Muslim philosophy in its great age (from Kindo to Averroes, 850 to 1200), considered in connection with Muslim theology and mysticism.

105. Medieval Philosophy from Augustine to Maimonides. (4) Preparation: one philosophy course. Development of early medieval philosophy within framework of Judeo-Christian theology and its assimilation and criticism of Greek philosophical heritage. Focus on problem of universals, existence and nature of God, problem of evil, and doctrines of the Trinity and atonement. Selected writings from Augustine through Maimonides read in English translation.

106. Later Medieval Philosophy. (4) Preparation: one philosophy course. 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) Preparation: one philosophy course. Recommended prerequisite: 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 a 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.

C108. Hobbes. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C208.

C109. Descartes. (4) 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.

C110. Spinoza. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Study of philosophy of Spinoza. May be concurrently scheduled with course C210, in which case there is weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled.

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.

C112. Locke and Berkeley. (4) 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) Preparation: one philosophy course. Selected topics from metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214.

115. 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.

116. 19th-Century Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in 19th-century thought.

117. Late 19th- and Early 20th-Century Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. 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.

C119. Topics in Modern Philosophy. (4) Preparation: one philosophy course. Selected topics in one or more philosophies of the early modern period, or study in a single area such as theory of knowledge or metaphysics in several of the philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C219.

Group II: Logic, Semantics, and Philosophy of Science

124. Philosophy of Science: Historical. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Historical introduction to philosophy of science. Several general topics discussed in context of actual episodes in development of natural sciences. May be repeated for credit with consent of instructor.

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).

127A. Philosophy of Language. (4) 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.

127B. Philosophy of Language. (4) Requisite: course 31. Course 127A is not requisite to 127B. Selected topics similar to those considered in course 127A, but at more advanced and technical level. May be repeated for credit with consent of instructor.

128A. Philosophy of Mathematics. (4) Requisites: courses 31, 32, and preferably one additional logic course. Philosophy of mathematics; logicism of Frege and Russell, arithmetic reduced to logic; ramified type theory and impredicative definition (Russell, Poincaré, early Weyl).

128B. Philosophy of Mathematics. (4) Requisite: course 128A. Intuitionism of Brouwer, Heyting, and later Weyl; proof theory of Hilbert.

129. Philosophy of Psychology. (4) Lecture, three hours; discussion, one hour. Preparation: one four-unit psychology course, one philosophy course. Selected philosophical issues arising from psychological theories. 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.

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 relativist views of space and time, philosophical impact of relativity theory.

131. Science and Metaphysics. (4) 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.

132. Philosophy of Biology. (4) 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 a biological species, and biological explanation. P/NP or letter grading.

133. Topics in Logic and Semantics. (4) Requisite: course 32. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics.

M134. Introduction to Set Theory. (4) (Same as Mathematics M112.) Lecture, three hours; discussion, one hour. Requisite: course 32 or Mathematics 31B. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

135A. Metatheory of Sentential Logic. (4) Lecture, three hours; discussion, one hour. Requisite: course 32. Introduction to metatheory of classical sentential logic. Emphasis on fundamental metalogical ideas, including proof by induction, rigorous definition of syntactic and semantic concepts, and proof of completeness. Discussion of philosophical significance of these ideas.

135B. Metatheory of Predicate Logic. (4) Lecture, three hours; discussion, one hour. Requisite: course 135A. Classical first-order logic, its scope, and limits. Gödel completeness theorem as main positive result. Some consideration to classical negative results on truth, decidability, and completeness, and relationship between first- and second-order logic.

136. Modal Logic. (4) Requisite: course 135A. First course in two-term sequence (also see course 176). Topics include various normal modal systems, derivability within the systems, Kripke-style semantics and generalizations, Lemmon/Scott completeness, incompleteness in tense and modal logic, quantificational extensions.

Group III: Ethics and Value Theory

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-151B-151C. History of Ethics. (4-4-4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Course 151A is not requisite to 151B, which is not requisite to 151C. **151A.** Selected Classics in Ancient Ethical Theories: Plato, Aristotle; **151B.** Selected Classics in Modern Ethical Theories: Hume, Kant, Mill, etc.; **151C.** Selected Classics of Medieval Ethics.

153A. Topics in Ethical Theory: Normative Ethics. (4) 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.

153B. Topics in Ethical Theory: Metaethics. (4) Requisite: course 22. Study of selected problems 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.

154. Topics in Value Theory: Rationality and Action. (4) 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 the will, and decision theory. May be repeated for credit with consent of instructor.

155. Medical Ethics. (4) Examination of philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation.

C156. Topics in Political Philosophy. (4) (Formerly numbered 156.) Lecture, three hours; discussion, one hour; outside study, eight hours. 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-157B. History of Political Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. May be repeated with consent of instructor. **157A.** Reading and discussion of classic works in earlier political theory, especially those by Hobbes, Locke, Hume, and Rousseau. **157B.** Reading and discussion of classic works in later political theory, especially those by Kant, Hegel, and Marx.

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) 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 the law.

Group IV: Metaphysics and Epistemology

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) Preparation: two relevant philosophy or linguistics courses. Theories of meaning and communication; how words refer to things; limits of meaningfulness; analysis of speech acts; relation of everyday language to scientific discoveries.

M173. Metaphor and Literal Speech. (4) (Same as Applied Linguistics and TESL M189.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: Linguistics 1. Use of interdisciplinary perspective to examine systematicity of form and function peculiar to human language that underlies dichotomy between (1) neutral or literal capacity of language and (2) metaphoric capacity. P/NP or letter grading.

175. Topics in Philosophy of Religion. (4) 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 of Modality. (4) Requisites: courses 31, 32. Highly recommended: course 136. Second course in two-term sequence (also see course 136). Metaphysical foundations of modal logic and philosophical basis of modal theory of modal logic. What are "possible worlds"? What is the "accessibility" relation? Is modal logic a logic or a theory? Is its focus logical or metaphysical necessity? Are the two notions really distinct? How metaphysically involved is (quantified) modal logic? What is its connection to doctrines of (1) "Haecceitism" and (2) "Aristotelian Essentialism"? 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.

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. Oriental Philosophy: Buddhism. (4) Examination of central concepts and arguments in Buddhist philosophy, with emphasis on school of Mahayana Buddhism. Appropriate parallels to social concepts in the Western tradition.

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).

183. Theory of Knowledge. (4) Requisite: course 21. Analysis of concept of empirical knowledge. May be repeated for credit with consent of instructor.

184. Topics in Metaphysics. (4) 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.

186. Topics in Theory of Knowledge. (4) Requisite: course 182 or 183. 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.

187. Philosophy of Action. (4) 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.

188. Philosophy of Perception. (4) Preparation: two philosophy courses. Critical study of main philosophical theories of perception and arguments used to establish them.

189. Major Philosophers of the 20th Century. (4) 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.

Special Studies

M192. Philosophical Analysis of Issues in Feminist Theory. (4) (Same as Women's Studies M192.) Lecture, three hours. Requisite for Women's Studies majors: Women's 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 the new scholarship on women in philosophy. Critical study of concepts and principles which arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor.

193. Christian Ethical Thought. (4) Lecture, three hours; discussion, one hour. Reading of selected classic and contemporary authors in the Christian ethical tradition, with philosophical analysis and assessment of their views on morality and religious life.

195. 19th- and 20th-Century Religious Thought. (4) Lecture, three hours; discussion, one hour. Philosophical approach to Western religious thought of last 200 years, through study of selected works by such authors as Kant, Schleiermacher, Kierkegaard, Buber, Camus, and Tillich.

196. Undergraduate Seminar: Philosophy. (4) Seminar, one hour; discussion, three hours. Variable topics; consult *Schedule of Classes* or "Department Announcements" for topic to be offered in a specific term. May be repeated for credit with consent of instructor.

199. Special Studies. (2 to 8) Eight units may be applied toward degree requirements, but course cannot be substituted for a course in one of the four groups on basis of similarity of subject matter.

Graduate Courses

200A-200B-200C. Seminar for First-Year Graduate Students. (4) Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics.

Group I. History of Philosophy

201. Plato. (4) Study of later dialogues.

202. Aristotle. (4) Analysis of major problems in Aristotle's philosophy based on reading, exposition, and critical discussion of relevant texts in English translation.

203. Seminar: History of Ancient Philosophy. (4) Selected problems and philosophers. May be repeated for credit with consent of instructor.

206. Topics in Medieval Philosophy. (4) Study of philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham or study of a 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.

207. Seminar: History of Medieval and Renaissance Philosophy. (4) Selected problems and philosophers. May be repeated for credit with consent of instructor.

C208. Hobbes. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C108.

C209. Descartes. (4) 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.

C210. Spinoza. (4) Selected topics in philosophy of Spinoza. May be concurrently scheduled with course C110, in which case there is a two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students.

C211. Leibniz. (4) Selected topics in philosophy of Leibniz. May be concurrently scheduled with course C111, in which case there is a two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students.

C212. Locke and Berkeley. (4) 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) Selected topics in philosophy of Hume. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C114.

215. Kant. (4) Intensive study of selected writings of Immanuel Kant.

216. 19th-Century Philosophy. (4) Topics in 19th-century philosophy. May be repeated for credit with consent of instructor.

C219. Topics in Modern Philosophy. (4) Selected topics in one or more philosophies of the early modern period, or study in a single area such as theory of knowledge or metaphysics in several of the philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C119.

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.

Group II. Logic, Semantics, and Philosophy of Science

221A. Topics in Set Theory. (4) Requisite: Mathematics M112A. 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.

221B. History of Set Theory. (4) 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 a reaction to the 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.

222A-222B-222C. Gödel Theory. (4-4-4) **222A.** Preparation: several courses in logic, preferably including course 135B. First in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222B.** Requisite: course 222A. Second-order arithmetic. Second in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222C.** Requisite: course 222B. Gödel numbering and Gödel theory. Final course in Gödel theory series.

224. Philosophy of Physics. (4) 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.

225. Probability and Inductive Logic. (4) Requisites: course M134, or Mathematics M112A and 112B. Topics may include interpretations of probability, Bayesian and non-Bayesian confirmation theory, paradoxes of confirmation, coherence, and conditioning.

226. Topics in Mathematical Logic. (4) Content varies from term to term. May be repeated for credit with consent of instructor.

227. Philosophy of Social Science. (4) 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 a social science are encouraged to enroll. May be repeated for credit with consent of instructor.

230. Seminar: Logic. (4) May be repeated for credit with consent of instructor.

231. Seminar: Intensional Logic. (4) 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.

232. Philosophy of Science. (4) Selected topics in philosophy of science. May be repeated for credit with consent of instructor.

233. Seminar: Philosophy of Physics. (4) May be repeated for credit with consent of instructor.

Group III. Ethics and Value Theory

241. Topics in Political Philosophy. (4) 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.

245. Seminar: History of Ethics. (4) Selected topics. May be repeated for credit with consent of instructor.

246. Seminar: Ethical Theory. (4) Selected topics. Content varies from term to term. May be repeated for credit with consent of instructor.

C247. Topics in Political Philosophy. (4) (Formerly numbered 247.) Lecture, three hours; discussion, one hour; outside study, eight hours. 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) Intensive study of some leading current problems in moral philosophy. May be repeated for credit with consent of instructor.

255. Seminar: Aesthetic Theory. (4) Selected topics. May be repeated for credit with consent of instructor.

M256. 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.

M257. Seminar: Philosophy of Law. (4) (Same as Law M524.) Seminar, three hours. Selected topics in philosophy of law. May be repeated for credit with consent of instructor.

Group IV. Metaphysics and Epistemology

271. Seminar: Topics in Metaphysics and Epistemology. (4) Discussion, three hours. May be repeated for credit with consent of instructor.

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) Selected topics in 20th-century continental European philosophy. May be repeated for credit with consent of instructor.

281. Seminar: Philosophy of Mind. (4) May be repeated for credit with consent of instructor.

282. Seminar: Metaphysics. (4) May be repeated for credit with consent of instructor.

283. Seminar: Theory of Knowledge. (4) May be repeated for credit with consent of instructor.

284. Seminar: Philosophy of Perception. (4) May be repeated for credit with consent of instructor.

285. Philosophy of Psychoanalysis. (4) Examination of topics such as nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, the ego, id, superego, defense mechanisms, and psychoanalytic conception of human nature.

286. Philosophy of Psychology. (4) 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.

287. Seminar: Philosophy of Language. (4) May be repeated for credit with consent of instructor.

288. Seminar: Wittgenstein. (4) Seminar, three hours. May be repeated for credit with consent of instructor.

289. Seminar: Philosophy of Religion. (4) May be repeated for credit with consent of instructor.

290. Workshop: Philosophy of Language. (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.

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.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching College Philosophy. (2 to 4) 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 8) Properly qualified graduate students who wish to pursue a problem through reading or advanced study may do so if their proposed project is acceptable to a staff member. May be repeated for credit. S/U or letter grading.

597. Directed Studies for Graduate Examinations. (2 to 8) Preparation for M.A. comprehensive examination or Ph.D. oral qualifying examinations. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Preparation: advancement to Ph.D. candidacy. May be repeated for credit. S/U grading.

PHYSICS AND ASTRONOMY

College of Letters and Science

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Charles D. Buchanan, Ph.D., *Vice Chair, Academic Affairs*
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Edward L. Wright, Ph.D., *Vice Chair, Astronomy*

Professors

Ernest S. Abers, Ph.D.
Katsushi Arisaka, Ph.D.
Maha Ashour-Abdalla, Ph.D.
Eric E. Becklin, Ph.D.
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Leon Knopoff, Ph.D.
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Ian McLean, Ph.D.
George J. Morales, Ph.D.
Mark Morris, Ph.D.
Bernard M.K. Neffkens, Ph.D.
William I. Newman, Ph.D.
Richard E. Norton, Ph.D.
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Jean L. Turner, Ph.D.
Roger K. Ulrich, Ph.D.
Charles A. Whitten, Jr., Ph.D.
Gary A. Williams, Ph.D.
Alfred Y. Wong, Ph.D.
Chun Wa Wong, Ph.D.
Edward L. Wright, Ph.D.
Benjamin Zuckerman, Ph.D.

Professors Emeriti

Lawrence H. Aller, Ph.D.
Hans E. Bommel, Ph.D.
Rubin Braunstein, Ph.D.
Nina Byers, Ph.D.
Marvin Chester, Ph.D.
W. Gilbert Clark, Ph.D.
John M. Cornwall, Ph.D.
Robert J. Finkelstein, Ph.D.
Burton D. Fried, Ph.D.
Roy P. Haddock, Ph.D.
George J. Igo, Ph.D.
Kenneth R. Mackenzie, Ph.D.

Steven A. Moszkowski, Ph.D.
 Mirek Plavec, Ph.D.
 Daniel M. Popper, Ph.D.
 Robert A. Satten, Ph.D.
 David S. Saxon, Ph.D. (*University President Emeritus*)
 Donald H. Stork, Ph.D.
 Eugene Y. Wong, Ph.D.
 Byron T. Wright, Ph.D.

Associate Professors

Zvi Bern, Ph.D.
 Stuart Brown, Ph.D.
 Steven Cowley, Ph.D.
 Douglas Durian, Ph.D.
 Andrea Ghez, Ph.D.
 James Rosenzweig, Ph.D.

Assistant Professors

Huan Huang, Ph.D.
 David Saltzberg, Ph.D.

Lecturer S.O.E.

Arthur Huffman, Ph.D.

Lecturer

William Layton, M.Ed. (*M.A.T. Program*)

Adjunct Professors

Muzaffer Atac, Ph.D.
 Viktor Decyk, Ph.D.
 Phillip Pritchett, Ph.D.

Scope and Objectives

Since the time of the ancient Greeks, a natural affinity has existed between astronomy and physics, and the intellectual development of the two disciplines has often proceeded synergistically. Newton's discovery of the laws of mechanics and universal gravitation not only explained motion on Earth, but brought the heavens and Earth into a single quantitative framework in which both are governed by the same laws. The revolutionary discoveries of twentieth-century physics — quantum mechanics and nuclear physics — were rapidly adopted by astronomers to interpret the spectroscopic observations of the stars and to construct accurate models of stellar structure. Einstein's general theory of relativity predicted the expansion of the universe and that most awesome compaction of matter — the black hole.

Today astronomers study the accretion of matter onto supermassive black holes in quasars and search the most distant regions of the universe to learn about the exotic physical conditions which existed when the universe's expansion was only fractions of a second old. By measuring the gravitational interactions on distance scales from galaxies to the vast superclusters of galaxies, astronomers have concluded that most of the universe's matter is dark or nonluminous; physicists have speculated that this dark matter may consist of yet-undiscovered exotic particles which are predicted by the most advanced theories of elementary particle physics.

Department of Physics and Astronomy faculty members and students are able to study the universe in the holistic manner which is demanded by the breadth of these two disciplines.

Undergraduate Study

The Department of Physics and Astronomy offers a choice of three undergraduate majors: the B.S. degree program in Astrophysics, the B.S. degree program in Physics, and the B.A. degree program in General Physics. Courses taken to fulfill any of the requirements for the majors must be taken for a letter grade.

Astronomy Courses

The department offers general courses to all University students, including those who are not science oriented.

The Astronomy 2A-2B two-term sequence covers the material in courses 3, 4, and 6. Students may take one sequence or the other, but not both.

Astronomy 3 is the fundamental one-term course for students who do not major in physical sciences and should be taken in the first or second year. Students who had an astronomical introductory course in high school should take either courses 2A-2B, or 3H.

Astronomy 4, 5, and 6 develop the topics covered in course 3 to somewhat greater depths. They use more mathematics but are still aimed at nonscience majors. Course 4 details the stars and stellar systems; course 5 concentrates on the problem of life in the universe; course 6 discusses endpoints of stellar evolution and the structure and evolution of the universe. These three courses may be taken in any order by students with a grade of C or better in course 3, or whose astronomical knowledge is on a similar level.

Students who have had at least two courses in high school algebra and one course in trigonometry are advised to take, instead of Astronomy 3, the parallel honors course, Astronomy 3H. Declared or potential majors in Astrophysics or in physical sciences should take course 3H if they need an elementary introductory course in astronomy.

Astronomy 81 and 82 are general survey courses recommended for science majors in their second year. They systematically introduce astrophysics and require a good background in physics and mathematics (at least two terms of the Physics 1 series and two terms of the Mathematics 31/32 series).

Students of junior and senior standing in Physics or related sciences are invited to select any of these courses: 115, 117, 127, 140, 180.

Physics Courses

Students who wish to use physics to satisfy part of the general education requirements in the physical sciences and who have no mathematics background beyond the high school mathematics required for admission to UCLA may take Physics 10.

Physics 1Q is intended for entering freshman Physics majors and other interested students. Although it is not a required course or a part of or requisite to any general physics sequence of courses, its purpose is to indicate the nature of

current research problems in physics on a level intended to be attractive to entering students with a good high school science and mathematics background.

Physics 1A, 1B, and 1C, or 2AH, 2BH, and 17 form sequences of courses in general physics for majors in Physics.

The department takes into account prior preparation in physics. If students feel their background would permit acceleration, they may be exempted from one course in the 1A, 1B, 1C sequence by taking the final examination with a class at the end of any term. This serves as a placement examination. A satisfactory score on one or both parts of the College Board Advanced Placement Physics C Test may also serve as a placement examination, but placement is not automatic. Students should discuss such possibilities with their departmental adviser.

Physics 6A, 6B, 6C form a one-year sequence of courses in basic physics for students in the biological and health sciences.

Physics 10 is a one-term, nonlaboratory course which surveys the whole field of physics. Any two or more courses from Physics 1A, 6A, and 10 are limited to six units credit.

Astrophysics B.S.

Preparation for the Major

Required: Astronomy 81, 82; Physics 1A, 1B, 1C, 4AL, and 4BL, or 2AH, 2BH, and 17; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Program in Computing 3 or 10A. *Recommended:* Astronomy 3H, Chemistry and Biochemistry 20A. Systematic study of astrophysics should begin with Astronomy 81 and 82, taken in the second year.

The Major

Required: Astronomy 115, 117, 127, 140, 180; Physics 105A, 105B, 110A, 110B, 115A, 115B, 131. *Recommended:* Physics 108, M122, 123, 124, 132, 140A.

Honors Program

Senior majors in Astrophysics with a 3.4 grade-point average in all astronomy, mathematics, and physics courses are eligible for the honors program in astrophysics. In addition to completing all courses required for the major, students must complete two terms of Astronomy 199. To receive honors and highest honors at graduation, the grade-point average must remain at 3.4 or better, and work in course 199 must reflect original research and be accepted by the departmental honors committee.

Physics B.S.

The Physics major should be taken if students intend to continue toward the Ph.D. in Physics.

Preparation for the Major

Required: Physics 1A, 1B, 1C, 4AL, and 4BL, or 2AH, 2BH, and 17; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on

the major is available from the Undergraduate Office, 3-160 Knudsen Hall.

The Major

Required: Physics 105A, 105B, 110A, 110B, 112, 115A, 115B, 131. The remainder of the course of study consists of a plan, to be worked out by students in consultation with their designated departmental adviser, that details which courses they take to complete the degree. There are four overall requirements: (1) the plan must be worked out five terms before students expect to graduate; (2) the plan must include at least two courses from the Physics 180 series, which should be taken in the senior year; (3) there must be at least five upper division courses in the plan; (4) there must be written rationale for the plan. Except for the Physics 180 laboratories, the courses need not be in the Physics and Astronomy Department. However, it is expected that the courses fit into a coherent structure. It is important that the structure and rationale are thought out carefully, as the plan must be endorsed by the designated adviser and be approved by the departmental academic affairs committee. Pre-approved plans of study are available from the undergraduate advisers. A C average is required in all courses taken to satisfy the major requirements.

Students preparing for graduate school should take additional courses in physics and mathematics. Physics 108, 114, 116, M122, 123, 124, 126, 132, 140A, and 140B are recommended.

To be admitted as Physics majors, **transfer students** with 80 or more units must have completed one year of calculus (equivalent to Mathematics 31A, 31B, 32A) and one year of calculus-based physics with laboratory (equivalent to Physics 1A, 1B, 1C, 4AL, 4BL), with grades of C or better. An additional year of calculus is recommended.

Honors Programs

The department offers three honors programs leading to graduation with honors or highest honors in physics. Students are eligible after completing the preparation for the major and four upper division physics courses with an overall grade-point average of 3.0 and a 3.5 GPA in upper division physics and mathematics courses. Contact the Undergraduate Office for a complete description of the programs and an application.

General Physics B.A.

The General Physics major is intended to provide the necessary flexibility for fields in which a strong background of knowledge in physics would be helpful. If students intend to continue work toward the Ph.D. in Physics, they are advised to work for the B.S. in Physics as described earlier.

Preparation for the Major

Required: Physics 1A, 1B, 1C, 4AL, and 4BL, or 2AH, 2BH, and 17; Chemistry and Biochem-

istry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available from the Undergraduate Office.

The Major

Required: Physics 105A, 110A, 110B, 112, 115A, 131, one course from the 180 series, two upper division physics electives (excluding C185 and 199), and five upper division courses in no more than two other UCLA departments. A C average in the upper division physics courses is required.

Instructional Credentials

Students may earn credentials for teaching physical sciences and other subjects in California elementary and secondary schools. Completion of the instructional credential program in the Teacher Education Laboratory is required. Consult the Department of Education, 1009 Moore Hall, (310) 825-8328, for information.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Astronomy

Master's Degrees

The department offers the Master of Science (M.S.) degree and the Master of Arts in Teaching (M.A.T.) degree in Astronomy; however, the department is not admitting students to the M.A.T. program at this time.

Master of Science

Admission

The basic requirement for admission to the M.S. program in Astronomy is a bachelor's degree in physics or astronomy. Applicants in closely related fields (such as mathematics or chemistry) may be admitted at the discretion of the department. Applicants should submit at least three letters of recommendation and scores from the Graduate Record Examination (GRE) General Test and Subject Test in Physics.

Entering students or those who have not been admitted to candidacy for the Ph.D. should consult with the chair of graduate admissions at the beginning of the Fall Quarter to determine a program for the year.

Areas of Study

Consult the department.

Course Requirements

Eleven courses are required for the master's degree, of which at least 10 must be at the graduate level in physics and astronomy. At least one of the courses must consist of a quarter of work on the second-year research project. Courses taken in the 300 or 500 series may not be applied toward the total course requirements or the graduate course requirement.

Comprehensive Examination Plan

The comprehensive examination consists of satisfactory completion of the second-year research project, culminating in a written report of the methods used and results obtained, and the oral portion of the comprehensive examination at the master's level. The oral portion is described in more detail under the description of the written and oral qualifying examinations for the doctorate.

Thesis Plan

None.

Master of Arts in Teaching

Admission

The department is not admitting students to the M.A.T. program at this time.

Areas of Study

It is not required to designate an area of specialization for the M.A.T. degree

Course Requirements

Nine courses are required for the academic portion of the M.A.T. program. They must include at least five graduate courses in astronomy, mathematics, or physics, or 100- or 200-series courses in education required for the instructional credential. Although it does not count for degree credit, Physics 370 is also required. Courses taken in the 300 or 500 series may not be applied toward the total course requirement or the graduate course requirement.

In order to obtain a secondary credential with the M.A.T. in Astronomy, additional courses in education, including supervised teaching, should be taken.

Comprehensive Examination Plan

The comprehensive examination plan is the same as for the M.S. degree.

Thesis Plan

None.

Doctoral Degree

Admission

The basic requirement for admission to the program leading to the Ph.D. degree in Astronomy is a bachelor's degree in physics or astronomy. Students in closely related fields (such as mathematics or chemistry) may be admitted at the discretion of the department. Applicants should submit at least three letters of recommendation and scores from the Grad-

uate Record Examination (GRE) General Test and Subject Test in Physics.

Entering students or those who have not been admitted to candidacy for the Ph.D. should consult with the chair of graduate admissions at the beginning of the Fall Quarter to determine a program for the year.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

The required courses for the Ph.D. degree are Astronomy 270 through 276, Physics 210A, 210B, 221A. During the Fall and Winter Quarters of the second year, students must enroll in Astronomy 277A-277B. In addition, Astronomy 278 must be taken at least once per year for the first two years. Students must take the nine core courses in astronomy and physics offered during the first five quarters of residence and achieve a grade-point average of at least B, averaged over all astronomy and physics graduate courses taken during this time. Exceptions or substitutions can be made by petition only and must be arranged in advance or, for students transferring from another institution, during or before the first quarter of residence.

Research Project. Students must satisfactorily complete the two-quarter second-year research project, culminating in a written report of the methods and the results of the research performed. Before undertaking the second-year research project, students must identify a faculty adviser who is willing to oversee their work on the project.

Written and Oral Qualifying Examinations

Inasmuch as the primary goal of the graduate program in astronomy is to train students to do research at the Ph.D. level, the purpose of the master's comprehensive/doctoral qualifying examination is (1) to assess students' general knowledge of astronomy and physics at the graduate level and (2) to assess students' capacity to perform fundamental research, and thus to become successful research scientists. The structure of the comprehensive examination is designed accordingly.

The master's comprehensive/doctoral qualifying examination and the requirements leading up to it are administered by a graduate evaluation committee, appointed by the vice chair, and consisting of three members. The graduate evaluation committee evaluates all second-year students every Spring Quarter.

All second-year students are assessed by the graduate evaluation committee for their performance on the qualifying examination on the basis of the following:

- (1) A collective assessment of the written report on the second-year research project, which constitutes the written qualifying examination.
- (2) Performance on the oral portion of the comprehensive examination, administered by

the comprehensive examination committee at the beginning of the Spring Quarter of the student's second year. During this oral portion of the comprehensive examination, students present the results of their second-year research project and are expected to be able to respond to questions and to solve basic problems from all core areas of astrophysics in which they have had the opportunity to take the course following the normal schedule of classes.

The graduate evaluation committee notifies students of the assessment of their performance on the examination by June 30. The examination is based primarily on the combination of the oral examination plus the written report on the second-year research project. In addition, the committee reviews the instructors' written narratives and the file of the student's final examinations in all graduate courses taken in order to place the student's performance on the oral examination into a maximally broad context. The potential outcomes of the assessment are

- (1) Pass — with immediate eligibility to proceed to the University Oral Qualifying Examination.
- (2) No pass — with the possibility of reassessment in the following year on the basis of a specific written list of requirements supplied by the graduate evaluation committee. (This option is meant to be used sparingly for students with a single, identifiable and presumably correctable weakness, but who are otherwise above the passing threshold.) The no-pass option can only be used once for any particular student.
- (3) Terminal master's pass — allowing the student only to finish any outstanding course requirements for the master's degree, if any.
- (4) Fail — resulting in immediate termination of the student's affiliation with the department.

After the scope of the Ph.D. dissertation research has been clearly defined and in consultation with the student's dissertation adviser, a doctoral committee is nominated, approved by the department chair, and finally appointed by the dean of the Graduate Division. This committee, generally consisting of three members from the Physics and Astronomy Department and one member from another department, conducts the University Oral Qualifying Examination. The main purpose of the examination is to discuss and evaluate the student's proposed dissertation problem, but at the discretion of the committee, questions may be asked with regard to other material in the student's field of specialization and related matters. The committee members guide, read, approve, and certify the dissertation. At least two members from the Physics and Astronomy Department and at least one outside member must serve as certifying members for the dissertation. At the end of the examination, the committee decides whether a final oral examination is required.

The oral qualifying examination is taken no later than the tenth quarter in residence.

Physics

Master's Degrees

The department offers the Master of Science (M.S.) degree in Physics and the Master of Arts in Teaching (M.A.T.) degree.

Master of Science

Admission

Applicants to the M.S. program in Physics must have an excellent undergraduate record in addition to meeting the University minimum requirements. Applicants are required to submit three letters of recommendation and scores from the Graduate Record Examination (GRE) Subject Test in Physics. International applicants applying for financial support (fellowships, teaching and research assistantships) should have a letter of recommendation (included as one of the three required letters of recommendation) which comments on their verbal ability in English. The Test of English as a Foreign Language (TOEFL) is a University entrance requirement.

Areas of Study

It is not required to designate an area of specialization for a terminal master's degree.

Course Requirements

The University requires a total of nine courses for the M.S. degree. To satisfy the minimum requirement of six graduate courses in physics specified by the department, it is recommended that five of the minimum requirement of six be the five fundamental core courses: Physics 210A, 210B, 215A, 221A, 221B, since the comprehensive examination is based on the content of these courses. Students must also take, and pass with a grade of B or better, one of the following breadth courses: Physics 220, 221C, 231A. The remaining three courses of the minimum nine courses required for the M.S. degree may be satisfied through upper division or graduate courses in physics or a related field, which are acceptable to the Physics and Astronomy Department for credit toward the M.S. degree, with the restriction that no more than two may be chosen from Physics 596 and/or seminar courses. Physics 597 and 598 may not be applied.

Comprehensive Examination Plan

A passing grade on the written comprehensive examination is required. If students fail to pass the examination at the master's level, they may take it a second time the next quarter it is given. For more detailed information, see Written and Oral Qualifying Examinations in the Doctoral Degree section.

Thesis Plan

Although the department operates under the comprehensive examination plan rather than the thesis plan, arrangements can usually be made for students to write a master's thesis,

provided they have a particularly interesting subject and provided a professor is willing to undertake the guidance of their project. In this case, students must petition the committee of graduate advisers for permission to pursue the thesis plan. If the petition is approved, the comprehensive examination is waived.

Master of Arts in Teaching

Admission

For information about the M.A.T. program in Physics, direct inquiries to the Director of the Master of Arts in Teaching Program, Department of Physics and Astronomy, 3-164 Knudsen Hall, UCLA, Box 951547, Los Angeles, CA 90095-1547.

Areas of Study

It is not required to designate an area of specialization for the M.A.T. degree.

Course Requirements

This degree leads to qualification for instructional credentials at the secondary school or junior college level. The University requires a total of 12.5 courses for the M.A.T. degree. The program consists of at least five graduate physics courses, four of which are chosen from Physics 210A, 210B, 215A, 221A, 221B, and five professional (300 series) courses.

Courses required are (1) the five graduate physics courses and (2) the courses necessary for completion of the preliminary State of California Single Subject Instructional Credential, K-12 (Education 406A-406B-406C, 407A-407B, 312, 315A-315B, 330B, 330C, and Physics 370, which is a special physics teaching laboratory).

Courses in the 500 series are not applicable toward the M.A.T. degree. Students are required to see the adviser at the beginning of each quarter through the completion of the degree.

Comprehensive Examination Plan

A passing grade on the written comprehensive examination is required. Students who fail to qualify at the master's level of achievement may repeat the examination a second time.

Thesis Plan

None.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Physics must have an excellent undergraduate record in addition to meeting the University minimum requirements. Applicants are required to submit three letters of recommendation and scores from the Graduate Record Examination (GRE) Subject Test in Physics. International applicants applying for financial support (fellowships, teaching and research assistantships) should have a letter of recommendation (included as one of the three required letters of recommendation) which comments on their verbal ability in English.

The Test of English as a Foreign Language (TOEFL) is a University entrance requirement.

Major Fields or Subdisciplines

Doctoral degrees are based on original work, generally in one of the following fields of specialization: accelerator physics; elementary particles; intermediate energy and nuclear physics; low-temperature/acoustics; plasma and astrophysics; condensed matter, including solid-state; and spectroscopy.

Arrangements can also be made to obtain a Ph.D. in Physics while doing research in interdisciplinary fields such as biophysics, astrophysics, and geophysics. The details of each program should be established in consultation with the graduate affairs officer.

Course Requirements

By the end of the first year of graduate study students are expected to acquire a mastery of the core graduate physics material represented by Physics 210A and 210B (electromagnetic theory), 215A (statistical physics), and 221A and 221B (quantum mechanics). Detailed syllabi for these courses are available in the graduate counselor's office. Since the material in these core courses represents the body of knowledge tested on the written comprehensive examination, usually all or most of the five courses are the student's main course load in the first year of graduate study.

No later than the fourth quarter of residence, students are expected, in consultation with their adviser, to have begun taking a series of courses, seminars, and tutorials to prepare them for original research in a given area of specialization. Information produced by various area committees on preferred course sequences and programs is available to students and to their advisers. No later than the sixth quarter of residence, students are expected to begin taking a sequence of Physics 596 courses with a faculty member in their chosen field of specialization. The purpose of these 596 courses is to prepare students for original Ph.D. dissertation research and to enable them to obtain a Ph.D. research sponsor. It is the responsibility of the faculty member with whom the 596 courses are taken to provide the student with a frank, on-going evaluation of progress toward these goals. By the second quarter of the 596 sequence, students are expected to make a substantive oral presentation describing the results of a problem in the 596 program before an audience which includes the faculty member(s) with whom they are taking course 596 and three other faculty members. It is the responsibility of the faculty member to specify the content of the presentation. The function of the three additional faculty members is to serve as a departmental resource in the event that difficulties arise during the presentation. The presentation is intended both to allow the faculty member to assess the student's ability to carry out research and to provide a forum to discuss the student's research goals.

No later than the end of the eighth quarter of residence, students are expected to make a formal arrangement with a faculty member who agrees to serve as the Ph.D. research sponsor. This agreement, which includes a general statement on the direction of the Ph.D. dissertation research, is communicated to the graduate affairs officer. If by the end of the eighth quarter of residence students have not obtained a Ph.D. research sponsor, this situation is referred by the graduate affairs officer to the Committee of Graduate Advisers. The committee then makes a decision on whether the student should continue in the graduate program based on discussions with the student, the student's 596 advisers, and other concerned parties.

All students must fulfill a breadth requirement by passing one of the following with a grade of B or better: Physics 220, 221C, or 231A. In addition, students who have not taken Physics 132 or its equivalent in undergraduate status must do so at the beginning of the graduate program. The core and breadth requirements should be completed by the fifth quarter in residence.

Written and Oral Qualifying Examinations

A written comprehensive examination is required of all graduate students. The examination is administered by a departmental comprehensive examination committee and is graded as follows: (1) pass at the Ph.D. level of achievement; (2) pass at the master's level of achievement; or (3) fail.

The written comprehensive examination consists of two three-hour sections given on consecutive days, and its scope is defined by the graduate physics material in the five core courses (Physics 210A, 210B, 215A, 221A, and 221B).

The written comprehensive examination is offered twice a year, in the week before the beginning of classes in the Fall Quarter and in the period between the Winter and Spring Quarters.

Students entering the graduate program in the Fall Quarter are expected to take the written comprehensive examination before their fourth quarter of residence.

Students who fail the examination at the desired level and want to repeat it must take it the next time it is offered.

After the scope of the Ph.D. dissertation research has been clearly defined and in consultation with the student's dissertation adviser, a doctoral committee is nominated, approved by the department chair, and finally appointed by the dean of the Graduate Division. This committee, generally consisting of three members from the Physics and Astronomy Department and one member from another department, conducts the University Oral Qualifying Examination. The main purpose of the examination is to discuss and evaluate the student's proposed dissertation problem, but at the discretion of

the committee, questions may be asked in regard to other material in the student's field of specialization and related matters. The committee members guide, read, approve, and certify the dissertation. At least two members from the Physics and Astronomy Department and at least one outside member must serve as certifying members for the dissertation. At the end of the examination, the committee decides whether a final oral examination is required. The oral qualifying examination is taken no later than the tenth quarter in residence.

Astronomy

Lower Division Courses

2A-2B. Introduction to the Physical Universe. (4-4) Lecture, three hours; discussion, one hour. Thorough introductory survey of astronomy for students not planning to major in physical sciences. Same topics as course 3 but in greater depth, with emphasis on physical reasoning. **2A.** Planets and Stars; **2B.** Galaxies and Cosmology. Enforced requisite: course 2A (C or better).

3. Astronomy: Nature of the Universe. (4) Lecture, three hours; discussion, one hour. Not open to students with credit for or currently enrolled in course 3H or 81 or 82. No special mathematical preparation required beyond that necessary for admission to the University in freshman standing. Course for general University students, normally not intending to major in physical sciences, on development of ideas in astronomy and what has been learned of the nature of the universe, including recent discoveries and developments.

3H. Introductory Astronomy and Astrophysics. (4) Lecture, three hours; discussion, one hour. Not open to students with credit for or currently enrolled in course 3. Introduction to astronomy and astrophysics for freshmen who are seriously interested in science. Requires ability to understand mathematical and physical concepts, but high school algebra and trigonometry classes provide sufficient qualification. Particularly recommended for declared or potential majors in Astrophysics or in physical and mathematical sciences.

4. Universe of Stars and Stellar Systems. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 3H. Essentially nonmathematical course for general University students with previous introduction to astronomy; sequel to course 3, dealing in greater detail with stars and stellar systems. Various observed types of stars in relation to their internal structure and evolutionary state. Interacting binary stars, pulsating stars, explosive stars (novae and supernovae). Mass loss from stars, stellar wind. Galactic and planetary nebulae and their relation to stars. Interstellar medium. Initial stages of stellar evolution (protostars, T Tauri stars) and final stages (degenerate and collapsed stars). Stellar systems from clusters to galaxies.

5. Life in the Universe. (4) Preparation: prior introduction to astronomy. Life on Earth and prospects for life elsewhere in the context of the evolution of the universe from the simple to complex. Course material primarily from astronomy and biology but includes some chemistry, geology, and physics. Selected topics treated in some depth, but with little or no formal mathematics.

6. Cosmology: Our Changing Concepts of the Universe. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 3H. Exposition of our ideas about the structure and evolution of the universe and its contents. Special and general relativity; black holes, neutron stars, and other endpoints of stellar evolution. Expanding universe, cosmic microwave background radiation, dark matter. Big Bang and inflation.

81. Astrophysics I: Stars and Nebulae. (4) Lecture, three hours; laboratory, one hour. Enforced requisites: Mathematics 31A, 31B, and Physics 1A or 2AH. Open to qualified sophomore and upper division students. Survey of our knowledge about stars: their distances, masses, luminosities, temperatures, and interrelations between these parameters. Methods and importance for astrophysics. Variable stars. Planetary and gaseous nebulae. P/NP or letter grading.

82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B, and Physics 1A or 2AH. Recommended: course 81, Physics 1B and 1C, or 2BH and 17. 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 the interstellar medium. Extragalactic astronomy, galaxy clustering, active galactic nuclei, and quasars. Introduction to cosmology: Hubble law, thermal history of the Big Bang, and earliest moments of the universe. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (2 each) Discussion, two hours; outside study, four hours. Limited to freshmen. Variable topics; consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading.

88A. Cosmic Evolution. 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.

Upper Division Courses

115. Statistical Mechanics and Its Application to Astrophysics. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, 1B, and 1C, or 2AH, 2BH, and 17. Particle distributions, partition functions, black body radiation, Saha equation, degeneracy. Applications to stellar atmospheres, stellar interiors, and the interstellar medium. P/NP or letter grading.

117. Radiation and Fluids in Astrophysics. (4) Lecture, three hours. Requisite: course 115. Designed for junior/senior Astrophysics and Physics majors. Emission and absorption of radiation by matter, spectroscopy, spectral lines, and radiative transfer. Hydrodynamics and shock waves. Applications to stars, to interstellar and intergalactic media, and to the early universe.

127. Stellar Atmospheres, Interiors, and Evolution. (4) Lecture, three hours. Recommended requisites: courses 115, 117. Designed for senior Astrophysics and Physics majors. Physical conditions in stellar interiors. Energy production in stars. Stellar evolution from star formation through normally observed stages to white dwarfs, neutron stars, and black holes. Novae, supernovae, other variable stars, chromospheres and coronae of sun and stars. Evolution of binary stars. Analysis of stellar atmospheres.

140. Stellar Systems and Cosmology. (4) Lecture, three hours. Designed for senior Astrophysics and Physics majors. Properties of star clusters and galaxies, with particular emphasis on Milky Way galaxy. Clusters and superclusters of galaxies. Extragalactic distance scale. Quasars and active galaxies. Topics in cosmology, including expansion of the universe, microwave background, galaxy formation from primordial fluctuations, and observational constraints on the Big Bang.

180. Astrophysics Laboratory. (4) Lecture, two hours; laboratory, four hours. Designed for juniors/seniors in Astrophysics, Physics, or a related field. Lectures cover statistical methods in astrophysics, one- and two-dimensional random processes, and numerical methods. Laboratory experiments involve radio astronomy, interferometry, narrowband solar imaging, and visual photometry. Emphasis on use of computers for automatic collection of data and for processing two-dimensional astronomical images.

199. Special Studies. (2 or 4) Limited to senior Astrophysics and Physics majors (with an outstanding record). Special studies with an individual faculty member.

Graduate Courses

270. Fundamentals I: Fluids and Dynamics. (4) Lecture, three hours. Dynamics of gaseous flows and collisionless, self-gravitating systems. Basic equations of fluid dynamics, with application to shocks, winds, and accretion. The Jeans, Kelvin/Helmholtz, and Rayleigh/Taylor instabilities. Basic equations of stellar dynamics and application to relaxation processes, including virialization, core collapse, and dynamical friction.

271. Fundamentals II: Radiation. (4) Lecture, three hours. Radiative transitions in molecules, atoms, and nuclei. Sources of continuous and line radiation. Transition probabilities for spontaneous and stimulated emission and for absorption. Source function and equation of radiative transfer, with applications. Curve of growth and abundance determinations. Scattering processes, polarized light, masers.

272. Stellar Structure and Evolution. (4) Lecture, three hours. Structure and evolution of stars, stellar energy sources and problems of nucleosynthesis, theory of variable stars, structure of the sun from helioseismology and neutrinos. Supernova processes. Binary systems.

273. Stellar Photospheres. (4) Lecture, three hours. Physics of stellar photospheres. Radiative transfer under stellar atmosphere conditions. Continuous and line spectra of stars. Chemical abundances in stars. Stellar winds and stars with extended atmospheres.

274. Galaxies. (4) Lecture, three hours. Galaxy properties: kinematics, mass, morphology, stellar populations; stellar orbits and spiral structure; galaxy formation; galaxy clusters, collisions, and mergers; observations and theory of quasars and active galactic nuclei.

275. Cosmology. (4) Lecture, three hours. Requisite: course 274. Thermal and physical history of the universe. Interaction of matter and cosmic microwave background radiation. Study of inhomogeneities in the universe from inflationary epoch to the current large-scale structure.

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.

277A-277B. Astronomy Research Project. (6-6) Designed for second-year graduate astronomy students. Two-term research project planned in conjunction with a faculty adviser on any suitable research topic in astronomy or astrophysics, culminating in a written report at end of second term. S/U (course 277A) or letter (course 277B) grading.

278. Special Topics in Astronomy. (2 or 4) Informal course with lecture/seminar format, focusing on one of a set of specific topics in astronomy. S/U (two-unit course) or letter (four-unit course) grading.

279. Seminar: Current Astronomical Research. (2) Astronomy and astrophysics colloquium with lectures on current research by local and visiting researchers. S/U grading.

M285. Origin and Evolution of Solar System. (4) (Same as Earth and Space Sciences M285.) 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.

296. Research Topics in Astronomy. (2) (Formerly numbered 296A-296Z.) 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.

M297. Research Tutorial: Astroparticle Physics. (2 or 4) (Same as Physics M297.) 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 astroparticle physics. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596A. Directed Individual Studies. (4 to 10) May be repeated at discretion of department.

596L. Advanced Study and Research at Lick Observatory. (4 to 12) Designed for graduate students who require observational experience, as well as those working on observational problems for their thesis. May be repeated at discretion of department.

599. Ph.D. Research and Writing. (10 to 12) May be repeated at discretion of department.

Physics

Lower Division Courses

1A. Physics for Scientists and Engineers: Mechanics. (5) Lecture/demonstration, four hours; discussion, one hour. Recommended preparation: high school physics, one year of high school calculus or Mathematics 31A and 31B. Enforced requisites: Mathematics 31A, 31B (corequisite). Recommended corequisite: Mathematics 32A. Motion, Newton laws, work, energy, linear and angular momentum, rotation, equilibrium, gravitation. 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 (corequisite). Recommended corequisite: Mathematics 32B. Damped and driven oscillators, mechanical and acoustic waves. Electrostatics: electric field and potential, capacitors, and dielectrics. Currents and DC circuits. Magnetic field. 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: courses 1A, 1B, Mathematics 32A, 32B (corequisite). Recommended corequisite: Mathematics 33A. Ampere law, Faraday law, inductance, and LRC circuits. Maxwell equations in integral and differential form. Electromagnetic waves. Light, geometrical, and physical optics. Special relativity. P/NP or letter grading.

1Q. Contemporary Physics. (2) Review of current problems in physics, with emphasis on those being studied at UCLA. Significance of the problems and their historical context. P/NP grading.

2AH. Physics for Scientists and Engineers: Mechanics (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Preparation: one year of high school physics. Enforced requisites: Mathematics 31A, 31B, 32A (corequisite). Introduction to classical mechanics for physics, physical sciences, and engineering majors. Motion. Newton laws, work energy, linear and angular momentum, rotation, equilibrium, gravitation, damped and driven oscillators, mechanical waves.

2BH. Physics for Scientists and Engineers: Electricity and Magnetism (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 2AH, Mathematics 31B, 32A, 32B (corequisite). Introduction to electricity and magnetism for physics, physical sciences, and engineering majors. Electrostatics: electric field and potential, capacitors, and dielectrics. Current, resistance, and DC circuits. Magnetic fields and forces, Ampere law, Faraday law, inductance. AC circuits, Maxwell equations in integral and differential form. Electromagnetic waves.

3A. General Physics: Mechanics of Solids and Fluids. (4) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Preparation: three years of high school mathematics including trigonometry or two years of high school mathematics and one-term college course in mathematics with trigonometry included in the group of courses or equivalent courses. Not open for credit to students with credit for course 8A or equivalent. Fundamentals of classical mechanics: Newton laws; conservation of momentum, angular momentum, energy; Kepler laws; dynamics of systems of particles; fluid mechanics.

3B. General Physics: Heat, Sound, Electricity and Magnetism. (4) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 3A. Temperature, heat, and laws of thermodynamics. Introduction to wave motion, resonance. Sound and acoustics. Electric and magnetic fields. Electric power. Elements of DC and AC circuits.

3C. General Physics: Light, Relativity, and Modern Physics. (4) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 3B. Light, optical instruments. Introduction to relativity. Electron and atom. Matter waves. Nuclear and particle physics.

4AL. Physics Laboratory for Scientists and Engineers: Mechanics. (2) Laboratory, three hours. Enforced requisites: courses 1A and 1B (corequisite), or 2AH. Experiments on measuring gravity, accelerated motion, kinetic and potential energy, impulse and momentum, damped and driven oscillators, resonance and vibrating strings. Computer data acquisition and analysis. Introduction to error analysis, including distributions and least-squares fitting procedures.

4BL. Physics Laboratory for Scientists and Engineers: Electricity and Magnetism. (2) Laboratory, three hours. Enforced requisites: courses 1A, 1B, and 1C (corequisite), or 2AH, 2BH, and 17 (corequisite), 4AL. Experiments on electric forces, fields, and potentials. Magnetic fields. Linear and nonlinear devices. Resistors, capacitors, and inductors. Modern circuits. Geometrical and physical optics.

6A. Physics for Life Sciences Majors: Statics and Dynamics. (4) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B, 3C (corequisite). Statics and dynamics of forces, energy, and momentum, with applications to biological and biochemical systems. Physics of states of matter (solids, liquids, and gases) and of surfaces and interfaces as they apply to biological organisms. P/NP or letter grading.

6B. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics. (4) (Not the same as course 6B prior to Winter Quarter 1999.) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6A. Sound and electromagnetic waves, interference and diffraction, radioactivity, and hydrodynamics, with applications to biological and biochemical systems. P/NP or letter grading.

6BB. Physics for Life Sciences Majors: Electricity and Magnetism. (4) (Formerly numbered 6B.) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6A. P/NP or letter grading.

6C. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport. (4) (Not the same as course 6C prior to Spring Quarter 1999.) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6B. Electrostatics in vacuum and in water. Electric current with applications to electrophysiology. Magnetism, especially NMR. Diffusion and heat flow, with applications to biological and biochemical systems. P/NP or letter grading.

6CC. Physics for Life Sciences Majors: Light and Modern Physics. (4) (Formerly numbered 6C.) Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6B. 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 or 2AH 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.

17. Light, Atomic Nature of Matter, and Special Relativity. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 2AH and 2BH (or 1A, 1B, and 1C), Mathematics 32A, 32B, 33A (corequisite). Electromagnetic waves, geometrical and physical optics, photons, photoelectric effect, blackbody radiation. Atomic spectra, Bohr atom, wave-particle duality, kinetic theory of gases, solids, and liquids. Nature of space and time: special relativity. Letter grading.

18L. Modern Physics Laboratory. (3) Laboratory, six hours. Enforced requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 4AL, 4BL. Strongly recommended for students with credit for courses 1A, 1B, 1C: course 17. Experiments on superconductivity, radioactivity, atomic clock; measurement of speed of light, fine structure constant, Boltzmann constant, Planck constant. 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.

M88. Limits of Biological Design through Physical Principles. (4) (Same as Molecular, Cell, and Developmental Biology M88H.) Seminar, three hours. Enforced requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, or 6A, 6B, and 6C, Chemistry 20A and 20B (or former courses 10A and 10B), Life Sciences 1, 3, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Specific examples of diverse biological design such as scaling of metabolic activity, bone and muscle mass, cell size, cell membranes and pumps, heart and blood circulation, swim bladders, insect vision, magnetic bacteria, etc., studied quantitatively using elementary mathematics and physical principles. Letter grading.

Upper Division Courses

105A. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics 32A. Corequisite: Mathematics 32B. Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear and nonlinear oscillations.

105B. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 105A, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Relativity with four vectors, noninertial reference frames, dynamics of rigid bodies, coupled oscillators, normal modes of oscillation, vibrating strings, and wave propagation. P/NP or letter grading.

108. Optical Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 110B, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. 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. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 131, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Electrostatics and magnetostatics. P/NP or letter grading.

110B. Electricity and Magnetism. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 110A, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Faraday law and Maxwell equations. Propagation of electromagnetic radiation. Multipole radiation and radiation from an accelerated charge. Special theory of relativity. P/NP or letter grading.

112. Thermodynamics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 115A, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Fundamentals of thermodynamics, including first, second, and third laws. Statistical mechanical point of view and its relation to thermodynamics. Some simple applications. 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 2AH, 2BH, and 17, 110A, Mathematics 31A, 31B, 32A, 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. Enforced requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 105B (corequisite), Mathematics 33A, 33B. Strongly recommended for students with credit for courses 1A, 1B, 1C: course 17. Classical background. Basic ideas of quantum nature of light, wave-particle duality, Heisenberg uncertainty principle, Bohr atom, physical operators. Schrödinger equation. One-dimensional square well and harmonic oscillator problems. Boundary values. Classical correspondences.

115B. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 115A, 131. Formal theory: commutator algebra, Hermitian operators, generalized uncertainty principle, Ehrenfest relations. Three-dimensional problems. Central potentials. Angular momentum. Hydrogen atom. Identical particles and Pauli exclusion principle. Electrons in an electromagnetic field. Letter grading.

115C. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 115B. Matrix mechanics. Addition of angular momentum. Time-independent and time-dependent perturbation theory. Fermi Golden Rule. Applications. Scattering theory. Letter grading.

116. Electronics. (4) Lecture, three hours; laboratory, three hours. Alternating current circuits, transmission line circuits, transistor and IC circuits to generate, modify, and detect electrical signals, introduction to digital circuits, analysis of noise and methods to reduce its influence in electrical measurements.

117. Electronics for Physics Measurement. (4) Lecture, two hours; laboratory, four hours. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, Mathematics 31A, 31B, 32A, 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. P/NP or letter grading.

M122. Introduction to Plasma Electronics. (4) (Same as Electrical Engineering M185.) Lecture, three hours; outside study, nine hours. Requisite: course 110A or Electrical Engineering 101. Senior-level introductory course on electrodynamics of ionized gases and applications to materials processing, generation of coherent radiation and particle beams, and renewable energy sources. Letter grading.

123. Atomic Structure. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 115B, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. 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 2AH, 2BH, and 17, 115B, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. 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 2AH, 2BH, and 17, 115B, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. 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.

131. Mathematical Methods of Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, Mathematics 31A, 31B, 32A, 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 2AH, 2BH, and 17, 131, Mathematics 31A, 31B, 32A, 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) (Formerly numbered 140.) Lecture, three hours; discussion, one hour. Enforced requisite: course 115C. 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. Properties of Solids. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 140A. Elementary discussion of properties of solids. Use of theory of electrons and the lattice to examine properties of semiconductors, metals, and superconductors, together with magnetic and dielectric properties of materials. Properties of noncrystalline solids. Letter grading.

150. Physics of Charged-Particle and Laser Beams. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 110A, 110B, 115A, 115B, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. 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.

160. Numerical Analysis Techniques and Particle Simulations. (4) Lecture, three hours; computer terminals, six hours. Preparation: minimum knowledge of computer programming (FORTRAN). Requisites: courses 1A, 1B, and 1C, or 2AH, 2BH, and 17, 105A, 105B, 110A, 110B, Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Introduction to the field of computer modeling of physical systems using particle models; numerical models and methods, methods of diagnosing results, experience with running interesting physical problems. P/NP or letter grading.

180A. Nuclear Physics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180B. Physical Optics and Spectroscopy Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180C. Solid-State Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180D. Acoustics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180E. Plasma Physics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180F. Elementary Particle Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

C185. Foundations of Physics. (4) (Formerly numbered 185.) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C285. Letter grading.

199. Special Studies in Physics. (2 to 4) May be repeated, but no more than 12 units may be applied toward Physics B.S. degree requirements.

Graduate Courses

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) 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.

210B. Electromagnetic Theory. (4) Electromagnetic potentials and Hertz vectors. Cylindrical waves. Spherical waves. Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges.

213A. Advanced Atomic Structure. (4) Group representation theory. Angular momentum and coupling schemes. Interaction of radiation with matter.

213B. Advanced Atomic Structure. (4) N-j symbols, continuous groups, fractional parentage coefficients, n electron systems.

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.

214A. Advanced Acoustics. (4) Propagation of waves in elastic and fluid media. Reflection, refraction, diffraction, and scattering of waves in fluids. Attenuation mechanisms in fluids.

214B. Advanced Acoustics. (4) Propagation in non-homogeneous fluids and in moving fluids. Radiation pressure, acoustic streaming, and attenuation in large amplitude sound fields. Propagation of sound in liquid helium. Mechanisms resulting in attenuation for elastic waves in solids.

215A. Statistical Physics. (4) Thermodynamics and statistical mechanics with applications.

215B. Nonequilibrium Statistical Mechanics. (4) Probability theory, Markov processes, equations of change, BBGKY hierarchy and its consequences, Boltzmann equation, Chapman/Enskog method, transport coefficients, fluctuation/dissipation theorems, density matrix, H-theorems.

215C. Quantum Statistical Mechanics and the Many Body Problem. (4) Classical methods for interacting systems; quantum field theory techniques in statistical mechanics; Green's function approach; Coulomb gas; imperfect Bose gas; electron/phonon interaction; superconductivity; phase transitions; theory of Fermi liquid.

220. Classical Mechanics. (4) Lecture, three hours. Hamilton/Jacobi theory, action-angle variables, classical perturbation theory, and selected topics such as introduction to physics of continuous media and fluids, nonlinear phenomena.

221A-221B-221C. Quantum Mechanics. (4-4-4) Lecture, three hours. **221A.** Fundamentals of quantum mechanics, operators and state vectors, equations of motion. **221B.** Requisite: course 221A. Rotations and other symmetry operations, perturbation theory. **221C.** Formal theory of collision processes, quantum theory of radiation, introduction to relativistic quantum mechanics.

222A-222B-222C. Plasma Physics. (4-4-4) Properties of a Coulomb gas with and without a 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.

223. Advanced Classical Mechanics. (4) Requisite: course 220. Topics such as nonlinear mechanics, ergodic theory, mechanics of continuous media.

224. Introduction to the Strong Interaction. (4) Evidence concerning the strong interaction, particularly as exemplified in nucleon/nucleon and pion/nucleon systems. Isospin, scattering matrix, density matrix and polarization, properties of pions, one pion exchange potential, phase shift analysis.

225A-225B. Advanced Nuclear Physics. (4-4) Requisites: courses 221A-221B. Normally preceded by course 224. Advanced course in structure of complex nuclei, nuclear models, scattering and reactions.

226A-226B-226C. Elementary Particle Physics. (6-6-6) Lecture, four hours. Requisites: courses 221A-221B-221C, 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 γ , quark theory of hadrons and quantum chromodynamics.

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.

230A-230B-230C. Relativistic Quantum Theory. (6-6-6) Lecture, four hours. Requisites: courses 221A-221B-221C. Modern quantum field theory, including quantum electrodynamics and quantum chromodynamics, renormalization group methods, path-integral quantization, spontaneous symmetry breaking, monopoles and other solitons.

231A. Methods of Mathematical Physics. (4) Not open for credit to students with credit for Mathematics 266A. Linear operators, review of functions of a complex variable, integral transforms, partial differential equations.

231B. Methods of Mathematical Physics. (4) Not open for credit to students with credit for Mathematics 266B. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations.

231C. Methods of Mathematical Physics. (4) Not open for credit to students with credit for Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods.

232A-232B. Relativity. (4-4) 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.

233. Introduction to High-Energy Astrophysics. (4) Introductory lectures on modern high-energy astrophysics. High-energy radiation processes. Neutron stars. Pulsars. X-ray sources. Black holes. Supermassive rotators and quasars.

235. Group Theory and Quantum Mechanics. (4) Requisite: course 221A. Group representation theory and applications to quantum mechanics of atoms, molecules, and solids.

M236. 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.

241A. Solid-State Physics. (4) Requisites: courses 140, 215A, 221A. Symmetry, free electrons, electrons in a periodic potential, experimental measurement of band structure and Fermi surface parameters, cohesive energy, lattice vibrations, thermal properties.

241B. Solid-State Physics. (4) Requisite: course 241A. Transport theory with applications, electron/electron interactions.

241C. Solid-State Physics. (4) Requisite: course 241B. Semiconductors, magnetism, phase transitions, superconductivity.

242A-242B. Advanced Solid-State Theory. (4) Requisites: courses 241A, 241B, 241C (may be taken concurrently). Many body methods in solid-state physics.

243A-243K. Special Topics in Solid-State Physics. (4 each) **243A.** Disordered Systems; **243B.** Magnetic Resonance; **243C.** Phase Transitions; **243D.** Magnetism; **243E.** Superconductivity; **243F.** Macromolecules; **243G.** Semiconductors; **243H.** Optical Interactions; **243I.** Nonlinear Optics; **243J.** Hopping Transport; **243K.** Low-Temperature Physics.

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.

280E. Advanced Plasma Laboratory. (4) Lecture, two hours; laboratory, four hours. Requisites: courses M122, 180E. Laboratory experiments on behavior of plasmas in magnetic fields. Study of basic physics of particle motions, distribution functions, and fluid dynamics. Plasma waves and nonlinear phenomena. Advanced probe, microwave and plasma diagnostics.

C285. Foundations of Physics. (4) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C185.

290. Research Tutorial: Plasma Physics. (2 or 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 or 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 or 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 or 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: Solid Earth Physics. (2 or 4) Required (or course 292 if appropriate) of each graduate student doing research in this field, ordinarily in second or third year. Seminar and discussion on solid earth physics. May be repeated for credit. S/U grading.

296. Research Topics in Physics. (2) (Formerly numbered 296A-296Z.) 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.

M297. Research Tutorial: Astroparticle Physics. (2 or 4) (Same as Astronomy M297.) 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 astroparticle physics. May be repeated for credit. S/U grading.

298. Research Tutorial: Experimental Elementary Particle Physics. (2 or 4) Limited to six students. Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff and students on current problems in experimental elementary particle physics. May be repeated for credit. S/U grading.

299. Research Tutorial: Nuclear Physics. (2 or 4) Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion on nuclear physics by staff and students, in both experiment and theory. May be repeated for credit. S/U grading.

370. Teaching Physics. (4) Study of physics laboratory experiments and demonstrations available today for secondary school and community college physics courses. Part of Master of Arts in Teaching (M.A.T.) program but open to other interested students.

375. Teaching Apprentice Practicum. (1 to 4)

Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching College Physics. (2) Seminar (five or more one-hour meetings during term, plus intensive training week at beginning of Fall Quarter). Required of all new teaching assistants. Special course for teaching assistants designed to deal with problems and techniques of teaching college physics. Ideas and techniques learned are applied and evaluated in the sections of each teaching assistant. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (2 to 12) May be repeated for credit. S/U grading.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (4) May be repeated twice for credit. S/U grading.

598. Master's Thesis Research and Writing. (4) May be repeated twice for credit.

599. Ph.D. Research and Writing. (8 or 12) May be repeated for a maximum of 18 units. S/U grading.

PHYSIOLOGICAL SCIENCE

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Alan D. Grinnell, Ph.D., *Chair*
V. Reggie Edgerton, Ph.D. *Vice Chair*
James G. Tidball, Ph.D., *Vice Chair*

Professors

Arthur P. Arnold, Ph.D. (*Neurobiology*)
R. James Barnard, Ph.D. (*Diet and Degenerative Diseases*)
Scott H. Chandler, Ph.D. (*Neurosciences*)
V. Reggie Edgerton, Ph.D. (*Neuromuscular Physiology*)
Gordon L. Fain, Ph.D. (*Neurosciences*)
Jack L. Feldman, Ph.D. (*Neurosciences*)
Alan D. Grinnell, Ph.D. (*Cellular Neurobiology*)
Margaret E. Haberland, Ph.D., *in Residence (Vascular Biology)*
Peter M. Narins, Ph.D. (*Auditory Physiology*)
Judith L. Smith, Ph.D. (*Neuromotor Control*)
James G. Tidball, Ph.D. (*Muscle Cell Biology*)
Allan J. Tobin, Ph.D. (*Gene Regulation/Neural Development*)

Professors Emeriti

Camille Brown, Ed.D.
Bryant J. Cratty, Ed.D.
Glen H. Egstrom, Ph.D.
Gerald W. Gardner, Ph.D.
Valerie V. Hunt, Ed.D.
Jack F. Keogh, Ed.D.
Marjorie E. Latchaw, Ph.D.
Wayne W. Massey, Ph.D.
Ben W. Miller, Ph.D.
Norman P. Miller, Ed.D.

Associate Professors

David L. Glanzman, Ph.D. (*Neurosciences*)
Barney A. Schlinger, Ph.D. (*Neuroendocrine Physiology*)
Dwayne D. Simmons, Ph.D. (*Developmental Neurobiology*)

Assistant Professors

Alan Garfinkel, Ph.D. (*Cardiac Electrophysiology, Mathematical Modeling*)
Patricia E. Phelps, Ph.D. (*Developmental Neurobiology*)

Adjunct Associate Professors

Nasser A. Farahbakhsh, Ph.D.
Fernando Gómez-Pinilla, Ph.D.

Adjunct Assistant Professors

Ronald H. Cooper, Ph.D.
William C. Whiting, Ph.D.

Scope and Objectives

The cornerstone of the physiological science curriculum is vertebrate physiology, with emphases on integrative functions. The research and educational programs focus on integrative physiology at several levels of organization from molecules to living organisms, microscopic structures to macroscopic organization, and cellular properties to organ functions. Students receive comprehensive instruction in all areas of physiological science, while elective courses reflect faculty research expertise, including cardiopulmonary function and adaptation, musculoskeletal physiology, cell biology, biomechanics, neural control of movement and homeostasis including neuroendocrinology, and neural integration and sensory transduction. Many Physiological Science majors enter graduate programs in biomedical sciences and professions in other health-related fields.

Undergraduate Study

Physiological Science B.S.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 14O, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

All core curriculum courses must be passed with a grade of C– or better and must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Physiological Science majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chem-

istry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Transfer credit for UCLA Extension coursework and for any departmental courses is subject to prior approval by the department; consult the undergraduate counselor before enrolling in any courses for the major.

The Major

Required: Physiological Science 107, 111A (or M180A), 111B-111C, 111L, Chemistry and Biochemistry 153A, 153L.

A total of four upper division physiological science electives (16 units) is required. Four units of course 190 or 199 may be applied toward the elective requirement. Courses 193, 195A, 195B, 196, and graduate courses at the 300, 400, or 500 level may not be applied toward this requirement. One graduate course at the 200 level may be applied toward the elective requirement by petition.

All required and elective courses must be taken for a letter grade, and a C average must be maintained in all upper division courses taken for the major.

Honors Program

The honors program provides exceptional students with the opportunity for individual research culminating in an honors thesis. Requirements for admission include a 3.0 overall grade-point average and a 3.2 GPA in the life sciences core curriculum. After completion of all requirements and with the recommendation of the faculty adviser, the undergraduate affairs committee confers departmental honors at graduation.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Physiological Science offers the Master of Science (M.S.) degree in Physiological Science.

Admission

Applicants to the M.S. program are expected to have completed an undergraduate degree in the biological or physical sciences. In general, at the time of admission students should have completed a year of coursework in each of the following: calculus, physics, biology, inorganic chemistry, and organic biochemistry. A grade-point average of at least 3.0 (B) in all upper divi-

sion undergraduate coursework is required. A departmental faculty committee considers applicants on the following bases: (1) prior scholastic performance, (2) three letters of recommendation, and (3) applicant's statement of purpose, which should include (a) relevant background or preparation; (b) field of emphasis, specific study interests, and type of research sought; (c) expectations, goals, degree objective; (d) one or more departmental faculty members whose research area parallels the study interest. The Graduate Record Examination (GRE) is required as part of the admission file.

A brochure of faculty names and research interests is available from the department. Applicants are encouraged to communicate directly with the faculty, and personal interviews are encouraged.

Areas of Study

Consult the department.

Course Requirements

The M.S. degree requires nine courses, including a second-level statistics or research design course. A minimum of six of the nine courses must be graduate-level (200) courses, toward which two 596 courses may be applied. Coursework is selected by the student and the student's advisory committee, with approval by the graduate affairs committee. All coursework must be completed by the end of the second year. Courses 597 and 598 may not be applied toward any of the course requirements for the degree. There is no limit on the number of times master's students may enroll in course 597 or 598.

Comprehensive Examination Plan

If this plan is elected, students must achieve a passing mark on a comprehensive examination. Breadth of knowledge is demonstrated by passing a written comprehensive examination administered at the end of the Fall and Spring Quarters. Preparation for the examination varies with background; students follow a curriculum during the master's program that is designed to prepare them for the examination. Coursework, including formal courses and tutorials, is selected from the offerings in physiological science or other departments. The examination consists of three sections in the context of general physiological problems: (1) molecular biology or neurochemistry; (2) cell biology or cellular neurophysiology; and (3) systems physiology or systems neuroscience. The examination is scored passed at the master's level of achievement, passed at the Ph.D. level of achievement, which permits students to continue into the Ph.D. program, or failed at the master's level of achievement, and therefore also at the Ph.D. level of achievement. Students failing the examination at either the master's or Ph.D. levels of achievement are required to retake the examination at the next offering. Students wishing to continue into the Ph.D. program who fail the examination at the Ph.D. level on the second attempt are awarded a terminal Master of Science degree.

Thesis Plan

If the thesis plan is elected, students must report the results of an original research investigation. Under the guidance of the thesis committee, students must propose a problem area or outline of study, conduct original research in a specific area, and report the results. With committee approval, students may submit either a thesis manuscript or a manuscript suitable for publication.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Physiological Science are expected to complete the same admission requirements as outlined for the M.S. degree. In addition to the above, students may also be admitted to the program through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

Nine courses, at minimum, are specified for the doctoral degree. Two 596 courses may be applied toward the degree requirements. Courses are selected by the student and the student's advisory committee and approved by the graduate affairs committee.

Written and Oral Qualifying Examinations

Breadth of knowledge is demonstrated by passing a written preliminary examination administered at the end of Fall Quarter of the second year. Preparation for the examination varies with background, and students follow a curriculum during the first year of study that is designed to prepare them for the examination. Coursework, including formal courses and tutorials, is selected from the offerings in physiological science or other departmental curricula. The examination consists of three sections in the context of general physiological problems: (1) molecular biology or neurochemistry, (2) cell biology or cellular neurophysiology, (3) systems physiology or systems neuroscience. The examination is scored passed at the Ph.D. level of achievement, passed at the master's level of achievement (students are required to pass a second examination at the Ph.D. level within the following six months), or failed (students are required to leave the program). Alternatively, students receiving a master's level of achievement score may leave the doctoral program and complete the M.S. degree.

After successfully passing the departmental written qualifying examination, and before advancement to candidacy, a University Oral Qualifying Examination is conducted by the doctoral committee. The examination must be passed by the end of the third year of study. Students present a written research proposal of their intended dissertation project to their

advisory committee and one member of the graduate affairs committee at least two weeks prior to the examination. Students are expected to have formulated a research plan, have demonstrated appropriate research capability, and be knowledgeable of relevant research literature. Students may petition the graduate affairs committee for extension of the deadline. If students do not pass, the examination may be rescheduled once at the discretion of the doctoral committee.

Physiological Science

Lower Division Courses

3. Introduction to Human Physiology. (4) Lecture, three hours. Not open to Physiological Science majors. Courses 3 and 5 may be taken independently, concurrently, or in either sequence. Presentation of integrative approach to basic anatomy and physiology of major organs and organ systems. P/NP or letter grading.

5. Issues in Human Physiology: Diet and Exercise. (4) Lecture, three hours. 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.

13. Introduction to Human Anatomy. (5) Lecture, four hours; laboratory, three 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.

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.

Upper Division Courses

C100. Experimental Statistics. (4) (Formerly numbered 100.) Lecture, four hours; outside study, eight hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. Concurrently scheduled with course CM200. P/NP or letter grading.

M102. Human Anatomy for Biomedical Engineers. (4) (Same as Biomedical Engineering M102.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human gross and microscopic anatomy for graduate biomedical engineering students. Broad overview of structural organization of human body and detailed examination of specific systems pertinent to biomedical research. Letter grading.

M103. Human Physiology for Biomedical Engineers. (4) (Same as Biomedical Engineering M103.) Lecture, three hours; laboratory, two hours. Not open for credit to Physiological Science majors. Designed to provide foundation in human physiology for graduate biomedical engineering students. Systematic approach to examination of major systems function, with emphasis on regulatory mechanisms controlling normal function. Detailed examination of specific systems pertinent to major areas of biomedical research. Letter grading.

107. Systems Anatomy. (5) (Formerly numbered 27.) Lecture, four hours; laboratory, three hours; outside study, 10 to 15 hours. Requisites: Life Sciences 2, Physics 6A or 8A. Systems anatomy focused primarily on human anatomy. Topics include cardiorespiratory, reproductive, nervous, and skeletomuscular systems, with introduction to biomechanical principles.

111A-111B-111C. Foundations in Physiological Science. (6-6-6) Lecture, four hours; laboratory, two hours. Letter grading. **111A.** Requisites: course 107, Chemistry 14C or 30, Life Sciences 1, 2, 3, 4, Physics 1B or 6C. Not open for credit to students with credit for course M180A. Introduction to principles of neurophysiology: cellular and systems neuroscience, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neuronal plasticity. **111B.** Requisites: course 111A or M180A, Chemistry 130A. Principles of muscular, cardiovascular, and pulmonary physiology. **111C.** Requisites: course 111A or M180A, Chemistry 153A. Principles of gastrointestinal, renal, endocrine, and reproductive physiology.

111L. Physiological Science Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisites: courses 111A-111B-111C (111C may be taken concurrently). Required of physiological science majors. Designed to illustrate physiological principles studied in courses 111A-111B-111C.

C125. Comparative Endocrinology: Molecular to Behavioral. (4) Lecture, two hours; discussion, two hours. Requisite: course 111C. Important concepts in endocrinology, with focus on current research involving invertebrate and vertebrate animal models in areas of reproduction, neuroendocrine control of behavior, metabolism, and insect metamorphosis. Concurrently scheduled with course CM225.

126. Biological Clocks. (4) (Formerly numbered 198.) Lecture, three hours; discussion, one hour. Requisite: course 111A or M180A. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within the organisms and are called circadian rhythms. Exploration of molecular, cellular, and system-level organization of these timing systems.

133. Exercise Physiology. (5) Lecture, three hours; laboratory, two hours; outside study, 10 hours. Requisite: course 111C. Physiological responses and adaptations to acute and chronic exercise.

C135. 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. Concurrently scheduled with course C235.

136. Exercise and Cardiovascular Function. (5) Lecture, four hours; outside study, 11 hours. Requisite: course 111B. Consideration of acute and chronic effects of exercise in diagnosis, prevention, and treatment of cardiovascular disorders.

C137. Growth and Adaptation in Cardiovascular System. (4) Requisite: course 111B. Regulation of normal and pathological cellular growth in cardiac and vascular tissue. Modification of gene expression in response to diverse physiological stimuli. Emphasis on molecular and cell biology approaches. Concurrently scheduled with course C237.

138. Neuromuscular Physiology and Adaptation. (4) Requisites: course 111B, Chemistry 153A. Cellular responses to acute and chronic exercise and environmental states of neuromuscular system.

142. Sensorimotor Physiology. (5) Lecture, three hours; laboratory, two hours; outside study, 10 hours. Requisite: course 111A or M180A. Neurophysiological principles governing control of limb movements, including regulation by spinal cord circuits, cerebellum, basal ganglia, and sensorimotor cortices.

C143. Neuromotor Control of Posture and Movement. (5) Lecture, four hours; outside study, 11 hours. Requisite: course 142. Examination of theories for neuromotor control of posture, walking, and voluntary arm movements. Concurrently scheduled with course C243.

C144. Neural Control of Physiological Systems. (5) Lecture, four hours; outside study, 11 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.

C145. Neural Mechanisms Controlling Movement. (5) Lecture, four hours; outside study, 11 hours. Requisite: course 111A or M180A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Concurrently scheduled with course C245.

147. Neurobiology of Learning and Memory. (5) Lecture, four hours; research demonstration, one hour; outside study, 10 hours. Requisite: course 111A or M180A. Changes in central nervous system that accompany learning, with emphasis on cellular mechanisms.

M148. Molecular and Cellular Physiology of Neurons. (5) (Formerly numbered 148.) (Same as Neuroscience M148.) Lecture, four hours; outside study, 11 hours. Requisite: course 111A or M180A. Advanced treatment of selected topics in cellular neurophysiology.

150. Musculoskeletal Mechanics. (5) Lecture, three hours; outside study, 12 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 biostatistics, biodynamics, and modeling.

151. Limb Dynamics. (5) Lecture, three hours; laboratory, two hours; outside study, 10 hours. Requisite: course 150. Biomechanical analysis of human movement, with special emphasis on control of limb movements.

C152. Musculoskeletal Anatomy, Physiology, and Biomechanics. (5) Lecture, three hours; outside study, 12 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. (4) Lecture, two hours; laboratory, six hours. Requisite: course 111B. Departmental application required. Study and dissection of upper and lower extremities of human cadavers; dissection of thorax and abdomen limited to musculature and neurovascular supply.

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.

M158. Cell Biology. (6) (Same as Organismic Biology M158.) Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, Life Sciences 1, 3, 4. Cell biology of eukaryotic cells, with emphasis on correlation of structure and function at molecular, organellar, and cellular levels. Letter grading.

M166. Animal Physiology. (6) (Same as Organismic Biology M166.) Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14A and 14B/14BL, or 20A, 20B, 20L, and 30L, 153A, Life Sciences 1, 2, 3, Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C. Not open for credit to students with credit for Molecular, Cell, and Developmental Biology M170 or Organismic Biology 167 or to Physiological Science majors. Introduction to physiological principles, with emphasis on organ systems and intact organisms. Letter grading.

167. Physiology of Nutrition. (4) (Formerly numbered 197B.) Lecture, four hours. Limited to senior Physiological Science majors. Topics include physiological adaptation to starvation and physiological responses to oxidants/antioxidants, vitamins, minerals, photochemicals, and their relationship to common chronic diseases and aerobiology of fuel utilization during aerobic and anaerobic exercise. Letter grading.

M173. Anatomy and Physiology of Sense Organs. (4) (Same as Organismic Biology M173.) Lecture, three hours; discussion, one hour. Requisites: courses 111A (or Molecular, Cell, and Developmental Biology 171) or M180A-M180B (or Molecular, Cell, and Developmental Biology M175A-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.

M180A-M180B-M180C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, one hour. P/NP or letter grading:

M180A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: Chemistry 14C or 30 or former course 10D (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. Not open for credit to students with credit for Physiological Science 111A. 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.

M180B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A) or Psychology 115, Life Sciences 3, 4. 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.

M180C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisite: course 111A or M180B (or Molecular, Cell, and Developmental Biology M175B or Neuroscience M101B or Psychology M117B) or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M181. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M191, Neuroscience M130, Psychiatry M191, and Psychology M117J.) Lecture, three hours. Requisite: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A). Underlying brain systems involved in psychiatric syndromes and neurological disorders, including schizophrenia, depression, bipolar disorders, obsessive/compulsive disorder, eating disorders. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments.

190A. Honors Thesis. (4) (Formerly numbered 199HA.) Requisites: courses 111A-111B. Limited to physiological science honors program students. Directed independent research for departmental honors with a faculty member, involving definition of research topic and extensive reading and research in the field of proposed honors thesis. In Progress grading (credit to be given only on completion of course 190B).

190B. Honors Thesis. (4) (Formerly numbered 199HB.) Requisite: course 190A. Continued reading and research that culminate in final honors thesis. Only four units of course 190/199 may be applied toward elective requirements for the major.

190C. Advanced Studies for Honors Thesis. (4) (Formerly numbered 199HC.) Requisite: course 190B. Additional course to provide further research opportunities for departmental honors students.

192. Intracellular Calcium Regulation. (4) Lecture, one hour; discussion, two hours. Requisites: courses 111A-111B-111C. Lecture on and review of current literature covering broad issues of intracellular calcium metabolism, regulation, and transport.

193. Field Studies in Physiological Science. (4) Lecture, one hour; fieldwork, six to eight hours. Limited to seniors. Departmental application required. 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 the major. P/NP grading.

195A. Scientific Research and Ethics. (2) (Formerly numbered 195.) Lecture, one hour; discussion, one hour. Corequisites: courses 190A/190B or 199 or participant in Student Research Program. Instruction in principles of scientific method, writing, and ethics; critique of current journal articles and research projects. Students present individual research proposal with background literature. P/NP grading.

195B. Advances in Biological Research. (2) Lecture, one hour; discussion, one hour. Requisites or corequisites: courses 190A/190B or 199. Critical discussion of current research literature in biological sciences, with emphasis on design, analysis, and reporting of scientific investigation. P/NP or letter grading.

196. Laboratory Practicum in Systems Anatomy. (2) (Formerly numbered 196A-196B.) Lecture, one hour; laboratory practicum, three hours; outside study, eight hours. Requisite: course 107. Departmental application required. Supervised practicum and training for advanced students who serve as undergraduate assistants in anatomy laboratory for courses 13 and 107. May not be applied toward elective requirements and may not be repeated for credit. P/NP or letter grading.

197A-197Z. Variable Topics in Physiological Science. (4 each) Limited to juniors/seniors. Variable topics courses which cover specific subjects of special interest. May be repeated for credit with topic change.

199. Special Studies in Physiological Science. (2 or 4) Requisites: courses 111A-111B. Limited to Physiological Science majors with advanced junior standing and 3.0 grade-point average in major, or seniors. Directed independent research with a faculty member. Course application must be submitted to undergraduate affairs chair during first week of classes. Only four units of course 199 may be applied toward elective requirements for the major.

Graduate Courses

CM200. Experimental Statistics. (4) (Same as Bio-statistics M220.) Lecture, four hours; outside study, eight hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. Concurrently scheduled with course C100. S/U or letter grading.

M202. Cellular Neurophysiology. (4) (Same as Neuroscience M202.) Lecture, three hours; discussion, one hour. Requisites: course 111A or M180A or Physics 6B, Molecular, Cell, and Developmental Biology 171 or Organismic Biology M166. 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.

M205. Behavioral and Systems Neuroscience. (4) (Same as Neuroscience M205 and Psychology M205Z.) Lecture, three hours. Requisites: Neuroscience M201, M202, M203, M204. Introduction to fundamentals of behavioral and systems neuroscience, with emphasis on role of behavioral analysis in understanding the functioning of nervous system and identifying anatomical circuits, cell physiological processes, and molecular mechanisms that mediate behaviorally defined functions.

M210. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Neuroscience M230 and Physiology M210.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Requisite: Neuroscience M202 or Physiology M209A. 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.

211. Exercise Cardiovascular Physiology. (4) Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

M212. Introduction to Cellular Physiology and Biophysics. (6) (Same as Molecular, Cell, and Developmental Biology M237 and Physiology M212.) Lecture, five hours. Requisite: course 111A or Physiology M209A. Development of fundamental physiological and biophysical concepts associated with all membranes, membrane channels and transporters, membrane potential, membrane excitability, electrical signal transmission and transduction, and muscle contraction and their application to study of basic cellular processes. Emphasis in laboratory on development of skills using computer programming languages, spreadsheets, and graphics for modeling and analysis of cellular processes.

M213. Principles of Integrative Physiology. (6) (Same as Physiology M213.) Lecture, four hours; discussion, two hours. Designed for graduate students. Open to juniors/seniors with consent of instructor. Basic principles of biological integration, including regulation, homeostasis, feedback, and natural selection, to be illustrated by applying them to a molecules-through-whole animal view of four sets of problems: information processing, development, and plasticity in central nervous system; endocrine regulation of reproduction; feedback regulation of blood pressure and control of eye movements; and matching of enzyme, transporter, and bone capacities to natural loads.

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.

CM225. Comparative Endocrinology: Molecular to Behavioral. (4) (Same as Physiology M225.) Lecture, two hours; discussion, two hours. Designed for graduate students. Important concepts in endocrinology, with focus on current research involving invertebrate and vertebrate animal models in areas of reproduction, neuroendocrine control of behavior, metabolism, and insect metamorphosis. Concurrently scheduled with course C125.

M227. Cellular, Molecular, and Functional Aspects of Reproductive System. (4) (Same as Neurobiology M227.) Lecture, three hours; discussion, one hour. Didactic presentations and discussion of developmental, anatomical/histological, physiological, cellular, and molecular aspects of reproductive system and functional integration of neuroendocrine-reproductive axis.

C235. 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. Concurrently scheduled with course C135.

C237. Growth and Adaptation in Cardiovascular System. (4) Requisite: course 111B. Regulation of normal and pathological cellular growth in cardiac and vascular tissue. Modification of gene expression in response to diverse physiological stimuli. Emphasis on molecular and cell biology approaches. Concurrently scheduled with course C137.

M240. Neural Systems for Motor Control. (4) (Same as Neuroscience M262.) Requisite: course C143. Advanced topics on neural mechanisms related to control of posture, locomotion, and highly skilled arm and hand movements. Emphasis on role of movement-dependent feedback at spinal segments and within sensorimotor areas of cerebral cortex, with respect to modification of motor output.

C243. Neuromotor Control of Posture and Movement. (5) Lecture, four hours; outside study, 11 hours. Requisite: course 142. Examination of theories for neuromotor control of posture, walking, and voluntary arm movements. Concurrently scheduled with course C143.

C244. Neural Control of Physiological Systems. (5) Lecture, four hours; outside study, 11 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.

C245. Neural Mechanisms Controlling Movement. (5) Lecture, four hours; outside study, 11 hours. Requisite: course 111A or M180A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Concurrently scheduled with course C145.

M247. Neural Control of Cardiopulmonary Function. (4) (Same as Neuroscience M247.) Lecture, two hours; discussion, two hours. Requisites: courses 111A, 111B or 133 or 142 or M180A, M180B. Cardio-respiratory homeostasis is accomplished via central nervous system (CNS) control of respiratory and circulatory pumping systems. Focus on CNS mechanism underlying (1) generation of respiratory rhythm, sympathetic and parasympathetic tone, (2) determination of patterns of motor outflow, and (3) responses to changes in behavioral state or afferent signals. Emphasis on critical reading of literature.

250A. Muscle Dynamics. (4) Requisite: course 151. 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.

250B. Musculoskeletal Mechanics. (4) Requisites: course 151, Mathematics 3A, 3B. Mechanical parameters of moving human musculoskeletal system, including use of cinematographic, force platform, and digital computer techniques. Topics include biostatistics, biodynamics, and empirical data modeling.

C252. Musculoskeletal Anatomy, Physiology, and Biomechanics. (5) Lecture, three hours; outside study, 12 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.

M255. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Neurobiology M255 and Psychology M294.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of the 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.

M260. Neuromuscular Factors in Movement Regulation. (4) (Same as Neuroscience M260.) 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.

M263. Neuronal Mechanisms Controlling Rhythmic Movements. (4) (Same as Neuroscience M263.) Requisite: course C145. 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.

M272. Neuroimaging and Brain Mapping. (4) (Same as Neuroscience M272 and Psychology M213.) Lecture, three hours; outside study, nine hours. Recommended preparation: mathematics and computer background. 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.

M290. Seminar: Comparative Physiology. (2) (Same as Organismic 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-291B-291C. Seminars: Cardiovascular Function and Adaptation. (2 to 4 each) Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar.

292. Evolution and Development of Auditory System. (2 or 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-293B-293C. Seminars: Musculoskeletal Function and Adaptation. (2 to 4 each) Requisites: courses 138 M260. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar.

M295A-M295B-M295C. Seminars: Cellular Neuroscience. (2 to 4 each) (Same as Neuroscience M266A-M266B-M266C.) 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.

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 M.S. or Ph.D. course requirements. May be repeated for credit. S/U grading.

297. Seminar: Muscle Cell Biology. (2 to 4) (Formerly numbered 297A-297B-297C.) Seminar, two hours. Selected topics in muscle cell biology. Students required to present two-hour seminar. May be repeated for credit.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. In-Service Practicum for Teaching Assistants in Physiological Science. (2) 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) 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 M.S. or Ph.D. degree, provided that students enroll in two different four-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 M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 16) To be arranged with faculty member serving as student's comprehensive examination chair or Ph.D. committee chair. May not be applied toward M.S. or Ph.D. course requirements. May be repeated as necessary. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 16) To be arranged with faculty member serving as student's thesis committee chair. May not be applied toward M.S. course requirements. May be repeated as necessary. S/U grading.

599. Research for and/or Preparation of Ph.D. Dissertation. (2 to 16) May not be applied toward Ph.D. course requirements. May be repeated as necessary. S/U grading.

Oscar U. Scremin, M.D., *in Residence*
Enrico Stefani, M.D., Ph.D.
John McD. Tormey, M.D.
Julio L. Vergara, Ph.D.
James N. Weiss, M.D. (*Chizuko Kawata Professor of Cardiology*)
Ernest M. Wright, D.Sc.
Guido Zampighi, Ph.D.

Professors Emeriti

Allan J. Brady, Ph.D.
Jennifer S. Buchwald, Ph.D.
Sergio Ciani, Ph.D.
George Eisenman, M.D.
Joy S. Frank, Ph.D.
Glenn A. Langer, M.D. (*Castera Professor Emeritus of Cardiology*)
Donald B. Lindsley, Ph.D.
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Bernice M. Wenzel, Ph.D.
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Diane M. Papazian, Ph.D.
Helen Raybould, Ph.D.

Assistant Professors

Jonathan Monck, Ph.D.
Brett Premack, Ph.G.
Robert Ross, M.D.
Nancy L. Wayne, Ph.D.

Adjunct Professors

Christopher B. Cooper, M.D.
Arthur Peskoff, Ph.D.
Douglas Rees, Ph.D.
Kenneth P. Roos, Ph.D.

Adjunct Assistant Professor

Bernard Ribalet, Ph.D.

Scope and Objectives

Physiology is the science of the functional activities of the human body. This covers a wide range, including observations on humans and experiments on animals and model systems in order to understand principles. Physiology is the science most directly relevant to human medicine in all its specialties and to understanding all environmental factors affecting human life. It is also a pure science of great challenge because of the complexity of its problems and its extensive interaction with mathematical, physical, biochemical, and engineering sciences, as well as with other branches of biology.

Within the prescribed curriculum, students may specialize in cellular and molecular physiology, theoretical and mathematical physiology, neurobiology, communication and information, organ systems and integrative phenomena, and behavioral physiology.

In a recent survey conducted by the Conference Board of the Associated Research Councils, UCLA's Physiology Department was judged fifth best in the nation in terms of the quality of its faculty. In addition to the Ph.D. program, the department offers postdoctoral training in research and welcomes students interested in articulated M.D./Ph.D. programs.

PHYSIOLOGY

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Professors

Francisco J. Bezanilla, Ph.D.
Marel Birnbaumer, Ph.D.
Michael H. Chase, Ph.D., *in Residence*
Jared M. Diamond, Ph.D.
Alan D. Grinnell, Ph.D.
Earl Homsher, Ph.D.
H. Ronald Kaback, M.D.
Emeran A. Mayer, M.D.
Istvan Mody, Ph.D. (*Tony Coelho Professor of Neurology*)
Kenneth D. Philipson, Ph.D.
Eduardo H. Rubinstein, M.D., Ph.D.
George Sachs, M.D., D.Sc. (*Leon J. Tiber, M.D., and David S. Alpert, M.D., Professor of Medicine*)

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

A master's degree program is not a general objective of the department. However, the Master of Science degree in Physiology may be awarded by comprehensive examination or thesis in special cases.

Areas of Study

See Doctoral Degree.

Course Requirements

Nine courses, of which at least five must be graduate courses, are required for the master's degree. A maximum of eight units of 500-series courses may be applied to the total course requirements; only four units may be applied to the graduate course requirement.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

Consult the department.

Doctoral Degree

Admission

All candidates for admission to graduate status in the Department of Physiology are expected to pursue the Ph.D. degree in Physiology; the department does not admit candidates for the M.S. degree. Ph.D. students must conform to the general admission requirements established by the Graduate Division and have received a bachelor's degree in a biological or physical science or in the premedical curriculum. In general, at the time of admission, completed coursework should include courses in mathematics through calculus and differential equations, college physics, chemistry (including organic chemistry and biochemistry), and biology (courses in cell biology and molecular biology are highly recommended).

In general, candidates seeking admission to the Physiology Department should apply through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 MBI, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6150. Additional information can be obtained from the Graduate Student Office, Department of Physiology, UCLA School of Medicine, Box 951751, Los Angeles, CA 90095-1751. Applicants should submit applications by December 15.

In certain cases, at the discretion of the department, if applicants lack preparation in one of the above-mentioned courses but have a strong background in areas pertinent to physiology, students may be admitted to graduate status provided that deficiencies are made up. (It is recommended that the deficiencies be corrected prior to matriculation.)

Applicants must submit (1) transcripts of grades for all college-level work; (2) the results of the Graduate Record Examination (GRE), including the Subject Test in Biology or in the applicant's undergraduate major (MCAT scores are accepted in lieu of the GRE); (3) at least three letters of recommendation from professors stressing potential for successful completion of graduate studies and creative independent research; and (4) an essay describing academic background, work experience, motivation for research, and career goals. Selected applicants are asked to have an interview with members of the graduate program committee (composed of faculty and a graduate student representative) or a designated interviewer. The graduate program committee then, in a written evaluation, advises the departmental committee on instruction of its recommended admits. Final decisions of admittance to the graduate program reside with the committee on instruction which examines the recommendations for academic excellence, promise in scientific career goals consistent with the scientific expertise of the faculty, and the existence of financial support for the admit during the first and subsequent years of training.

Major Fields or Subdisciplines

The major fields in which graduate students may pursue research include (1) cellular physiology and biophysics; (2) molecular physiology; and (3) integrative physiology. The subdisciplines of these areas include cellular and molecular electrophysiology; membrane transport; cellular signal transduction; channel and transporter structure and function; muscle physiology; fundamental neurophysiology; neuromuscular physiology; and cardiovascular, gastrointestinal, respiratory, and reproductive physiology.

Course Requirements

The following courses are required during the first two years: Biological Chemistry CM253; Physiology M204 or M210 or Neuroscience M205; Physiology M209A. Biological Chemistry CM267 or Microbiology and Immunology M229 may be substituted with permission of the graduate adviser, M212, M213. In addition, during the first two years, a total of 12 units must be completed in techniques or special topics courses (e.g., Physiology 220 through 298) or comparable courses in cell biology, neuroscience, molecular biology, chemistry, or biology) as governed by research interest. The specific courses are determined in consultation with the mentor and the Instruction Committee.

Three laboratory rotations must be taken during the first year. The remaining time is to be devoted to developing and pursuing dissertation research (Physiology 597 and 599).

Written and Oral Qualifying Examinations

The written examination is taken during the summer following the completion of the second year. The purpose of the examination is to assess ability to read and critically evaluate research papers in the chosen division of physiology (e.g., molecular, cellular, or integrative physiology). About three to four weeks prior to the examination, students are given three reading lists (generated by professors selected by the graduate program committee), each containing five to 10 articles (including review articles and short reports such as those found in *Science* and *Nature*) on three different topics. During the written examination, students are asked one or more essay questions in the area of two of the reading lists. For the third area, students are given an actual short article that is missing its discussion section; students are asked to write a discussion for that paper. The examination is taken on two consecutive half days. The examination is number coded and given a pass/fail grade by the examining committee.

The University Oral Qualifying Examination is designed to establish that students can independently identify significant research questions, put them in context of existing knowledge in physiology, design appropriate and realistic protocols for testing hypotheses, and assure that the dissertation project is both appropriate and feasible. The examination takes place by the end of the Fall Quarter of the third year (end of seventh quarter) and is based on a written proposal circulated to members of the doctoral committee at least seven days prior to the examination. The proposal should pose an original research question outside the immediate area of dissertation research, should provide enough background (with references) to put the question in context of previous work, and should propose the experimental design that would be used to test the hypotheses in the proposal. The proposal must have the form of a mini-research grant application of about 20 pages, double spaced. Students must have independently generated the hypotheses to be tested and the experimental design for the testing of the hypotheses. Although students may consult faculty members or other students for information as to the execution of certain protocols, such as for references, the creative and critical aspects of the proposal must be the students' own work. The examination is an oral presentation of this proposal with concurrent questioning by the committee. The written proposal contains a brief two- to four-page summary of the proposed dissertation which is also discussed at the oral examination with the goal of clarifying its suitability as a Ph.D. project.

Midstream Oral Presentation. In addition to the oral qualifying examination, there is a mid-

stream oral presentation (to occur eight to 12 months after the oral qualifying examination) in which progress on the research project is reviewed by the thesis committee. The purpose of the presentation is to inform the committee of research progress, to gain approval of significant changes in research direction that may have occurred, and to provide any additional help or guidance from the committee to assure that the dissertation is completed in an appropriate and timely fashion. The presentation is mandatory but is not an examination. The dissertation research adviser is expected to write a summary of any comments made by the doctoral committee at this time for inclusion in the student's folder.

Grades and Reexamination. Both the written and University Oral Qualifying Examinations are graded pass or fail. In the event that the committee for either examination concludes that a failing grade is necessary, the examining committee may decide to grant one additional opportunity to pass the examination at a time to be determined by the committee. The interval between the first and second examination, however, should not exceed two months, except in special circumstances. The same faculty committee administers and grades the second examination.

Physiology

Lower Division Course

88. Lower Division Seminar: Special Topics in Physiology. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in physiology approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

100. Elements of Human Physiology. (6) Designed for first-year dental students. Major organ body functions. With special supplementation, a suitable introduction to the field for graduate students for whom the 201A-201B course sequence is too extensive.

199. Special Studies (1 to 8 units). Special studies in physiology, including either reading assignments or laboratory work or both, designed for proper training of students.

Graduate Courses

201A-201B. Organ System Physiology. (6-6) Lecture, six hours; laboratory, three and one-half hours. Designed for medical and qualified graduate program students. Recommended corequisites: courses M203A-M203B. Runs throughout School of Medicine's second semester. Lectures, laboratories, and conferences. Properties of biological membranes. Contractility of muscle. Epithelial transport. Cardiovascular, renal, respiratory, and gastrointestinal systems. Fluid and electrolyte balance. To receive credit, both courses must be taken together in same academic year. In Progress grading.

M203A-M203B. Neuroscience. (4-4) (Same as Neurobiology M203A-M203B.) Lecture, four hours. Designed for medical and qualified graduate program students. Lectures, conferences, demonstrations, and laboratory procedures necessary to understand functions of nervous system, with emphasis on their applications in the medical sciences. To receive credit, both courses must be taken together in same academic year. In Progress and letter grading.

M204. Cellular and Molecular Developmental Neurobiology. (4) (Same as Neurobiology M204, Neuroscience M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Requisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A-201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

M209A. Molecular Cell Biology. (6) (Same as Molecular, Cell, and Developmental Biology CM220 and Neurobiology M209A.) Not open for credit to students with credit for Molecular, Cell, and Developmental Biology 100 or M140. Introduction to cell biology for graduate students in basic medical sciences and selected undergraduates. Topics include membrane structure, assembly, and function; biogenesis of organelles, intercellular and intracellular signaling, immunity and gene structure, function and replication.

M210. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Neuroscience M230 and Physiological Science M210.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Requisite: course M209A or 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.

M212. Introduction to Cellular Physiology and Biophysics. (6) (Same as Molecular, Cell, and Developmental Biology M237 and Physiological Science M212.) Lecture, five hours. Requisite: course M209A or Physiological Science 111A. Development of fundamental physiological and biophysical concepts associated with all membranes, membrane channels and transporters, membrane potential, membrane excitability, electrical signal transmission and transduction, and muscle contraction and their application to study of basic cellular processes. Emphasis in laboratory on development of skills using computer programming languages, spreadsheets, and graphics for modeling and analysis of cellular processes.

M213. Principles of Integrative Physiology. (6) (Same as Physiological Science M213.) Lecture, four hours; discussion, two hours. Designed for graduate students. Open to juniors/seniors with consent of instructor. Basic principles of biological integration, including regulation, homeostasis, feedback, and natural selection, to be illustrated by applying them to a molecules-through-whole animal view of four sets of problems: information processing, development, and plasticity in central nervous system; endocrine regulation of reproduction; feedback regulation of blood pressure and control of eye movements; and matching of enzyme, transporter, and bone capacities to natural loads.

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) Requisite: course 220. 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.

M223. Membrane Molecular Biology. (4) (Same as Biological Chemistry M223.) Lecture, two hours; discussion, two hours. Requisite: Biological Chemistry CM253. Advanced course in molecular aspects of membrane physiology and biochemistry covering lipids and physical chemistry of biological membranes; membrane biogenesis and targeting of proteins to membranes; pumps, carriers, and channels; receptors and transmembrane signaling. S/U or letter grading.

M225. Comparative Endocrinology: Molecular to Behavioral. (4) (Same as Physiological Science CM225.) Lecture, two hours; discussion, two hours. Designed for graduate students. Important concepts in endocrinology, with focus on current research involving invertebrate and vertebrate animal models in areas of reproduction, neuroendocrine control of behavior, metabolism, and insect metamorphosis.

M270A-M270B-M270C. Cell, Molecular, and Integrative Biology Seminars. (2-2-2) (Same as Neurobiology M270A-M270B-M270C.) Seminar, one hour; discussion, one hour. Designed for graduate students. Presentation of weekly seminars and discussion on current topics in cell and molecular biology by faculty members from Neurobiology, Physiology, and other UCLA departments, in addition to invited lecturers. S/U grading.

298. Current Topics in Physiology. (2 to 4) (Formerly numbered 250A-250B-250C.) Designed for graduate students. Students read primary literature in a specified area and conduct or participate in discussions on these papers. S/U or letter grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged.

598. Thesis Research for M.S. Candidates. (2 to 12) Tutorial, to be arranged.

599. Dissertation Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged.

POLICY STUDIES

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Assistant Professor

J.R. DeShazo, Ph.D.
 Meredith Phillips, Ph.D.
 Michael A. Stoll, Ph.D.

Scope and Objectives

The Department of Policy Studies is an interdisciplinary unit composed of faculty members from around the campus, as well as faculty unique to the department. Its goal is to foster an understanding of the theory and practice of public policy in the many fields in which it applies. Examples include social insurance and welfare programs, unemployment and training, drug policy and crime, economic development, environmental quality, education, and health care. The department plays a major role in two schoolwide programs: the Master of Public Policy (M.P.P.) degree and the undergraduate minor in Public Policy.

The M.P.P. degree program is designed to train professionals in both public- and private-sector policy analysis and implementation and provides coursework in such areas as microeconomics, statistics, and political processes.

The undergraduate minor in Public Policy familiarizes students with key issues in public policy. Both programs have a heavy applied orientation. For further information on the minor, see Public Policy and Social Research Schoolwide Programs later in this section of the catalog.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

Applicants to the program leading to the Master of Public Policy (M.P.P.) degree are evaluated on their overall record. The final decision is based on a subjective assessment of the applicant's potential to meet the scholarship requirements of the program and to succeed as a policy professional.

A grade-point average of 3.0 or better in the junior and senior years is required and prefer-

ence is given to applicants with a 3.5 or above. Additional consideration is given to the strength of the applicant's undergraduate program and its standards. The quantitative nature of the core curriculum requires that attention be given to quantitative and analytical abilities. An elementary statistics course is strongly recommended.

Scores on the Graduate Record Examination (GRE) General Test are used in combination with the GPA to help predict academic performance in the M.P.P. program. Scores above 650 in each area are usually essential to gain admittance to the program, although possible reasons for lower scores are considered. Especially high GRE scores may help alleviate concerns about a troublesome academic record, but a high GRE score alone is insufficient reason for admission. Under certain conditions, the Admissions Committee may agree to consider scores on the Graduate Management Admission Test (GMAT) or the Law School Admission Test (LSAT) in lieu of GRE scores.

The statement of purpose is evaluated to determine the applicant's genuine academic interest in and commitment to a career in public policy, as well as the applicant's general ability to write coherent and convincing prose. The statement can also help determine the match between the applicant's interests and the school's offerings, and to assess written communication skills.

Applicants with at least two years of work experience in policy-making or implementation are preferred. Internships and volunteer work in a policy setting are also viewed positively.

Three letters of recommendation are required from supervisors in policy-related work or instructors in undergraduate courses. Recommenders should be individuals who know the applicant well and who can comment specifically on the potential for a career as a policy professional rather than someone of high status in a firm or school who hardly knows the applicant.

A score of at least 600 on the Test of English as a Foreign Language (TOEFL) is required for applicants whose native language is not English.

Applications and program information can be obtained on written request to the School of Public Policy and Social Research, or by emailing mppinfo@ucla.edu.

Areas of Study

In the second year, students select either two two-course concentrations or one four-course concentration from the following: social welfare, transportation and urban development, employment and labor, regional development and policy.

Concentrations in the following additional areas are also being developed and are available based on need and student/faculty interest: environmental policy, health policy, communica-

tions policy, international policy and economic development.

Students also have the option, with their faculty adviser's approval, of designing their own concentrations from other courses offered in the School of Public Policy and Social Research or in other UCLA schools or departments.

Course Requirements

Students take three four-unit courses per quarter for a total of 72 units, including nine core courses, four concentration courses, two electives, and a two-quarter seminar in applied policy analysis. A field internship is also required, generally between the first and second years.

All students are required to take the core curriculum, which provides a broadly based foundation in social/policy analysis together with relevant quantitative, analytical, managerial, and organizational methods. The first eight of the core courses are normally taken in the first year.

Comprehensive Examination Plan

The comprehensive examination requirement is met by completion of an extended policy paper during the two-quarter policy seminar, which builds on the core courses, internship experience, and the concentration courses. The final policy paper presented by the student must be certified as complete by both the relevant seminar leader and the student's adviser.

Thesis Plan

None.

Policy Studies

Lower Division Courses

10A. Introduction to Public Policy. (4) Lecture, three hours; outside study, nine hours. Overview of principal topics of contemporary policy analysis, developing their applications with examples from instructor's own research, visitors, small student projects, or field trips.

10B. California Policy Issues. (4) Lecture, three hours; outside study, nine hours. Enforced requisite: course 10A. 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.

Upper Division Courses

101. Drug Abuse Control Policy. (4) Lecture, three hours; outside study, nine hours. Introduction to and development of main ideas and themes that enter into analysis and execution of policies directed at control of substance abuse and its side effects; illustration and instantiation of main techniques and concepts of policy and management analysis.

102. Rational Policies, Irrational People. (4) Lecture, three hours; outside study, nine hours. Development of some central concepts of rational-choice model and examination of theories and evidence about systematic ways in which actual behavior deviates from that model. Exploration of various reasons groups of rationally self-seeking individuals might fail to act as rationally self-seeking groups and discussion of policy implications of individual and collective departures from rational action.

103. Ethics, Morality, and Public Life: Contemporary Controversies. (4) Lecture, four hours; outside study, eight hours. Study of ethical and moral questions that arise in public life. Goal is not to imbue students with a given body of factual knowledge or to develop new quantitative or social science methodologies to analyze such questions, but to enhance their critical thinking skills.

104. Culture and Political Structure of Los Angeles. (4) Lecture, three hours; outside study, nine hours. Exploration of two pieces of the puzzle in modern urban life: the different communities that live here (and in most other major cities) and political structure that binds us all together. Who are the communities living here? How do they organize themselves and develop leaders? How does integration into mainstream take place? What is "mainstream" today? How does political structure help or impede the notion of a united city?

CM110. Information Superhighway. (4) (Same as Communication Studies M155.) Lecture, three hours. Information Superhighway seen from a non-American viewpoint, considering its meanings, potentials, structures, applications, policy implications, economic, social, and cultural impacts, and public perceptions in a number of countries. Special emphasis on Western Europe, Canada, and Australia, with a look at Japan and China also. Opportunities for Africa and Latin America suggested, especially education, health, and other public services. Concurrently scheduled with course C270.

M111. Culture, Identity, and Media. (4) (Same as Communication Studies M157.) Discussion, three hours. Interplay of national culture and identity with electronic media, both "old" and "new." Examination of how national mythologies, constructive or pernicious, are reinforced through the media in several countries: U.K., France, Germany, Canada; analysis of how media manipulation, especially of radio and television, increasingly paves the way to war: Bosnia, Rwanda, Somalia.

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 which bear on public policies. Concurrently scheduled with course CM250. Letter grading.

M116. Nuclear Weapons: Critical Decisions. (4) (Same as Honors Collegium M119.) Lecture, three hours; outside study, nine hours. Examination of critical decisions regarding nuclear weapons, starting with President Roosevelt's decision to build atomic bomb and ending with current policies on containing nuclear proliferation and on avoiding nuclear catastrophe. Letter grading.

M120. Race, Inequality, and Public Policy. (4) (Formerly numbered 120.) (Same as Afro-American Studies M120.) Lecture, three hours. 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.

141. Employment and Labor Policy: Survey. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Introduction to current public policy issues in employment, labor relations, and labor markets. Historical context for current employment and labor policies in the U.S. Pro and con philosophical analysis of reasons for government regulation. Analysis of current data on labor unions, the workplace, and labor-market trends. Workforce diversity, education and training, social welfare policy, and global issues (immigration, trade, and global economy as it affects the workforce). Future trends and issues on policy horizon.

C142. Labor Markets and Public Policy. (4) (Formerly numbered 142.) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Survey of major topics in economic analysis of labor markets and public policies toward the labor market. Topics include labor force trends and measurement, compensation determination, productivity, internal labor markets, human capital, union wage effects, unemployment, and minority and female labor-market experience. Concurrently scheduled with course CM230.

C144. Comparative Industrial Relations. (4) (Formerly numbered 144.) Lecture, three hours; outside study, nine hours. Requisite: course 10A. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. Concurrently scheduled with course CM231.

145. Labor Policies in the U.S.: Historical Perspective. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Insight into evolution of labor policies in the U.S. from 19th century to the present. Exploration of important policy areas such as child labor, labor standards, protective legislation for women workers, industrial relations, civil rights, occupational safety and health, and international labor standards in (1) historical context (economic, political, and social factors that shaped the debate), (2) motivation and action of major players (business, labor, government), and (3) changing patterns of government involvement in public policy.

148. Business and Public Policy. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Introduction to key issues arising at interface between business and government policy. Discussion of why government focuses so intensively on regulating economic outcomes, nature of business/government relationship, business political activity, and major government policies. Topics include economic regulation (industrial policy, antitrust, technology policy); social regulation of business (energy, environment, risk, liability, corporate governance); and corporate social responsibility, business ethics, and green business. Discussion of topics in their historical and political context, with comparison between economic regulation in the U.S. and other countries.

190. Special Topics in Public Policy. (4) Discussion, three 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. Must be taken for credit if applied toward minor in Public Policy. May be repeated for credit with topic change. P/NP or letter grading.

197. Research Seminar: Policy Studies. (4) Seminar, three hours; outside study, nine hours. Requisites: courses 10A, 10B. Required of students in policy studies minor. Production of research paper that examines in depth a 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.

199. Special Studies in Policy Studies. (2 or 4) Preparation: 3.0 grade-point average. Limited to juniors/seniors. Intensive directed research in policy studies. P/NP or letter grading.

Graduate Courses

201. Principles of Microeconomic Theory I. (4) Lecture, three hours; outside study, nine 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.

202. American Political Institutions and Processes. (4) Lecture, three hours; outside study, nine hours. Designed to provide background necessary to develop strategies for dealing effectively with political environment of policy and administration. Discussion of U.S. constitutional arrangements, followed by instrumental and integrative examination of primary institutions of politics and governance from organized interests to legislatures, bureaucracies, and courts. Letter grading.

203. Statistical Methods of Policy Analysis I. (4) Lecture, three hours; outside study, nine 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; outside study, nine 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.

205. Bureaucracy and Public Management. (4) Lecture, three hours; outside study, nine hours. Problems posed by behaviors within and by bureaucracies. Conceptual tools for comprehending organization environment in which policy analysts work; tools for understanding role of manager with such organizations. Practical suggestions for policy analyst attempting to navigate waters of bureaucracy. Theoretical analysis integrated with case studies.

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.

207. Political Economy. (4) Lecture, three hours; outside study, nine hours. Examination of political, legal, and social institutions to show where the U.S. fits in among varieties of modern capitalism and business/government relations. Analysis of domestic policy options nations are pursuing in response to economic globalization, such as protectionism, mercantilism, and deregulation. Introduction to international coalitions being formed, including NAFTA and non-governmental organizations, to address global environmental crisis, etc.

208. Statistical Methods of Policy Analysis II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 203. Second core course in statistics and quantitative methods for M.P.P. 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. Overview of moral philosophy, political theory, and public-sector ethics using readings from classical and contemporary literature and case studies. Consideration of various ways in which terms such as "democracy" and "liberty" are used in public discourse. Practice in developing and defending moral arguments, both orally and in writing. Letter grading.

M210. Foundations of Social Welfare Policy. (4) (Same as Social Welfare M221A.) Lecture, three hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of the welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

M211. Public Policy for the Elderly and Their Families. (4) (Same as Social Welfare M290P.) Lecture, three hours. 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. S/U or letter grading.

M212. 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 an infrastructure to support needs of children and families. S/U or letter grading.

M213. Mental Health Policy. (4) (Same as Social Welfare M290K.) Lecture, three hours. Examination of evolution of social policy and services for the mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of the mentally ill and services they are provided. S/U or letter grading.

M214. Poverty, the Poor, and Welfare Reform. (4) (Same as Social Welfare M290L.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward the poor in the U.S. S/U or letter grading.

M215. Health Policy. (4) (Same as Social Welfare M290M.) Lecture, three hours. Introduction to contemporary issues in health care 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.

M216. 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 the community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

217. Methods of Evaluating Social Programs. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 203, 208. Examination of design of and statistical methods for evaluating impacts of social programs. Introduction to use of experimental and nonexperimental designs and to various methods for estimating impacts of social programs. Discussion of designs for process analyses. Letter grading.

M220. Transportation, Land Use, and Urban Form. (4) (Same as Urban Planning M286.) 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 the strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form.

M221. Travel Behavior Analysis. (4) (Same as Urban Planning M287.) Lecture, three hours. Requisites: courses 201 and 203, or Urban Planning 207 and 220B. Descriptions of travel patterns in metropolitan areas, recent trends and projections into the 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.

M222. Transportation Economics, Finance, and Policy. (4) (Same as Urban Planning M289.) 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.

M223. Transportation and Environmental Issues. (4) (Same as Urban Planning M290.) Lecture, three hours. Regulatory structure linking transportation, air quality, and energy issues, chemistry of air pollution, overview of transportation-related approaches to air quality enhancement; new car tailpipe standards; vehicle inspection and maintenance issues; transportation demand management and transportation control measures; alternative fuels and electric vehicles; corporate average fuel economy and global warming issues; growth of automobile worldwide fleet; the automobile in the sustainability debate.

CM230. Labor Markets and Public Policy. (4) (Formerly numbered M230.) (Same as Management M259C.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of major topics in economic analysis of labor markets and public policies toward the labor market. Topics include labor force trends and measurement, compensation determination, productivity, internal labor markets, human capital, union wage effects, unemployment, and minority and female labor-market experience. Concurrently scheduled with course C142. S/U or letter grading.

CM231. Comparative Industrial Relations. (4) (Formerly numbered M231.) (Same as Management M255.) Lecture, three hours; outside study, nine hours. Requisite: Management 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. Concurrently scheduled with course C144. S/U or letter grading.

M232. Labor Relations: Process and Law. (4) (Same as Management M250A.) Lecture, three hours. Designed for graduate students. Consideration, at advanced level, of collective bargaining process, labor/management agreement, administration of the contract, law of labor/management relations, union structure and goals, and influence of external labor markets on labor relations. S/U or letter grading.

233. Employment Issues in California. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Drawing on resources of UCLA Business Forecasting Project, introduction to general features of California labor market, analysis of employment fluctuations and forecasting techniques including linkages between employment fluctuations in California and elsewhere in the country, and social issues related to labor market. Letter grading.

234. Labor Markets and Social Policy. (4) Lecture, three hours; outside study, nine hours. Examination of analytical tools and conceptual models needed to understand policies directed toward people in lower tail of income distribution. Concepts include static and dynamic labor supply, labor demand, compensating differentials, human capital, and economic models of immigration and crime. Letter grading.

M240. Theories of Regional Economic Development I. (4) (Same as Urban Planning M236A.) Lecture, three hours; laboratory, 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.

M241. Introduction to Regional Planning: Evolution of Regional Planning Doctrines. (4) (Same as Urban Planning M232A.) 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.

M242. Regional Development, Urbanization, and Industrial Policy. (4) (Same as Urban Planning M234.) Lecture, three hours. Survey of theories of regional development, with special reference to "new economic geography" and its relevance for formulation of local economic development policies.

CM250. Environmental and Resource Economics and Policy. (4) (Formerly numbered C250.) (Same as Urban Planning M280.) Lecture, three hours. Requisites: 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 which bear on public policies. Concurrently scheduled with course C115. Letter grading.

M267. Medicare Reform. (4) (Same as Health Services 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.

M268. Microeconomic Theory of Health Sector. (4) (Same as Health Services M236.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

M269. Health Care Policy and Finance. (4) (Same as Health Services M249E.) Seminar, four hours. Requisites: Biostatistics 100A, 100B, Health Services 200A-200B, 236. Public policy concerning payment for medical care services and characteristics of the market for those services: demand for care, fee-for-service and prepaid payment systems, regulation of price and capital investment, private sector efforts to control health care costs. Letter grading.

C270. Information Superhighway. (4) Lecture, three hours. Information Superhighway seen from a non-American viewpoint, considering its meanings, potentials, structures, applications, policy implications, economic, social, and cultural impacts, and public perceptions in a number of countries. Special emphasis on Western Europe, Canada, and Australia, with a look at Japan and China also. Opportunities for Africa and Latin America suggested, especially education, health, and other public services. Concurrently scheduled with course CM110.

280. Science, Technology, and Industrial Policy. (4) Lecture, three hours. Designed for graduate students. Examination of government support of research and development and industrial policy; approaches to fostering science, technology, and industrial growth and commercialization of public sector knowledge; selective subsidies and support of research and development and individual firms; technology change and the labor market.

M281. Growth, Science, and Technology. (4) (Same as Management M202C.) 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.

290. Special Topics in Public Policy. (4) Discussion, two to three hours. Advanced seminar on emerging issues in public policy. May be repeated for credit. S/U grading.

291. Methods of Policy Analysis. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Techniques of policy analysis with applications: benefit and cost; optimization and constraint; risk, risk aversion, risk spreading; tax incidence, incentive effects, and deadweight loss; strategic interactions (games and negotiations). Emphasis on concepts rather than computation.

292. Quantitative Policy Analysis. (4) Lecture, three hours. Requisites: courses 203, 208. Exploration of additional statistical and econometric tools (e.g., discrete choice analysis, methods to deal with endogeneity bias, and analysis of longitudinal data) as follow-up to requisite courses. Application of statistical tools in conduct of analysis and evaluations of public policy initiatives and policy-relevant issues.

M293. Privatization, Regulation, and Public Finance. (4) (Formerly numbered 293.) (Same as Urban Planning M243.) Lecture, three hours; outside study, nine hours. Requisite: course 201. Evaluation of economic and political determinants of trend toward privatizing public services, and equity and efficiency outcomes of this trend as expressed through new pricing, financing, and service-level policies. Exploration of new regulatory role this trend implies for state and local governments. Letter grading.

294. Education Markets and Education Policy. (4) Lecture, three hours. Designed for graduate students. Provides set of tools that can be used to analyze pressing policy questions in field of education and some substantive background in policy issues of the day.

M295. Law and the Poor. (4) (Same as Law M215, Social Welfare M290R, and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in the U.S., with emphasis on interaction of moral attitudes toward the poor and structure and implementation of the law, policy, and administration. Current reform consensus and major reforms. Letter grading.

298A-298B. Seminars: Applied Policy Analysis. (4-4) Seminar, three hours; outside study, nine hours. Preparation: completion of M.P.P. core curriculum, two policy cluster courses, and internship (unless waived). Two-term seminar in which students prepare major public policy projects and papers which 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.

596. Directed Studies. (2 to 8) Limited to graduate students. Individual programming for selected students to permit pursuit of a subject in greater depth. S/U or letter grading.

Ronald L. Rogowski, Ph.D, *Chair*

Professors

Joel D. Aberbach, Ph.D.
Richard D. Baum, Ph.D.
Leonard Binder, Ph.D.
James DeNardo, Ph.D.
Franklin D. Gilliam, Jr., Ph.D.
Miriam A. Golden, Ph.D.
Shanto Iyengar, Ph.D.
Edmond Keller, Ph.D.
Deborah W. Larson, Ph.D.
Michael F. Lofchie, Ph.D.
Susanne Lohmann, Ph.D.
Karen J. Orren, Ph.D.
Carole Pateman, D.Phil.
John R. Petrock, Ph.D.
Ronald L. Rogowski, Ph.D.
Richard N. Rosecrance, Ph.D.
Thomas Schwartz, Ph.D.
David O. Sears, Ph.D.
Barbara L. Sinclair, Ph.D. (*Marvin Hoffenberg Professor of American Politics and Public Policy*)
Steven L. Spiegel, Ph.D.
Arthur A. Stein, Ph.D.
George Tsebelis, Ph.D.
David O. Wilkinson, Ph.D.
E. Victor Wolfenstein, Ph.D.
John Zaller, Ph.D.

Professors Emeriti

Hans H. Baerwald, Ph.D.
Irving Bernstein, Ph.D.
L. Blair Campbell, Ph.D.
Matteï Dogan, Docteur ès Lettres
Ernest A. Engelbert, M.P.A., Ph.D.
Leonard Freedman, Ph.D.
Robert C. Fried, Ph.D.
Robert Gerstein, Ph.D.
Edward Gonzalez, Ph.D.
Douglas S. Hobbs, Ph.D.
Marvin Hoffenberg, M.A.
Arnold L. Horelick, Ph.D.
Michael D. Intriligator, Ph.D.
Roman Kolkowicz, Ph.D.
Andrzej Korbonski, Ph.D.
Charles R. Nixon, Ph.D.
David C. Rapoport, Ph.D.
Foster H. Sherwood, Ph.D., LL.D.
Richard Sisson, Ph.D.
Richard L. Sklar, Ph.D.
Leo M. Snowiss, Ph.D.
David A. Wilson, Ph.D.
James Q. Wilson, Ph.D.
Charles E. Young, Ph.D.
Ciro Zoppo, Ph.D.

Associate Professors

Richard D. Anderson, Jr., Ph.D.
Barbara Geddes, Ph.D.
John B. Londregan, Ph.D.
Kirstie McClure, Ph.D.
Raymond A. Rocco, Ph.D.
James Tong, Ph.D.

Assistant Professors

Kathleen Bawn, Ph.D.
John Bader, Ph.D., *in Residence*
Lars-Erik Cederman, Ph.D.
Alberto Diaz-Cayeros, Ph.D.
Scott C. James, Ph.D.
Barbara Koremenos, M.P.P., *Acting*
Mohan N. Penubarti, Ph.D.
Daniel Posner, Ph.D.
Michael F. Thies, Ph.D.
Daniel S. Treisman, Ph.D.
Brian Walker, Ph.D.

Adjunct Professor

Roy Pateman, M.Phil.

different national and cultural contexts. It also covers the interaction between national states, the changing character of the relations between citizens and governments, and the values and criteria by which the quality of political life is judged. The program may be individually focused to serve the needs of the liberal arts major, the student seeking preparation for graduate work in political science, public administration, law, and other professional fields, and the student preparing for specialized roles in political and public organizations.

The graduate program leads to the Ph.D. degree in Political Science (a master's degree may be earned in the process of completing Ph.D. requirements). It is designed to give students a strong foundation in the discipline while enabling them to acquire additional skills for advancing their professional careers.

Undergraduate Study

Political Science B.A.

Prepolitical Science Major

All students intending to major in Political Science must enroll as Prepolitical Science majors. After completion of preparation for the major courses, they need to petition to enter the major in the Undergraduate Office, 4256 Bunche Hall.

Preparation for the Major

Required: Four lower division courses from Political Science 10, 20, 30, 40, 50. These lower division courses are requisites to upper division courses and 10, 20, 40, and 50 are required in those fields designated as the concentration or distribution field. Students must also take Political Science 6 or one of the following statistics courses: Anthropology M80, Economics M40, Geography M40, Social Sciences 40, Sociology M18, Statistics 10.

Students must complete all premajor courses with a 2.0 grade-point average by the time they attain 135 units. Admission to the major is granted only after successful completion of all lower division requirements.

The Major

Required: Ten upper division courses (40 units) selected from Political Science 102 through 199 taken for a letter grade. Students are also required to complete four upper division courses (16 units) in one or two of the following social sciences: anthropology, communication studies (only Communication Studies 160), economics, geography, history, management (only Management 150, 190), psychology (except Psychology 115, 116), sociology. These courses must be taken for a letter grade. Students are required to maintain a 2.0 overall grade-point average in all upper division political science courses.

Upper division political science courses are organized into four fields: (I) political theory, (II) international relations, (III) American politics, and (IV) comparative politics.

POLITICAL SCIENCE

College of Letters and Science

UCLA
4289 Bunche Hall
Box 951472
Los Angeles, CA 90095-1472

(310) 825-4331
<http://www.sscnet.ucla.edu/polsci/>

Scope and Objectives

The undergraduate major in Political Science aims to provide understanding of basic political processes and institutions as these operate in

In fulfilling the requirement of 10 upper division political science courses, students must satisfy the following:

- (1) A **concentration** in one field by completing the lower division course and at least four upper division courses in that field.
- (2) A **distribution** of the lower division course and two upper division courses in each of two other fields (four upper division courses).
- (3) Two additional elective courses in political science to comprise the total of 10.

Field Concentration Requirements

The lower division course is requisite to upper division courses in those fields designated as the concentration field and the two distribution fields for majors. Specific requirements for the field concentration are as follows:

- (I) *Political Theory*: Political Science 10 and any four courses in Field I.
- (II) *International Relations*: Course 20 and any four upper division courses in Field II.
- (III) *American Politics*: Course 40 and any four courses in Field III.
- (IV) *Comparative Politics*: Courses 50, 168, and any three additional courses in Field IV. Course 118 may also be applied toward concentration in this field.

Courses 119, 139, 149, and 169 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

Courses 195A-195B-195C and 199 may not be applied toward either the concentration or distribution requirement.

Political Science majors should be aware that the upper division course requirements in the major (56 units) do not meet the upper division requirement of 60 units (effective Fall Quarter 1997) for graduation. Additional upper division units must be taken to reach the 60-unit total.

Undergraduate Seminars

Each term the department offers a series of seminars (Political Science C197A-C197D) in each field. The requisites are two upper division courses in the field in which the seminar is offered, a 3.25 average at the upper division level in political science, or discretion of the instructor. These courses may be applied toward either the concentration or distribution requirement, and students who qualify are encouraged to take them.

Honors Program

The department honors program is open to seniors and to students who (1) have completed five upper division political science courses (two of which are in one field), (2) have a 3.5 grade-point average in upper division political science courses, and (3) are eligible for College of Letters and Science honors. Students should have substantial experience in writing research papers and take at least one seminar

course in the Political Science C197 series before they enter the honors program or course 195A.

Students wishing to qualify for graduation with departmental honors must complete the following: (1) courses 195A-195B-195C, in which a senior thesis is written; (2) eight upper division courses (excluding courses 119, 139, 149, and 169) distributed as follows: four courses in one field and four additional courses, two in each of two other fields; (3) four upper division courses in one or two of the social sciences other than political science.

Political Science Minor

The Political Science minor introduces students to political processes and institutions.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in the Undergraduate Office, 4256 Bunche Hall.

Required Lower Division Courses (eight units): Any two lower division political science courses.

Required Upper Division Courses (20 units): Any five upper division political science courses.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The department admits only those students whose objective is the Ph.D. degree. A Master of Arts degree in Political Science may be earned as part of the process of completing requirements for the Ph.D.

Areas of Study

Consult the department.

Course Requirements

A student must successfully complete 12 of the 16 courses required for the doctorate with a grade-point average of 3.0 or better.

Comprehensive Examination Plan

The master's comprehensive examination consists of the submission of one doctoral qualifying paper that is deemed acceptable by the faculty for fulfillment of this requirement.

Thesis Plan

None.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. degree in Political Science must meet the University minimum requirements for admission; in addition, the department requires three letters of recommendation, scores of the General Test of the Graduate Record Examination (GRE), and a sample of applicants' analytical writing skills (e.g., senior or M.A. thesis, term paper). Applicants are selected on the basis of perceived promise. Applicants may write for departmental brochures to the Graduate Studies Office. The department does not have an application form in addition to the UCLA *Application for Graduate Admission*. The deadline for receipt of all application materials is December 15 of the year preceding the Fall Quarter in which students plan to register.

Major Fields or Subdisciplines

Five fields of study are offered to graduate students in the department: political theory; international relations; American politics; comparative politics; and formal theory and quantitative methods.

Course Requirements

Students must take Political Science 200A and 200AL (statistics), four courses in each of two major fields, one course in each of two minor fields, and four additional graded courses, including no more than two independent study courses. Fields decide which courses meet major and minor field requirements.

Of the 16 required courses, students must take at least seven during their first year of graduate study and 12 by the end of their second year.

With the approval of the graduate adviser and the dean of the Graduate Division, graduate courses in political science taken elsewhere may be applied toward departmental course requirements. The maximum number of such courses is six if students come to UCLA with a master's degree in political science and choose to forego another master's degree from UCLA. In all other cases, the maximum is four for courses taken at another UC campus and two for courses taken outside the UC system.

Written and Oral Qualifying Examinations

Research Paper Requirement. Students must submit two research papers, one by the beginning of the seventh term of graduate study and one by the beginning of the ninth term of graduate study. These papers may also have been used to meet course requirements. Each paper is assigned to two or more faculty graders by the Graduate Studies Committee. Papers can be graded qualified, not qualified, or qualified with distinction. If a paper is graded not qualified, students may submit a revised version or another paper once only. Resubmitted first papers are due two weeks before the end

of the ninth quarter. Resubmitted second papers are due two weeks before the end of the tenth quarter. For the Ph.D., students must receive at least a qualified grade on both papers.

Papers are evaluated for knowledge of subject, originality of ideas, and craftsmanship of research. They are also evaluated for conciseness: good papers may vary in length but are not expected to exceed 30 pages. They need not be publishable, but in their structure and format and in their coverage of topics and tasks are expected to resemble papers published in peer-reviewed journals of their fields. The committee evaluating the papers assumes that students have not devoted all their research time to two papers but have selected for submission, or for revision and submission, the best two from a portfolio of several seminar papers.

By the tenth quarter of graduate study, students must present a research design for their dissertation in a seminar or colloquium. It need not be the version students submit for the University Oral Qualifying Examination. The requirement may be waived at a field's discretion.

Students may take that examination after they have completed their course and paper requirements and written a dissertation proposal accepted by their research adviser. But students must take it no later than their twelfth quarter of graduate study, and the examination committee must have the proposal at least two weeks before the examination.

The examination committee judges the feasibility and worth of the project and the student's ability to undertake it. The committee also may recommend changes in the research design.

Political Science

Lower Division Courses

6. Introduction to Quantitative Research. (4) Lecture, three hours; discussion, one hour. 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 an aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration.

10. Introduction to Political Theory. (4) Lecture, three hours; discussion, one hour. Exposition and analysis of selected political theorists and concepts from Plato to the present.

20. World Politics. (4) Lecture, three hours; discussion, one hour. Required of all students concentrating in Field II. Introduction to problems of world politics.

30. Introduction to Political Economy. (4) Lecture, three hours; discussion, one hour. Introduction to political economy, especially application of economic reasoning to political and social phenomena. P/NP or letter grading.

40. Introduction to American Politics. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. 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. (4) Lecture, three hours; discussion, one hour. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries. P/NP or letter grading.

88A-88D. Lower Division Seminars. (4 each) Seminar, three hours. Limited to freshmen/sophomores. Opportunity to enhance writing, verbal, and reasoning skills. General introduction to a subfield of a major area, or intensive exploration of a particular theme or topic. Variable topics; consult *Schedule of Classes* for topics to be offered in a specific term. May not be repeated for credit except by students who receive a grade of C-, D, or F. P/NP or letter grading. **88A.** Political Theory; **88B.** International Relations; **88C.** Politics; **88D.** Comparative Politics.

Upper Division Courses

102. Statistical Analysis of Political Data. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 6. Designed for juniors/seniors. Introduction to statistical inference. Topics include measures of central tendency, elementary probability theory, common probability distributions, least-squares and maximum likelihood estimation, confidence intervals and statistical tests, comparison of means, analysis of variance, and multiple regression and correlation. Statistical techniques and topics illustrated with applications to a variety of political data.

104A-104B. Introduction to Survey Research. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 6. Designed for juniors/seniors. Courses in fundamentals of survey research as a method.

104A. Sampling theory and methods, writing of questions, questionnaire construction, and interviewing. Attitudes, attitude measurement, and attitude change. Participation in formulation of research problem.

104B. Prerequisite: course 104A. Conducting a survey. Development of survey questionnaire, designing a sample, collecting interviews, maintaining quality control, and coding interviews for machine tabulation. Performance of computer-aided analysis of some part of data and submission of written report of that research.

M105. Economic Models of Public Choice. (4) (Same as Economics M135.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Preparation: any lower division political science course. Enforced prerequisite: Economics 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.

M106. Economic Models of Political Conflict and Conflict Resolution. (4) (Same as Economics M136.) Seminar, three hours; discussion, one hour. Enforced prerequisite: Economics 11. Prior political science course desirable but not essential. Designed for juniors/seniors. Biological, cultural, and organizational sources of political conflict. Role of threats, promises, commitments. Models of the onset and termination of conflict. Conduct of war: strategy and tactics. P/NP or letter grading.

107. Women and Politics. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Introduction to rapidly growing body of empirical and theoretical scholarship on women and politics in both national and international contexts. Topics may include women's movement in the U.S. and globally; women's electoral participation; representation of women in Congress and in legislatures worldwide; women as heads of government and state; feminist critiques of political science; women and human rights; ERA; struggle for suffrage; mothers as political actors; women and the military; women, development, and globalization. May be applied toward Field I, III, or IV. P/NP or letter grading.

Field I: Political Theory

111A-111B-111C. History of Political Thought. (4-4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Exposition and critical analysis of major political philosophers and schools.

111A. Ancient and Medieval Political Theory from Plato to Machiavelli; **111B.** Early Modern Political Theory from Hobbes to Bentham; **111C.** Late Modern and Contemporary Political Theory from Hegel to the Present.

112A. Democratic Theory. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Critical analysis of selected major authors, issues, and arguments in contemporary democratic theory.

113. Problems in 20th-Century Political Theory. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Study and interpretation of theorists who have focused their analyses on social and political problems of the 20th century.

114A-114B. American Political Thought. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. **114A.** Exposition and critical analysis of American political thinkers from the Puritan period to 1865. **114B.** Prerequisite: course 114A. Exposition and critical analysis of American political thinkers from 1865 to the present.

116. Marxism. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Critical analysis of origins, nature, and development of Marxist political theory.

117. Jurisprudence. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Development of law and legal systems; consideration of fundamental legal concepts; contributions and influence of modern schools of legal philosophy in relation to law and government. Letter grading.

118. Political Violence. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Examination of one or several different uses of violence in the revolutionary process: demonstrations, mass uprisings, coup d'etat, assassination, and terrorism. May be applied toward either Field II or IV.

119A-119Z. Special Studies in Political Theory. (4 each) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Preparation: one course in Field I. Prerequisite: 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. Courses 119, 139, 149, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

Field II: International Relations

120. Foreign Relations of the U.S. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Survey of factors and forces entering into formation and implementation of American foreign policy, with special emphasis on contemporary problems.

121. Studies in Formulation of American Foreign Policy. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Study of formation of American foreign policy with respect to individual cases. Consult *Schedule of Classes* for topics to be offered in a specific term.

122. World Order. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. Designed for juniors/seniors. Study of problems of the international system seen as a community capable of cooperation and development.

123A-123B. International Law. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Course 123A is requisite to 123B. Designed for juniors/seniors. Study of nature and place of international law in conduct of international relations. Letter grading.

124. International Political Economy. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Designed for juniors/seniors. Study of political aspects of international economic issues.

125. Arms Control and International Security. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Arms control in context of international security in the nuclear age. Nuclear arms race; relationship between deterrence doctrines and nuclear war; roles of technology and ideology; nuclear proliferation; outer space.

126. Peace and War. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Designed for juniors/seniors. Theory and research on causes of war and conditions of peace.

127A-127B. Atlantic Area in World Politics. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. **127A.** Western Europe. External relations of United Kingdom, West Germany, France, Italy, and other European members of NATO, in regard to European security in context of the Atlantic Alliance. **127B.** U.S. and Europe. Requisite: course 127A. Relations between the U.S. and Western European members of the Atlantic Alliance, in context of U.S./Soviet relations.

128A. U.S./Soviet Relations. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Designed for juniors/seniors. Survey of relations between the U.S. and former Soviet Union from Revolutions of 1917 to collapse of the U.S.S.R. in 1991.

128B. International Relations of Post-Communist Russia. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisites: courses 20, 128A. Designed for juniors/seniors. Survey of foreign policy of post-Communist Russia, with special emphasis on Russia's relations with NATO, the former communist states of East Central Europe, China, and the Commonwealth of Independent States.

129. Comparative Foreign Economic Policy. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Examination of foreign trade, monetary, and investment policies of the U.S., Japan, France, and Federal Republic of Germany since 1945.

130. Politics of Latin American Economic Development. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Interaction of international and domestic factors in political and economic evolution of Latin America.

131. Latin American International Relations. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Designed for juniors/seniors. Major problems of Latin American international relations and organization in recent decades.

132A-132B. International Relations of the Middle East. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. **132A.** Requisite: course 20. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, Arab-Israeli problem, and Persian Gulf area. **132B.** Role of the great powers in the Middle East, with emphasis on American, Soviet, and West European policies since 1945.

133. International Relations of Sub-Saharan Africa. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Contemporary regional issues and conflicts; foreign policies of African states; role of external powers.

134. Foreign Policy Decision Making and Tools of Statecraft. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 120. 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.

135. International Relations of China. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Designed for juniors/seniors. Relations of China with its neighbors and the other powers, with emphasis on contemporary interests and policies of China vis-à-vis the U.S. and Soviet Union.

136. International Relations of Japan. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 20. Designed for juniors/seniors. Foreign policies of Japan and interests and policies of other countries, particularly the U.S., as they relate to Japan.

137A-137B. International Relations Theory. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. **137A.** Examination of various theoretical approaches to international relations. P/NP or letter grading. **137B.** Alternative approaches to analysis of international politics and their application to historical and contemporary cases.

139A-139Z. Special Studies in International Relations. (4 each) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Courses 119, 139, 149, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major:

M139A. Political and Economic Issues in the Proliferation of Nuclear Weapons. (Same as Economics M103A.) Interdisciplinary approach to the problem of nuclear proliferation. Economic aspects of acquisition of nuclear weapons and economic aspects of nuclear energy treating technological, bargaining, and stability issues.

Field III: American Politics

140A-140B-140C. National Institutions. (4-4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 40. Designed for juniors/seniors. **140A.** Congress. Study of those factors which affect character of the legislative process and capacity of representative institutions to govern in contemporary society. **140B.** The Presidency. 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.** Supreme Court. 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.

M141A-M141D. Electoral Politics. (4 each) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors:

M141A. Political Psychology. (Same as Psychology M13B.) Requisite: course 40. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues.

141B. Public Opinion and Voting Behavior. Requisite: course 40. Study of character and formation of political attitudes and public opinion. Role of public opinion in elections, relationship of political attitudes to the vote decision, and influence of public opinion on public policy formulation.

141C. Political Behavior Analysis. Requisites: courses 6, 40, 141B. Advanced course in use of quantitative methods in study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action. Students conduct computer-aided analyses of issues and problems treated in course 141B and similar courses.

M141D. Mass Media and Elections. (Same as Communication Studies M161.) Requisite: course 40. Assessment of manner in which Americans' political beliefs, choices, and actions are influenced by mass media presentations, particularly during election campaigns. Topics include processes of political attitude formation and change, different types of media "effects," and role of the media in the American political process.

142A-142B-142C. Political Parties and Interest Groups. (4-4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 40. Designed for juniors/seniors. **142A.** Political Parties. Organization and activities of political parties in the U.S. Attention to historical development of the parties, nature of party change, campaign functions and electoral role of the parties, membership problems and party activists, political finance, and policy formulation practices. **142B.** Politics of Interest Groups. Systematic investigation of role of political interest groups in governmental process, with attention to internal organization, leadership, and politics of such groups to goals and functions of various types of groups and to strategy and tactics of influence. **142C.** Government and Labor. Labor force and nature of trade union; regulation of labor relations; programs to encourage full employment and to mitigate unemployment; protective labor legislation.

143A-143B. Subnational Government. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 40. Designed for juniors/seniors. **143A.** American State Government. Examination of governments of states of federal union as major sources of public policy in the U.S., with government of California as principal topic. **143B.** Government of American Cities. Intensive analysis of contemporary urban governance in the U.S. Emphasis on such student participatory activities as fieldwork, research, and gaming of urban politics and policy problems.

M144A-M144B. Ethnic Politics. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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:

M144A. Chicano/Latino Politics. (Same as Chicana and Chicano Studies M147A.) Introduction to political economy of racial domination in the U.S., concentrating on study of Mexican origin communities. Emphasis on identifying and explaining the historically changing relationship between class, race, and power by studying the interaction between state policies and practices, class and racial stratification systems, and cultural codes and modes of ideological discourse in each historical period.

M144B. African American Politics. (Same as Afro-American Studies M144.) Course M144A is not requisite to M144B. Emphasis on dynamics of minority group politics in the U.S., touching on conditions facing racial and ethnic groups, with black Americans being the primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of the black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills.

145A-145D. Public Law and Judicial Process. (4 each) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 40. Designed for juniors/seniors:

145A. Anglo-American Legal System. 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 the U.S. and remain relevant today.

145B. Constitutional Law — Separation of Powers. Constitutional questions concerning separation of powers, federalism, and relationship between government and property.

145C. Constitutional Law — Civil Liberties. Protection of civil and political rights and liberties under the constitution.

145D. Judicial Oversight of the Bureaucracy. Legal controls of administration action. Substantive and procedural limits on administrative discretion imposed by legislation, executive and judicial agencies, and sources of legal powers of administrative bodies within these limits. P/NP or letter grading.

146A-146F. Organization Theory, Public Policy, and Administration. (4 each) (Formerly numbered 146A-146E.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors:

146A. Public Administration and Policy. Requisite: course 40. Introduction to processes of policy formation and implementation. Exploration of emergence and performance of government bureaucracies and their role in American political process. P/NP or letter grading.

146B. Bureaucracy and Public Management. Preparation: familiarity with American government. Requisite: course 40. Nature of bureaucracy in modern government, with emphasis on the U.S.; explanation of why government agencies behave as they do. Focus on real and imagined problems with bureaucratic rule; evaluation of commonly proposed solutions for these problems. Examples from schools, armies, welfare bureaus, regulatory agencies, and intelligence services, among others. P/NP or letter grading.

146C. Governing the Bureaucracy in the U.S. Requisite: course 40. Relationship between elected officials and administrators in the U.S., especially efforts of elected and appointed officials to monitor and control behavior of those in "permanent government" (career bureaucrats).

146D. Theories of Organization and Decision Making. Requisite: course 40. Examination of theoretical frameworks for studying public and private bureaucracies, with emphasis on ideologies, values, behavioral patterns, and concepts of organization. P/NP or letter grading.

146E. National Policy Development and Implementation. Requisite: course 40. Investigation of complex process of policy development and implementation in the 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.

146F. Politics, Ethics, and Business. Requisite: course 40. Examination of political issues, interests, and institutions that impose constraints on and provide opportunities for business. Ethical issues that arise in external environment of business and its internal operations. Examples of topics include government regulation, product liability, affirmative action, lobbying Congress, exporting hazardous waste to developing countries.

149. Special Topics in American Government and Politics. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Courses 119, 139, 149, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

Also see course 117

Field IV: Comparative Politics

151A-151B-151C. African Politics. (4-4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors:

151A. Government and Politics of Africa. (Formerly numbered 166A, 166C.) 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.

151B. Political Economy of Africa. (Formerly numbered 166B.) 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.

151C. Special Topics in African Politics. (Formerly numbered 166D.) Consult *Schedule of Classes* for topics to be offered in a specific term.

152A-152B-152C. Government and Politics of West European Countries. (4-4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Constitutional and political structure and development of one or more states in Europe, especially Britain, France, or Germany, with particular attention to contemporary problems. P/NP or letter grading.

152A. Britain. (Formerly numbered 152.); **152B.** France; **152C.** Germany. (Formerly numbered 154.)

153A-153B. Comparative Government and Politics of Western Europe. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. P/NP or letter grading:

153A. West European Government and Politics. (Formerly numbered 153.) Requisite: course 50. Comparison of constitutional and political structure of West European states, with particular attention to contemporary problems.

153B. Game-Theoretic Approach to West European Politics. (Formerly numbered 153A.) Course 153A is not requisite to 153B. Uses of elementary game theory to investigate post-World War II Western European politics. Social and political forces, and political institutions. Particular emphasis on study of three West European countries — United Kingdom, France, and Federal Republic of Germany. Consideration of current developments and comparisons with the U.S.

154A-154B. Government and Politics in Latin America. (4-4) (Formerly numbered 163A-163B.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Comparative study of governmental and political development, organization, and practices. **154A.** States of Middle America; **154B.** States of South America.

155. Advanced Pluralist Democracies. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Main features and basic problems of economically advanced democracies, analyzed in comparative framework, topic by topic. Emphasis on cross-Atlantic comparisons, not only political but also sociological.

156A-156D. Government and Politics of Post-Communist States. (4 each) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. P/NP or letter grading:

156A. Russia. Intensive study of institutions and political development in Russia, with special attention to legacy of the Soviet Union.

156B. Eastern Europe. (Formerly numbered 157.) Survey of institutions and political processes in selected post-Communist states of Eastern Europe.

156C. Post-Soviet States. (Formerly numbered 156B.) Survey of institutions and political processes in selected former Soviet republics other than Russia.

156D. Political Economy of Post-Communist Reform. Focused study of interaction between transitions to democracy and to the market in selected post-Communist countries, with emphasis on development of general theories of political and economic reform.

157. Government and Politics in the Middle East. (4) (Formerly numbered 164.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors. Comparative study of government in the Arab States, Turkey, Israel, and Iran. P/NP or letter grading.

159A-159B. Government and Politics of China. (4-4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Designed for juniors/seniors:

159A. Chinese Revolution and Age of Mao Zedong. (Formerly numbered 159.) 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. China in Age of Reform. 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 (optional); outside study, eight or nine hours. Requisite: course 50. Designed for juniors/seniors. Structure and operation of contemporary Japanese political system, with special attention to domestic political forces and problems.

165. Islam and Politics. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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 Analysis of Government Institutions. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Comparison of major institutional structures such as presidentialism vs. parliamentarism, unicameralism vs. bicameralism, two-party vs. multiparty systems, federal vs. unitary systems, plurality vs. 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.

167A. Ideology and Development in World Politics. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 50. Designed for juniors/seniors. Comparative study of major modes of political and economic development in the world today. Relations between industrial and nonindustrial societies in light of current debate about imperialism.

167B. Comparative Development and Administration. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisite: course 50. Designed for juniors/seniors. Analysis of bureaucratic structures and function in the U.S., other industrialized, and less developed countries, primarily at national level. Special attention to methods of comparative analysis and utility of various methods. P/NP or letter grading.

168. Comparative Political Analysis. (4) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Requisites: two courses in Field IV, or course 50 and one course in Field IV. Designed for juniors/seniors. Required of all students concentrating in Field IV. Major approaches to study of comparative politics. Concepts and methodology of comparative analysis.

169. Special Studies in Comparative Politics. (4) (Formerly numbered 169A-169Z.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Courses 119, 139, 149, and 169 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward the major.

Also see course 115

Special Studies

194. Selected Topics in Political Science. (2 to 4) Seminar, three hours; outside study, eight or nine hours. Designed for juniors/seniors. Seminar on selected current topics of interest in political science. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit; may be applied toward major but not to concentration or distribution requirement. P/NP or letter grading.

195A-195B-195C. Honors Seminars and Thesis. (4-4-4) Preparation: one course in C197 series, 3.5 grade-point average in upper division political science courses, eligibility for Letters and Science honors. Course 195A is requisite to 195B, which is requisite to 195C. Designed for juniors/seniors. One-year honors seminar and thesis-writing sequence. Students entering course 195A are expected to have some experience in writing research papers and to have in mind a research topic suitable for treatment at length and in depth:

195A. Students define their research topic, select a suitable research method, determine appropriate sources of information, prepare research proposal, find a 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. Students also meet privately with instructor to discuss research progress.

195B-195C. Writing of honors thesis under direction of a faculty member. Thesis is read by appropriate field committee and graded high honors, honors, or no honors. In Progress grading.

C197A-C197D. Seminars for Majors. (4 each) 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 a specific term. May be applied toward distribution or concentration requirement. May be concurrently scheduled with various graduate courses. **C197A.** Political Theory; **C197B.** International Relations; **C197C.** Politics; **C197D.** Comparative Government.

M197G. Introduction to Development Studies: Political Economy of Development. (4) (Same as International Development Studies M100B and Sociology M180.) Seminar, three hours. Designed for juniors/seniors. Analysis of determinants of underdevelopment, with focus on impact of colonialism, foreign investment, and trade, and on political economy.

197W. CAPP Washington Research Seminar. (8) Seminar, three hours; laboratory, 24 hours. Limited to CAPP Program students. Seminar for undergraduates 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.

199. Readings in Political Science. (2 to 4) Preparation: 3.0 overall grade-point average. Limited to juniors/seniors. Individual studies. May not be applied toward concentration or distribution requirement. May be repeated for a maximum of 16 units.

Graduate Courses

Formal Theory and Quantitative Methods

200A. Statistical Methods I. (4) Lecture, three hours. Corequisite: course 200AL. Introduction to statistical analysis of political data. Methods of data analysis, estimation, and inference.

200AL. Statistical Methods Laboratory I. (4) Laboratory, three hours. Corequisite: course 200A.

200B. Statistical Methods II. (4) Lecture, three hours. Recommended preparation: knowledge of elementary calculus. Requisites: courses 200A/200AL. Applications of multiple regression in political science.

200C. Statistical Methods III. (4) Lecture, three hours. Preparation: knowledge of elementary calculus. Requisites: courses 200A/200AL, 200B. Statistical modeling of political processes. Topics include simultaneous equations models, discrete choice models, time-series models.

200D. Quantitative Methods in Politics. (4) Seminar, three hours. Preparation: knowledge of calculus and matrix algebra. Recommended requisite: course 200C. Designed to build on foundations set in course 200C. Focus on logical and mathematical structure underlying some statistical methods that are frequently used in political science. Emphasis on understanding structure of the models rather than on gaining added experience using them to analyze data. Applied data analysis. Letter grading.

M200E. Advanced Regression Analysis. (4) (Same as Psychology M256.) Seminar, three hours. Diagnostics, robust regression, cross validation, resampling, outliers, missing data, geometry of regression, validity of assumptions, categorical dependent variables, transformation of variables. Access to Macintosh computer very helpful.

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 preparation 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. Preparation: 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. Preparation: 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. Requisite: 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.

204. Game Theory in Politics. (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.

M208A. Game Theory. (4) (Same as Economics M214B and Mathematics M261.) Lecture, three hours. Designed for graduate economics, mathematics, and political science students. Bargaining theory, the core, the value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs. S/U or letter grading.

M208B. Topics in Applied Game Theory. (4) (Same as Economics M215.) 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.

M208D. Multivariate Analysis with Latent Variables. (4) (Same as 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.

M208E. Bayesian Econometrics. (4) (Same as Economics M232A.) Lecture, three hours. Requisites: Economics 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. S/U or letter grading.

209. Special Topics in Formal Theory and Quantitative Methods. (4) Seminar, three hours.

Political Theory

210A-210B. Introduction to Political Theory. (4-4) Lecture, three hours. Exploration of major texts and issues in political theory. **210A.** Classical and Medieval Formulations from Plato through Aquinas; **210B.** Early Modern Period from Machiavelli through the Enlightenment.

M211. Morality of Capitalism. (4) (Same as Management M293B.) Lecture, three hours. Examination of major philosophical writings that defend or criticize capitalism on basis of principles of right conduct and just social arrangements (i.e., on moral grounds).

212. Seminar: Political Theory. (4) Seminar, three hours.

214. Political Theory in Transnational Context. (4) Seminar, three hours; discussion, one hour (optional). 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 (optional). 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.

C217. Selected Texts in Political Theory. (4) Discussion, 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 the system for present-day political analysis. May be concurrently scheduled with course C197A.

C218. Selected Topics in Political Theory. (4) Discussion, three hours. Critical examination of a major problem in political theory. May be concurrently scheduled with course C197A.

219. Workshop: Political Theory. (4) Discussion, three hours.

International Relations

220. International Relations Theory. (4) Discussion, three hours. Approaches to and central problems of international relations theory.

C221. Advanced International Relations Theory. (4) Discussion, three hours. Introduction to contemporary problems in international relations theory. May be concurrently scheduled with course C197B.

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.

C223. Politics and Strategies of Modern War. (4) Seminar, three hours. Analysis of various national security problems in both their military/technical and political dimensions. May be concurrently scheduled with course C197B.

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.

C226. The 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. May be concurrently scheduled with course C197B.

C227. Foreign Policy Process. (4) Discussion, three hours. Prerequisites: courses 120, 220. Political science and policy science approaches to national foreign policy process, with primary focus on formulation and implementation of American foreign policy. May be concurrently scheduled with course C197B.

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 Ph.D. 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-233B-233C. Political Economy Workshops (0-4-8). 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. In Progress and letter grading (courses 233A-233B); letter grading (course 233C).

234A-234B-234C. Workshops: National Security, Foreign Policy, and International Relations (0-0-12). Discussion, two hours. Preparation: successful completion of major field examinations. Course 234A is requisite to 234B, which is requisite to 234C. Courses must be taken in sequence. Workshops 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.

C239. Selected Topics in International Relations. (4) Discussion, three hours. May be concurrently scheduled with course C197B.

Comparative Politics

240A-240B. Seminars: Comparative Politics. (4-4) Seminar, three hours. Course 240A is not requisite to 240B. Letter grading. **240A.** (Formerly numbered 240.) Survey of ideas and approaches that have been historically important in field of comparative politics, with a selection of theories and methodologies that have comprised the field over time. **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.

C241. African Politics. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

C242. Chinese and East Asian Politics. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

C243. Japanese and Western Pacific Politics. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

C244. Latin American Politics. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

C245. Middle Eastern Politics. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

C246A. Western European Politics. (4) (Formerly numbered C250A.) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

246B. Political Development of Modern Europe. (4) (Formerly numbered 250B.) Seminar, three hours; discussion, one hour (optional). Principal phases of political development from high feudalism to the present, together with theories of causation.

C247. Politics of the Soviet Union and Post-Soviet Region. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

247A. Evolution of Soviet and Russian Politics. (4) Seminar, three hours; discussion, one hour (optional). Discussion seminar surveying political evolution of Soviet Union and its transformation.

C247B. Domestic Context of Russian Foreign Policy. (4) Seminar, three hours; discussion, one hour (optional). Examination of domestic social, political, bureaucratic, and organizational sources of Russian foreign and strategic policy. May be concurrently scheduled with course C197B.

C248. South Asian Politics. (4) Seminar, three hours; discussion, one hour (optional). May be concurrently scheduled with course C197D.

251. Political Economy of Structural Adjustment. (4) Discussion, three hours. Some familiarity with economics helpful. Principal arguments for structural adjustment (trade and economic liberalization) and consideration of political issues that arise from this process.

252. Parties and Party Systems. (4) (Formerly numbered 252A.) Seminar, three hours; discussion, one hour (optional). 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-254B. Institutions and Comparative Politics. (4-4) Seminar, three hours; discussion, one hour (optional):

254A. Comparative Institutional Analysis. 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. Political Institutions, Delegation, and Policy-Making. 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 Change. (4) Seminar, three hours. Interdisciplinary seminar directed toward comparative analysis of political development and modernization.

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.

257. Labor and Working-Class Politics. (4) Discussion, three hours. Questions and topics on comparative labor and working-class politics.

259. Selected Topics in Comparative Politics. (4) Discussion, three hours. Critical examination of a major problem in comparative politics.

American Politics

260A. Survey Course in American Politics: Political Parties and the Electoral Process. (4) Discussion, three hours.

260B. Survey Course in American Politics: American Political Institutions. (4) Discussion, three hours.

M261A. Proseminar: Political Psychology. (4) (Same as History M236A and Psychology M228A.) Discussion, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

C261B. Mass Attitudes and Political Behavior. (4) Discussion, three hours. Prerequisite: course 141B or 260A. Analysis of development and change of political attitudes in mass publics and their relationship to voting, protest, and violence. May be concurrently scheduled with course C197C.

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 differential journalism, and analyses of media bias.

M261D. Seminar: Political Psychology. (4) (Same as Psychology M228B.) Discussion, three hours. Prerequisite: course M261A or Psychology 220A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion.

M261E. Critical Problems in Political Psychology. (4) (Same as Psychology M228C.) Discussion, three hours.

C262. Political Parties. (4) Discussion, three hours. Critical examination of literature on party systems and organization. Special attention to political functions, electoral campaigns, and party cadres. May be concurrently scheduled with course C197C.

C264. Politics and Society. (4) Discussion, three hours. Application of selected classical and contemporary sociological theories to politics. May be concurrently scheduled with course C197C.

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 the market system, banking and finance, corporate enterprise, and organized labor.

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.

268. Seminar: Political and Electoral Problems. (4) Seminar, three hours. Preparation: two graduate courses in politics.

269. Seminar: Political Behavior. (4) Seminar, three hours.

C270. Legislative Behavior. (4) Discussion, 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. May be concurrently scheduled with course C197C.

C271. Executive Politics and the Presidency. (4) Discussion, three hours. Analysis of executive organization and leadership, with emphasis on the American Presidency. Special attention to theories of organization and personality and relationship between the executive and other institutions and groups. May be concurrently scheduled with course C197C.

272. Political Environment of the Federal Executive. (4) Discussion, three hours. Examination of political environment of the federal executive in the U.S. Special attention to executive/legislative relations.

273. American Political Development. (4) Discussion, three hours. National political institutions in historical perspective, theories of state building, state societal relations, political culture.

275. Seminar: American Political Institutions. (4) Seminar, three hours.

C279. Seminar: Public Law. (4) Seminar, three hours. May be concurrently scheduled with course C197C.

C281. Public Policy Studies. (4) Discussion, three hours. Systematic analysis of nature and scope of public policy and its programmatic implications. Special emphasis on government organizations and process, as well as types of government intervention and stages of the policy process. Substantive focus primarily on American public policy and analysis. May be concurrently scheduled with course C197C.

284. Seminar: Bureaucracy and Organization. (4) Seminar, three hours. Exploration of topics in analysis of public and private bureaucracies and organizational theory. Topics include empirical theories of bureaucratic behavior; bureaucratic growth; bureaucratic behavior and political culture; organizational structures and strategies; and function of the executive.

Special Studies

290. Modern Political Economy. (4) Discussion, three hours. Discussion of implications for understanding politics of the thinking of politicians, bureaucrats, producers, consumers, and nations as utility maximizers. Topics include microfoundations for macro models, forms of political participation, the state, government regulation, growth of government, bureaucracy elections, public policy, inflation.

M291A-M291B. Social Theory and Comparative History. (4-4) (Same as History M203A-M203B and Sociology M296A-M296B.) Colloquium, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following the program of the Center for Social Theory and Comparative History. Each course may be taken independently for credit.

292A-292B. Introduction to Political Inquiry. (4-4) Seminar, three hours; discussion, one hour (optional). **292A.** Problems of Scientific Inquiry and Normative Discourse; **292B.** Research Design. Prerequisite: course 292A. Major conceptual frameworks and approaches to political science.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching Political Science. (4) Seminar 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 M.A. or Ph.D. 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) May be applied only three times toward minimum course requirement in first two years. May be repeated.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) May be repeated. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) May be repeated. S/U grading.

PSYCHIATRY AND BIOBEHAVIORAL SCIENCES

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Robert B. Edgerton, Ph.D., *Associate Chair,*
Academic Affairs

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 Gurdev S. Arora, M.D., *Clinical*
 Shahrzad H. Bazargan, Ph.D., *Clinical*
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 Alexander S. Young, M.D., *Clinical*
 Rony Zodkaevitch, M.D., *Clinical*

Scope and Objectives

The Department of Psychiatry and Biobehavioral Sciences offers interdisciplinary courses related to the mental health professions of the biobehavioral sciences in addition to its pro-

grams for psychiatry interns and residents and for medical students.

Enrollment in department courses is limited to registered UCLA students, students registered in programs officially affiliated with UCLA, and students enrolled concurrently through UCLA Extension. Students who meet these requirements, but who are not affiliated with a departmental training program, must also meet required course requisites determined by specific educational programs. Additional information is available from the department office.

Developmental Disabilities Immersion Program

The Developmental Disabilities Immersion Program (DDIP) is cosponsored by the Department of Psychology, the Department of Psychiatry and Biobehavioral Sciences, and the Office of Instructional Development — Center for Experiential Education and Service Learning (formerly Field Studies Development). Each year a group of 30 students is selected for the program which runs during Winter/Spring Quarters. Students participate in courses, fieldwork, and research at selected University and community facilities serving persons with developmental disabilities. Required courses include Psychology/Psychiatry M180A, M180B, M181A-M181B. Students also take other courses related to developmental disabilities. Many of the courses fulfill Psychology undergraduate major requirements. Student individualized research projects are also part of the immersion experience. Students interested in the program should contact the Office of Instructional Development — Center for Experiential Education and Service Learning (160 Powell Library) or the Psychology Undergraduate Advising Office (1531 Franz Hall).

Clinical Psychology Internship

The department offers a 12-month Clinical Psychology Internship, which is a Graduate Division certificate program. Students enrolled in clinical psychology programs at APA-approved universities are eligible to apply. Applications are accepted through December 1. The primary goals of the internship are to provide a year of intensive exposure to a wide variety of clinical and human services experiences and to maximize the personal growth of each professional. Students interested in this certificate program should contact the Psychology Internship Training Office, 68-265B NPI&H (310-794-1587).

Information on clinical practicums which are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department office.

Psychiatry and Biobehavioral Sciences

Lower Division Course

88. Lower Division Seminar: Special Topics in Psychiatry and Biobehavioral Sciences. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in psychiatry and biobehavioral sciences approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

M112. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) (Same as Anthropology M136Q.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Group and individual projects. Discussion of some of the uses of observations and their implications for research in social sciences.

M180A. Contemporary Problems in Mental Retardation. (4) (Same as Psychology M180A.) Lecture, three hours. Requisites: Psychology 10, 100A, and 127 or 130 or 133A through 133I. Corequisite: course M181A. Limited to Immersion Program students. Presentation of concepts, issues, and research techniques in the area of mental retardation. Biological, psychological, and community questions concerning causes and treatment of developmental disabilities, as well as systems for care and training of retarded individuals. Lectures, directed reading, and discussion. P/NP or letter grading.

M180B. Contemporary Issues in Mental Retardation. (4) (Same as Psychology M180B.) Lecture, three hours. Requisite: course M180A. Corequisite: course M181B. Limited to Immersion Program students. Psychoeducational issues in mental retardation relating literature to ongoing field experiences through lectures, discussions, media, and six student papers. P/NP or letter grading.

M181A-M181B. Research in Contemporary Problems in Mental Retardation. (4-4) (Same as Psychology M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress and P/NP or letter grading.

185. Social Psychology of Urban Student Education. (6) Lecture, 90 minutes; discussion, 90 minutes; fieldwork, six to eight hours. Designed for juniors/seniors. Students interested in study of urban youth and their education acquire comprehensive and first-hand knowledge of factors affecting these students' achievement. Field study component requires students to intern with youth in schools and after-school programs. P/NP or letter grading.

M191. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M191, Neuroscience M130, Physiological Science M181, and Psychology M117J.) Lecture, three hours. Requisite: Neuroscience M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric syndromes and neurological disorders, including schizophrenia, depression, bipolar disorders, obsessive/compulsive disorder, eating disorders. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments.

M192A. Health Outreach Issues and Interventions for At-Risk Populations: Prefield Course. (4) (Same as Medicine M190A.) Lecture, two hours; discussion, two hours; possible field observations. Preparation: application and interview. First in series of courses to explore prevention of disease in at-risk populations, clinical services for disadvantaged, medical and psychological issues of homelessness, and effects of low socioeconomic status on parenting. Lectures from expert faculty and practitioners in the field, with visits to shelters and facilities where homeless are provided with health care. P/NP or letter grading.

M192B. Field Studies Seminar: Health Outreach Issues and Interventions. (2 or 4) (Same as Medicine M190B.) Discussion, two hours; fieldwork, three to four hours (two-unit course) or six to eight hours (four-unit course). Requisite: course M192A. Dynamics of multidisciplinary approaches to preventive health education for at-risk populations by student delivery of needed services to homeless families, under supervision of professional staff. P/NP or letter grading.

199. Special Studies in Psychiatry. (2 to 4) 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 are available in Office of Education, C8-202 NPI&H.

Graduate Courses

M203. Molecular Neurobiology. (4) (Same as Neuroscience M203.) Lecture, three hours; discussion, one hour. Preparation: basic biochemistry. Requisites: Biological Chemistry 201A-201B. Introduction to neurochemistry for neuroscience students. Topics include protein structure and function, lipid structure and metabolism, nucleic acids/molecular biology.

M204. Cellular and Molecular Developmental Neurobiology. (4) (Same as Neurobiology M204, Neuroscience M204, and Physiology M204.) Lecture, three hours; discussion, one hour. Requisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A-201B. Cellular and molecular processes that regulate development of nervous systems of vertebrates and invertebrates. Topics include regional specification in early neurogenesis, generation of neuronal diversity, cell surface interactions and growth factors, neuronal and glial proliferation and migration, axonal outgrowth and guidance, synaptogenesis, trophic interaction, plasticity, regeneration, and aging.

207A-207B-207C. Hypnosis Seminars. (2-2-2) Experiential seminars to prepare mental health professionals for adult and child clinical applications, involving didactics, demonstrations, trainee practice, and feedback. Following training in inductions and development of classic hypnotic phenomena (e.g., age regression, hypnoanesthesia, self-hypnosis), focus on psychotherapeutic applications, including direct symptom removal, behavioral methods, and hypnoanalysis. Emphasis on acquiring skills for clinical practice. S/U grading.

208A-208B. Clinical Neuropsychology. (2-2) (Formerly numbered 208A-208B-208C.) Lecture, 90 minutes. Designed for graduate and postgraduate students. Introduction and review of neuropsychological concepts, including functional neuroanatomical systems of the brain, analytic and synthetic activities of the brain, effects of generalized and focal brain impairment on behavior, and introduction to use of neuropsychological test instruments. Letter grading.

M209. Introduction to Neural Networks: Modeling and Applications. (4) (Same as Biomathematics CM208C.) Lecture, three hours. Preparation: calculus. Introduction to theory of neural networks and their applications. Survey of current neural-network models of cognitive functions. S/U or letter grading.

M210. Seminar: Psychocultural Studies and Medical Anthropology. (4) (Same as Anthropology M234.) 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.

M213. The Individual in Culture. (4) (Same as Anthropology M235.) Seminar, three hours. Designed for graduate students.

M214. Cross-Cultural Studies of Socialization and Children. (4) (Same as Anthropology M236P.) Seminar, three hours. Selected topics in cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research.

M221. Cellular and Molecular Neurochemistry. (4) (Same as Biological Chemistry M221, Neurobiology M221, Neuroscience M240, and Pharmacology M221.) Lecture, three hours; discussion, one hour. Preparation: biochemistry. Contemporary neurochemistry topics — metabolic specialization and compartments, metabolism and function of ion channels, structure and function of neurotransmitters. Inborn errors and molecular genetics, molecular imaging, aging, and regeneration. Receptor/effector coupling. S/U or letter grading.

M222. Transcultural Psychiatry. (4) (Same as Anthropology M234P.) Lecture, three hours. Consideration of psychiatric topics in cross-cultural perspective, such as studies of drug use, deviance, suicide, homicide, behavioral disorders, "culture specific" syndromes, non-Western psychiatries, and questions of "sick" societies. May be repeated for credit.

226A-226B. Childhood Psychopathology Research Seminars. (2-2) Seminar, 90 minutes. Current research in causes and behavioral manifestations of childhood psychopathology. Discussion on diagnosis and etiology of childhood disturbances.

M231. Hispanic Mental Health Issues and Treatment. (2) (Formerly numbered 231.) (Same as Social Welfare M203E.) Mental health issues and needs of Hispanics through seminars and videotapes dealing with historical comparison of psychiatry in Mexico and the U.S., analysis of various theoretical perspectives regarding biopsychosocial behavior; distinguishing psychodynamic from cultural factors in treatment of Spanish-speaking patients; treatment of Hispanic families, couples, undocumented persons, and criminal justice system clientele.

M232. Causal Inference. (4) (Same as Biostatistics M235.) Lecture, three hours; discussion, one hour. Prerequisite: Biostatistics 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading.

M234. Affective Disorders. (2 or 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 four units are assigned a more intensive reading list and required to make a presentation or prepare a research paper.

M235. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) (Same as Anthropology M236Q, Education M222A, and Psychology M295.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.

236A-236B-236C. Psychology Interns Seminars. (1-1-1) 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) Seminar, 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.

M238. Survey Research Techniques in Psychocultural Studies. (4) (Formerly numbered 238.) (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.

M240. Assessment and Treatment of African American Families. (3) (Same as Afro-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 an African American child and family.

242. Parent and Child Psychotherapy Seminar. (1) Preparation: current experience in psychoanalytically oriented child psychotherapy. Seminar meets throughout year. During Summer Quarter emphasis on initial clinical and research evaluation as well as early treatment of the child and family. During Fall, Winter, and Spring Quarters instructors use videotaped sessions and notes from their own clinical work to discuss such topics as diagnostic criteria, family system treatment formulations stressing work with parents and children, and such theoretical and technical issues as transference, resistance, overdetermined nature of symptoms, and termination. Student presentations encouraged in order to amplify clinical and theoretical issues and to become familiar with ongoing cases which are part of a systematic outcome study.

243A-243B-243C. Mental Retardation and Chronic Medical Illness Interdisciplinary Core Curriculum (1-1-1). Lecture, 90 minutes. Survey series on major topic areas of mental retardation and chronic medical illness, covering epidemiology, nosology, assessment, health care delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in interdisciplinary framework as generic information independent of discipline. S/U grading.

M246. Psychological Aspects of Mental Retardation. (4) (Same as Psychology M246.) Lecture, 90 minutes. Discussion of psychological aspects of mental retardation, including classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems).

M249. Neurobiology of Sleep. (3) (Same as Neuroscience M259 and Psychology M296.) Lecture, one hour; discussion, two hours. Critical review of primary research publications concerning neural basis of sleep. Discussion of neural and biochemical control of REM and NREM sleep after reviewing sleep behavior and phenomenology, including developmental and comparative aspects. Presentation of relevant clinical phenomena. S/U or letter grading.

M251. Mental Health Services. (4) (Same as Health Services M249J.) Lecture, three hours. Prerequisites: Health Services 200A-200B-200C. Designed for doctoral students. Survey of contemporary American delivery of health services to emotionally and mentally ill and retarded. Analysis of characteristics of such services, with historical background of their evolution and projections of their future prospects. Letter 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.

M254. Supporting Families of Children with Special Needs. (2) (Formerly numbered 254.) (Same as Social Welfare M203D.) Techniques and issues in counseling families through evaluation, feedback, and treatment. Social and psychological stresses on family unit, professional's reactions, community resources, and issues of genetic counseling, placement, and developmental crises. S/U grading.

M255. Functional Organization of Behavior. (2) (Same as Neuroscience M255.) 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.

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.

257A-257B-257C. Communication Disorders Associated with Developmental Disabilities and Psychiatric Disorders. (3-3-3) Laboratory, 90 minutes; didactic, 90 minutes. Didactic and practical training in communication and its dysfunction as these relate to language disabilities seen in interdisciplinary medical setting. Provides background for graduate and post-doctoral students who plan to engage in clinical work and/or clinical research in which language disturbances of childhood and adulthood are relevant.

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.

262A-262B-262C. Clinical Fieldwork in Developmental Disabilities and Chronic Illness (1 to 4 each). Prerequisites or corequisites: courses 243A-243B-243C. Placement and supervision of clinical and consultation activities of interdisciplinary trainees in various community agencies, hospitals, or other related settings serving developmentally disabled or chronically medically ill children, youth, or adults. Supervision done jointly by community personnel on site, in collaboration with interdisciplinary faculty. S/U grading.

M266. Advanced Magnetic Resonance Imaging. (4) (Same as Biomedical Physics M266 and Neuroscience M267.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

M270. 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.

M272. Psychological Anthropology. (4) (Same as Anthropology M234Q.) Lecture, 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.

M273. Advanced Seminar: Medical Anthropology. (4) (Same as Anthropology M263Q, Community Health Sciences M244, and Nursing M273.) 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.

275A-275B. Sociobiology Seminars. (2-2) Review of sociological theory as it applies to adult bonding behavior: kin-selection theory, reciprocal altruism theory, mate selection theory, and bond strategy theory. Bonds viewed primarily from biological rather than psychological perspective. In Progress and S/U or letter grading.

M277. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2 or 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.

M280. Politics of Reproduction. (4) (Same as Anthropology M269P.) Seminar, three hours. Examination of various ways that power, as it is structured and enacted in everyday activities, shapes human reproductive behavior. Case materials from diverse cultures illuminate how competing interests within households, communities, states, and institutions influence reproductive arrangements in society.

281. Behavioral Therapy in an Educational Setting. (4) Lecture, one hour; laboratory, six to 10 hours. Supervised experience in classroom working with exceptional children. Theoretical background furnished through one-hour weekly lecture.

M282. Anthropology of Human Body. (4) (Same as Anthropology M234T.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about the human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies.

M285. Functional Neuroimaging: Techniques and Applications. (4) (Same as Biomedical Physics M285.) In-depth examination of activation imaging, including PET and MRI 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 a functional MRI experiment. S/U or letter grading.

M286A-M286B-M286C. Statistics in Psychiatric and Biobehavioral Research. (2-2-2) (Same as Biostatistics M206A-M206B-M206C.) Seminar, 90 minutes. Prerequisite: Biostatistics 100B. Designed for graduate students. Examples from psychiatric literature used to illustrate statistical ideas and analysis strategies. Topics include experimental designs, sample size calculations, parametric versus nonparametric tests, regression, ANOVA, factor analysis, defining composite variables, causal inference. Computer used to illustrate basic data analysis. 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.

M289. Intervention to Reduce HIV and Its Consequences. (4) (Same as Community Health Sciences M299.) Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for a 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.

291. Seminar: Behavioral Biology — Rage. (4) (Formerly numbered 291A-291B.) Seminar, three hours. Graduate and professional seminar focusing on proximate causation, development, and evolution of human behavior and vertebrate social organization. Emphasis on deviant and rage behavior. S/U or letter grading.

295A-295B-295C. Advanced Seminars: Substantive Issues in Substance Abuse I, II, III. (2-2-2) S/U grading:

295A. Neurobiology and psychopharmacology of drug abuse, as well as epidemiology and prevention. Discussion of pros and cons of various treatment modalities for drug dependence.

295B. Drug use patterns and treatment issues in specific populations such as women, adolescents, the homeless, the multiply diagnosed, as well as different ethnic populations. Exploration of relationship between drug abuse, sexuality, and HIV/AIDS.

295C. 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.

298. Current Topics in Biobehavioral Sciences. (1 to 4) Current issues in biobehavioral sciences offered on selective basis depending on instructor interest and topical relevancy of problems. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit.

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, C8-202 NPI&H. 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.

M424. Functional Magnetic Resonance Imaging Journal Club. (1) (Formerly numbered 424.) (Same as Biomedical Physics M424.) Discussion, 90 minutes. Directed reading and discussion of current topics and developments in functional magnetic resonance imaging. S/U grading.

425. Teaching Case Conference. (1) Review of diagnosis and treatment of full spectrum of disorders, with expert off-unit consultants.

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.

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.

471. Grand Rounds (No credit). Designed for second-year residents in Child Service and child psychiatry fellows. Each month one second-year child psychiatry fellow presents a major clinical problem. Senior faculty discussants preside. Presenting trainees expected to cover pertinent literature and to assemble critical elements of information on case or problem at hand. Most sessions eligible for Continuing Medical Education credit.

478. Clinical Genetics Rounds (No credit). Designed for medical graduates. Weekly clinical rounds on patients seen in the wards during preceding week. House staff and others involved in clinical work may attend. Usually in-depth discussion of medical and genetic aspects of one or more disorders presented.

479. Genetics Clinic Presentation. (No credit) 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. Cognitive Behavior Therapy Practicum: Child Anxiety and Depressive Disorders. (3). Seminar, two hours. Training in cognitive/behavioral assessment and treatment of children and adolescents with anxiety and depressive disorders. Didactic and experiential training, including direct patient care, clinical supervision, and participation in weekly team meetings.

485. Medical Genetics Seminar (No credit). Preparation: introductory course. Weekly lecture series intended for those interested in genetics or in specific topic to be presented. Speakers are invited for their expertise or research in some special area related to genetics and may be from UCLA or elsewhere. Discussion and questions from audience encouraged.

596P. Individual Studies in Psychiatry. (2 to 12) 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, C8-202 NPI&H. Directed individual research and study in psychiatry at graduate level.

PSYCHOLOGY

College of Letters and Science

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Bernard Weiner, Ph.D., *Academic Personnel Affairs Vice Chair*

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Associate Professors

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 John Hummel, Ph.D.
 Margaret Kemeny, Ph.D.
 Thomas Minor, Ph.D.
 Brett Pelham, Ph.D.
 Steven P. Reise, Ph.D.
 Rena L. Repetti, Ph.D.
 Stanley J. Schein, Ph.D., M.D.
 Alcino J. Silva, Ph.D.

Assistant Professors

Bernard W. Balleine, Ph.D.
 Dean V. Buonomano, Ph.D.
 Stephen A. Engel, Ph.D.
 Curtis D. Hardin, Ph.D.
 Yuen J. Huo, Ph.D.
 Barbara Knowlton, Ph.D.
 Traci L. Mann, Ph.D.
 Dario L. Ringach, Ph.D.
 Cindy Yee-Bradbury, Ph.D.

Adjunct Professors

Dennis J. McGinty, Ph.D.
 James G. Miller, Ph.D.
 Jill M. Waterman, Ph.D.
 Dahlia Zaidel, Ph.D.

Adjunct Associate Professors

Jacqueline D. Goodchilds, Ph.D.
 Jaana H. Juvonen, Ph.D.
 William J. McCarthy, Ph.D.
 Nancy J. Woolf, Ph.D.

Scope and Objectives

Psychology is a subject of considerable interest to most people — we all tend to practice some form of intuitive psychology in an attempt to understand ourselves and the people and groups with whom we interact. The curriculum offered by the UCLA Department of Psychology presents psychology as a scientific discipline that employs systematic methods of inquiry to study and explain human and animal behavior — both normal and abnormal — in terms of a variety of underlying variables, including neural, physiological, and cognitive processes; developmental factors and individual differences; and social and interpersonal influences and contexts. According to recent surveys, the UCLA Psychology Department is ranked as one of the top departments of its kind in the country.

The structure of the undergraduate curriculum has been designed to reflect the extensive breadth of psychology — in terms of both the range of behavioral phenomena studied and the variety of methods and theoretical approaches employed — while allowing students to pursue in greater depth those areas in which they become most interested. Beyond basic core courses, students can take many specialized courses in areas such as psychobiology, animal behavior, learning and memory, motivation, perception, cognition, measurement, personality, and clinical, social, developmental, community, and health psychology. The curriculum also provides excellent opportunities for research experience — either in the form of laboratory courses or by participation with faculty and graduate students in a wide variety of research projects.

A choice of three undergraduate majors is offered: a B.A. degree in Psychology and B.S. degrees in Cognitive Science and in Psychobiology. While the majors overlap in certain fundamental and basic knowledge bases, they differ considerably in their focus (i.e., the extent to which certain areas of psychology and related disciplines are studied) and in terms of the different student interests and needs they satisfy. For nonmajors, the department offers many courses that can give them new and valuable

insights into the understanding of human behavior, including their own.

At the graduate level, the department offers training leading to the Ph.D. degree with emphases in areas such as behavioral neuroscience, clinical, cognitive, developmental, learning and behavior, measurement, and social psychology. The program is designed to prepare future psychologists for careers as scientific investigators, college and university teachers, and professional psychologists.

Undergraduate Study Psychology B.A.

The Psychology major is the most general of the three majors and offers both broad and in-depth coverage of the fundamental and traditional areas of psychology. It provides students with a strong foundation for postgraduate education in psychology and can serve as excellent background to prepare them for further training in such fields as law, education, government and public policy, business, and many of the health-related professions. Its basic liberal-arts orientation also provides excellent foundation for immediate postbaccalaureate careers in many areas, particularly ones in which an understanding of human behavior and its diversity of expression would be an asset.

The requirements described below represent the minimum requirements in satisfaction of the preparation and the major. Additional courses in psychology, statistics, and related sciences, as well as other types of research and fieldwork experiences, are highly recommended if students plan to pursue graduate work in psychology and related fields. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

Students need to file a petition in the Undergraduate Advising Office to declare the Prepsychology major. They are then identified as Prepsychology majors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Psychology major. The following required courses must be taken for a letter grade (a C– or better in each course and a 2.3 overall grade-point average in the preparation courses) before students reach 110 total units (transfer students must complete all remaining preparation courses by the end of the first year of enrollment): Anthropology 7 or 10 or 12; Life Sciences 1 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A (if students have completed one year of high school chemistry with a C or better, this requirement is waived); one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus; Physics 10 or 1A or 6A; one course from Philosophy 1, 4, 6, 7, 8, 9, 21, 22;

Psychology 10, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C– or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Prepsychology major one term before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

Repetition of more than two preparation courses in which a grade of D or F was received or of any preparation course more than once results in automatic denial of admission to the major.

Students planning to transfer with 90 or more units should have completed the following courses prior to admission to UCLA: introductory psychology, physical anthropology, introductory biology, introductory physics, introductory chemistry (or one year of high school chemistry with a C or better), introductory philosophy, and one course from statistics (recommended), finite mathematics, calculus, computer science theory, or computer programming in C++.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Core courses: Psychology 110, 115 (or M117A-M117B-M117C), 120, 130 or one course from 133A through 133I, 135; (2) one laboratory/fieldwork course from 111, 113, 116, 121, 131, 136A, 136B, 136C, 171A, 174, 186A, 186B; (3) four additional upper division elective courses (16 units) in psychology.

Students who complete Psychology M117A-M117B-M117C receive equivalent credit for course 115 and two upper division psychology electives.

All upper division courses must be taken for a letter grade. For all entering freshmen and transfer students, a C– or better is required in each core course and in at least one laboratory/fieldwork course. Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements.

Cognitive Science B.S.

The Cognitive Science major focuses on the study of intelligent systems, both real and artificial. While including a strong foundation in the traditional areas of psychology, the major is interdisciplinary in nature and emphasizes subject matter within cognitive psychology, computer science, mathematics, and related disciplines.

The requirements described below include sufficient preparation if students plan to pursue graduate work in cognitive science or related fields; however, they may want to include additional advanced courses in psychology and fields related to cognitive science (e.g., computer science, linguistics, mathematics, philosophy, and statistics) as well as other types of

research and fieldwork experiences. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

Students need to file a petition in the Undergraduate Advising Office to declare the Precognitive Science major. They are then identified as Precognitive Science majors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Cognitive Science major. Questions about the major should be directed to the Undergraduate Advising Office, 1531 Franz Hall.

The following required courses must be taken for a letter grade (a C or better in each course and a 2.5 overall grade-point average in the preparation courses) before students reach 130 total units: Life Sciences 1 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A (if students have completed one year of high school chemistry with a C or better, this requirement is waived); Mathematics 31A, 31B; Philosophy 7, 8, or 9; Physics 10 or 1A or 6A; Program in Computing 10A, 10B, 15; Psychology 10, 85, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Precognitive Science major one term before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

Repetition of more than two preparation courses in which a grade of D or F was received or of any preparation course more than once results in automatic denial of admission to the major.

Students planning to transfer with 90 or more units should have completed the following courses prior to admission to UCLA: two courses in calculus/analytical geometry, introductory psychology, statistics (recommended), introductory biology, introductory physics, one philosophy course (critical reasoning, philosophy of science, or philosophy of the mind), introductory chemistry (or one year of high school chemistry with a C or better), and one course in computer programming in C++.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Psychology 115 (or M117A-M117B-M117C), 120, and one course from 124A through 124G; (2) one course from 186A or 186B and one course from 121, 186A, 186B, or Computer Science 161; (3) three upper division elective courses (12 units) from Psychology 110, 112A through M119N, 123, 124A through 124G (if taken for the major, may not

be applied as an elective), 130, 133B, 135, 142H, 150, 151, 187A, 189, 190B or 190C (if content is approved by the Undergraduate Advising Office and courses have not been applied toward the Psychology 188A/188B requirement), 197 (content must be approved by the Undergraduate Advising Office before elective credit may be granted), Communication Studies 156, Computer Science 111 through M196B, Ethnomusicology 172A, Linguistics 103 through C185B, Mathematics 110A through 171, Philosophy 124 through 136, Statistics M100A, 100B, 100C, M120A, M120B; (4) two terms of Psychology 188A or 188B (may be fulfilled by taking any two courses from 188A, 188B, or 190C, provided content is approved by the Undergraduate Advising Office).

Students who complete Psychology M117A-M117B-M117C receive equivalent credit for course 115 and two upper division cognitive science electives.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements. With the exception of Psychology 188A and 188B, each course must be taken for a letter grade.

Psychobiology B.S.

The Psychobiology major is designed for students who plan to go on to postgraduate work in physiological psychology, neuroscience, behavioral aspects of biology, or the health sciences. Psychobiology involves the study of brain-behavior relations and laboratory training in standard brain research techniques.

The requirements described below include sufficient preparation if students plan to pursue graduate work in any of the above fields; however, they may want to include additional advanced courses in psychology and related sciences as well as other types of research and fieldwork experiences. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

Students need to file a petition in the Undergraduate Advising Office to declare the Prepsychobiology major. They are then identified as Prepsychobiology majors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Psychobiology major.

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B/14BL, 14C/14CL, and 14D, or 20A, 20B, 20L, 30, 30L, and 130A/130AL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Also required are Psychology 10, 100A, 100B. Students cannot take Psychology 100B until

they have passed course 100A with a grade of C– or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Prepsychobiology major one term before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

All core curriculum courses must be taken for a letter grade (a C– or better in each course and a 2.0 overall grade-point average in the core curriculum) before students reach 150 total units. Psychology 100A and 100B must be completed before students reach 130 total units. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

To be admitted as Psychobiology majors, transfer students with 80 or more units must complete the following courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission. Introductory psychology and statistics are recommended.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Organismic Biology, Ecology, and Evolution 129 or Psychology 118 or Anthropology 128A and 128B, and Psychology 110, 115 (or M117A-M117B-M117C), 116, 120; (2) one course from Psychology 127, 130, 133A through 133I, 135; (3) 16 units of graded elective courses from the following list: Organismic Biology, Ecology, and Evolution 107, 112, 113A, 114 (no more than one from this group), Psychology M117A, M117B, M117C, M117J, M117K, 119A through M119N, 190C (only if content is approved by the Undergraduate Advising Office), 197 (content must be approved by the Undergraduate Advising Office before elective credit may be granted), Chemistry and Biochemistry 153A, 153L, Molecular and Medical Pharmacology 110A, 110B, Molecular, Cell, and Developmental Biology 104, 138, C139, CM156, 171, M185A, Neuroscience 151, M174, Organismic Biology, Ecology, and Evolution 102, C104, 105, 106, 110, 111, C115, 117, C119, 120, 121, 122, 124 (only four units may be applied toward the major), 131 (only four units may be applied toward the major), C135, 146, M158, 164, M166, 167, 179, Physiological Science 142, C144, 147, M173.

Students who complete Psychology M117A-M117B-M117C receive equivalent credit for

course 115 and 10 units of upper division psychobiology electives.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements, and each must be taken for a letter grade.

Fieldwork and Research Opportunities

Many research and fieldwork opportunities are open to students who wish to expand their knowledge and broaden their background in the field of psychology. These experiences can be enriching and help bring undergraduates closer to understanding research and its applications in the everyday world. At least one of the following courses is recommended for students planning postgraduate study: Psychology 188A, 188B, 192, 193, 194A, 194B, 199, or the Student Research Program (SRP) through the College of Letters and Science. Information about these courses and programs is available from the Undergraduate Advising Office, 1531 Franz Hall.

Honors

Honors Courses

Each year the department offers a selection of honors courses, designated with an H suffix. The courses provide close contact with faculty members, emphasize readings in the original literature, student reports, and small group discussions, and may include field or research experience. All such courses offer credit toward the departmental honors program. Enrollment priority in honors courses is given to students in the departmental honors program. Consult the College of Letters and Science for information on requirements for College Honors.

Honors Program

Psychology, Cognitive Science, and Psychobiology majors intending to continue study at the graduate level are encouraged to apply for the departmental honors program. Students work for one year with a faculty sponsor on a research project that is the basis of a formal honors thesis. During that year they also participate in a weekly seminar (Psychology 190A-190B-190C) in which thesis projects are presented and discussed and other topics of interest are explored with invited faculty members and other guests. In addition, they must take at least two psychology honors courses selected from a list provided by the department, with a grade of B or better in each. Satisfactory completion of the program and the other requirements for the major leads to awarding of the degree with honors or highest honors. Consult the Undergraduate Advising Office early in the educational planning for further information and application forms.

Student Award for Research Training (START)

The Student Award for Research Training (START) represents a vital effort to identify and mentor underrepresented minority and/or low-income students. The purpose of START is to encourage such students to participate in research and pursue graduate studies leading to careers in academia. The recruitment and application process for START takes place each Fall Quarter. Most students selected to participate are awarded stipends for Winter and Spring Quarters, during which time they do research under the mentorship of a psychology faculty member. In addition, they are required to attend a weekly seminar in which presenters, including faculty members, address topics such as graduate school, careers in academia, and research in psychology. START provides students with the opportunity to work closely with faculty research sponsors, graduate students, and departmental counselors.

Developmental Disabilities Immersion Program and Concentration

The Developmental Disabilities Immersion Program (DDIP) is cosponsored by the Department of Psychology, the Department of Psychiatry and Biobehavioral Sciences, and the Office of Instructional Development — Center for Experiential Education and Service Learning (formerly Field Studies Development). Each year a group of 30 students is selected for the program which runs during Winter/Spring Quarters. Students participate in courses, fieldwork, and research at selected University and community facilities serving persons with developmental disabilities.

Required courses include Psychology/Psychiatry M180A, M180B, M181A-M181B. Students also take other courses related to developmental disabilities. Many of the courses fulfill Psychology undergraduate major requirements (consult the Undergraduate Advising Office for details). Student individualized research projects are also part of the immersion experience.

To earn a **concentration**, majors in Psychology, Cognitive Science, and Psychobiology must be accepted into the Developmental Disabilities Immersion Program. Information and applications are available from the Center for Experiential Education and Service Learning, 160 Powell Library. The following courses are required for the concentration: Psychology 127 (may also be applied as one of the three upper division electives required for the Psychology major), 130 or one course from 133A through 133I (also satisfies a core requirement for the Psychology major), M180A, M180B, M181A-M181B, 193 (two terms). With the exception of course 193, each course must be taken for a letter grade. Students in the department who complete the requirements receive a departmental certificate of completion at graduation; they must notify the department during the

term they plan to graduate to receive the certificate. The concentration does not appear on the diploma or transcript.

If a psychology major earns the DDIP concentration, upper division elective credit for Psychology M180A, M180B, M181A-M181B does not apply toward the major.

For more information, contact the Undergraduate Advising Office (1531 Franz Hall) or the Center for Experiential Education and Service Learning (160 Powell Library).

Computing Specialization

Majors in Psychology, Psychobiology, and Cognitive Science may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, and at least one course from 10C, 15 (recommended), 30, 60, and (3) completing Psychology 85 and at least two courses from 121, 142H, 150, 151, 186A, 186B (one 199 course may be substituted for one of these courses provided project has been approved by vice chair). A grade of C or better is required in each course. Students graduate with a bachelor's degree in their major and a specialization in Computing. Students planning to enter this specialization should consult the Undergraduate Advising Office.

Applied Developmental Psychology Minor

The Applied Developmental Psychology minor is designed to (1) provide a coherent academic program with focus on issues central to improving the well-being of children and their families, (2) teach undergraduates how to apply theories, research methods, and research findings to practical concerns, and (3) prepare students to join or receive further training in various child-related professions.

The minor is open to all enrolled UCLA students (including Cognitive Science, Psychobiology, and Psychology majors) who have an overall grade-point average of 2.0 or better and have been accepted into an approved applied developmental psychology internship program. For further information about applying to the internship program, contact the director of the Infant Development Program, 1611 Franz Hall, (310) 825-2896. For questions about additional course requirements for the minor, contact a counselor in the Undergraduate Advising Office, 1531 Franz Hall, (310) 825-2730.

Required Lower Division Course (four units): Psychology 10.

Required Upper Division Courses (24 units): Psychology 133X and 133Y (to be taken concurrently with the two-term internship described below) and four additional courses, of which at least three must be upper division, from Education 91A through 91D, 125A, Linguistics C130, C135, Psychology 129F, 130, 131, 132, 133A through 133I, M176, 197 (content must be approved by the Undergraduate

Advising Office), 199 (content must be approved by the Undergraduate Advising Office), Sociology 136, M174. One of the four additional courses must include either Psychology 130, one course in the 133 series, or 197 (content must be approved by the Undergraduate Advising Office).

Internship Requirement: Students work as interns for two academic terms at an approved daycare center/school and enroll concurrently in Psychology 133X and 133Y. The internship provides hands-on experience working with young children as teacher's aids and opportunities for observing children. By completing an additional one-term internship (see the director of the Infant Development Program, 1611 Franz Hall, for details), students may meet many of the "Teacher Qualifications and Duties" outlined in Section 101316.2 under Title 22, Division 12, California Department of Social Services.

All minor courses, except for the internship courses, must be taken for a letter grade, with an overall grade-point average of 2.0 or better. No more than two courses may be applied toward both the students' majors and this minor. Successful completion of the minor is indicated on the transcript and diploma.

Cognitive Science Minor

The Cognitive Science minor is designed to introduce students to cognitive science topics as addressed in a number of different disciplines, such as biology, computer science, engineering, linguistics, mathematics, philosophy, and psychology, while allowing them to pursue a more in-depth study of cognitive science topics within specific areas of their own choice.

The minor consists of two parts. In the first part students complete background courses and satisfy a computer programming experience requirement. In the second part they select a primary cluster from four clusters of upper division courses that have been organized to reflect different aspects of cognitive science. Students take three courses within their primary cluster and two additional courses from the remaining clusters (secondary clusters).

The minor is open to all enrolled UCLA students, other than Cognitive Science majors, who have an overall grade-point average of 2.0 or better. Students must make an appointment with a counselor in the Undergraduate Advising Office, 1531 Franz Hall, (310) 825-2730, to enter the minor and receive counseling on how to select a primary cluster.

Required Courses (28 units): Psychology 85 and one course from 15, 100B, Computer Science 2, Linguistics 1, 20.

The computer programming experience requirement is satisfied by petition based on coursework (e.g., completion of Program in Computing 10A) or other relevant programming experience.

Students must also select (with approval of the Undergraduate Advising Office) and complete

one of the following four primary clusters: (1) *biological basis of cognition cluster* — three courses from Linguistics C135, Psychology 115, 116, M117C (or Molecular, Cell, and Developmental Biology M175C or Neuroscience M101C or Physiological Science M180C), M117K, 119B, 119F, M119L, M119N; (2) *computation and modeling cluster* — three courses from Biomathematics 108, Computer Science 161, 163, Psychology 150, 151, 186A, 186B (at least one course must be from Computer Science 161, Psychology 186A, 186B); (3) *human cognition cluster* — Psychology 121 and two courses from 112C, 120, 124A through 124F, 133B, 133BH, 133C, 133E; (4) *mind and language cluster* — three courses from Linguistics 120A, 120B, 125, C130, C132, C135, C185A, Philosophy 124, 125, 126, 127A, 127B, 129, 170, 172, Psychology 122, 123, 124A.

Students must also fulfill a secondary cluster requirement of two additional courses from one or more of the clusters not selected as the primary cluster.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. No more than two courses may be applied toward both the students' majors and this minor. Successful completion of the minor is indicated on the transcript and diploma.

Infant Development Program

The Infant Development Program is designed as a teaching and research facility for the department and is set up to accommodate both cross-sectional and longitudinal investigation of infants, toddlers, and their parents. In addition, the program provides an opportunity for students in developmental psychology and other areas to acquire firsthand experience working with infants and toddlers through a two- or three-term sequence of Psychology 133X, 133Y, and 193. The program is located in Franz Hall and provides child care for about 15 infants ranging in age from three months to three years.

Clinic for the Behavioral Treatment of Children

The Clinic for the Behavioral Treatment of Children carries out diagnosis, treatment, and research on children with severe psychological problems, such as children with autism and those with severe developmental disorders. The treatment philosophy is largely behavioral/educational, with emphasis on language acquisition, peer and school integration, and parent training. Students are taught behavioral treatment procedures and work in an apprenticeship relation to senior staff. Prior research has focused on variables controlling self-destructive behavior, perceptual deficits, language acquisition, and emotional/social attachments. The clinic serves as a teaching and research environment for both graduate and undergraduate students.

Psychology Clinic

The Psychology Clinic in the Department of Psychology is a major training center for clinical psychology students in the Ph.D. program. It provides a broad range of psychological services to children and adults, including assessment and individual, couples, family, and group therapy. Clients cover the entire age range and represent diverse populations in the community.

Student therapists receive very close supervision and are encouraged to relate their case material to academic learning and current research. Students and faculty members are also involved in a variety of research projects through the clinic.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The Department of Psychology does not admit candidates for the Master of Arts degree in Psychology only, although students may be awarded the M.A. en route to the Ph.D.

Areas of Study

Consult the department.

Course Requirements

Requirements for the M.A. are nine graduate courses (36 units), including Psychology 250A, 250B, 251A-251B (research project must be completed), and at least three of the four required core courses (refer to the section on doctoral course requirements for further details). One 596 course (four units) may be applied as an elective. Courses in the 400 series may not be applied. All undergraduate deficiencies must be cleared before the M.A. is awarded.

Comprehensive Examination Plan

Consult the department.

Thesis Plan

None.

Doctoral Degree

Admission

A departmental brochure describing the graduate program in psychology is available from the department.

Admission to the program leading to the Ph.D. degree in Psychology normally requires an undergraduate degree in psychology. However,

students from other areas (particularly the mathematical, physical, biological, and social sciences) may be admitted. Admission is for Fall Quarter only and on a full-time basis only. Applicants should mail the following documents directly to the Psychology Department by December 15 for clinical area applicants and January 2 for applicants to other areas to be considered for admission the following Fall Quarter.

(1) The University's *Application for Graduate Admission*, available in 3453 Franz Hall.

(2) Three letters of recommendation.

(3) One official transcript from each college attended.

(4) Scores from the Graduate Record Examination (GRE) General Test and the Subject Test in Psychology (taken within the last three years).

(5) The Test of English as a Foreign Language (TOEFL), required of all international applicants whose native language is not English.

Interviews (in person or by phone) are required for clinical area finalists.

Students entering the graduate program must demonstrate adequate breadth of preparation in psychology and related disciplines. Students are expected to have taken courses equivalent to the following: (1) Psychology 100A; (2) two courses selected from Psychology 110, 115, and 120; and (3) two courses selected from Psychology 127, 130, 135. In addition, it is recommended that students have the following college-level coursework: one course in biology or zoology, one course in mathematics (such as calculus), and two courses in the physical sciences (physics and/or chemistry). A course in anthropology, philosophy, or sociology may be substituted for one of the physical sciences courses. The recommended courses may be waived by the student's adviser.

Students who have completed any of the undergraduate majors offered by the UCLA Department of Psychology have satisfied the undergraduate preparation requirements. Students who have not had training in the areas cited above may either take the missing courses or have their area evaluate their preparation and, in consultation with the student, plan a program of study that provides the appropriate breadth.

The individual program may include undergraduate coursework, graduate coursework, readings followed by an examination, or some combination of these. Emphasis is on breadth and preparation, both within and outside the Department of Psychology. The plan should include a firm date of completion and requires approval of the graduate affairs committee. Continuation in the Ph.D. program is contingent on satisfactorily clearing undergraduate deficiencies by the end of the fourth quarter in residence.

Major Fields or Subdisciplines

Students are required to obtain a thorough background in research methodology and psy-

chological theory. Major specialized training is available in the following areas of psychology: behavioral neuroscience, clinical, cognitive, cognitive neuroscience, developmental, learning and behavior, measurement and psychometrics, or social psychology. Students admitted in either the behavioral neuroscience or cognitive areas may take the program in cognitive neuroscience. The course requirements serve as a combined major and minor. Students who select this option remain in their area of admission for administrative purposes.

Course Requirements

General Core Requirements

All students, regardless of area, must fulfill the requirements listed below. A course may not be used to fulfill requirements in more than one major or minor area unless no other course options are designated. The core program includes four courses, plus Psychology 250A, 250B, 251A-251B (and 251C, if an additional quarter is needed to complete the course). Courses 250A and 250B must be completed in the first two quarters; 251A-251B-251C must be completed by the end of the fourth quarter. The additional four core courses must be completed within the first six quarters in residence. If the core courses have not been completed by the end of the fifth quarter, the balance of courses must be completed during the sixth quarter, even if the preferred courses are not offered at that time.

By the end of the second year, students must complete at least one individual research course (596) and at least three second-year graduate courses, including one quantitative course from Psychology 252A, 252B, 253, 254A, 254B, 255, M256, M257, 258, 259, 287.

During the third year, students must enroll in a minimum of three graduate-level courses, plus one quarter of course 596. At least one quarter of 596 or 599 should be taken during the fourth year and each remaining year in the graduate program.

Major Area Course Requirements

Each area requires certain courses of students majoring in that area. Requirements are as follows:

Behavioral Neuroscience. Neuroscience M201 and either option 1 — Neuroscience M202 and M204 or option 2 — Psychology M117A. Students interested in molecular biology generally take option 1 and minor in neuroscience. In addition, all majors take eight units from the Psychology 205 series, three quarters of Psychology 212, and two approved behavioral neuroscience seminars.

Clinical. Psychology 270A-270B-270C, 271A-271B-271C, 277A, and two advanced clinical courses from Psychology 272A through 298. All 298 courses must be first approved by the clinical area. At least one of the advanced courses must be numbered above 272A.

Practicum and Internship Requirements for Clinical Students.

(1) At least 400 hours of approved supervised preinternship practicum (Psychology 401) are required, of which 150 hours must involve direct clinical service and 75 hours must be formal schedule supervision. These hours are usually completed during the second through fourth years.

(2) The equivalent of one-year of full-time supervised internship (Psychology 451) in an acceptable setting approved by the faculty, is required. This is usually taken in the fourth or fifth year. Contact the department for further information on internship requirements.

In cases in which graduate students have (1) completed all academic requirements, (2) passed the final oral examination, (3) received doctoral committee approval to file the dissertation, (4) provided evidence of satisfactory completion of at least nine months of an internship approved by the faculty, and (5) obtained approval from the clinical area chair, students may petition to file the dissertation and be awarded the Ph.D. degree with the clear understanding that the remaining months of internship that are required by the American Psychological Association will be completed as outlined in the internship contract. Such petitions are considered to be exceptions rather than the rule. Documentation of subsequent internship completion is provided by the director of clinical training.

Cognitive. Psychology 260A-260B plus four courses, including at least two from Psychology 259, 261 through 266, and at least one from Psychology 268A through 268E or 269.

Cognitive Neuroscience. The following course requirements satisfy both major and minor area requirements: Neuroscience M201, Psychology M117A or Neuroscience M202, Psychology 212, Psychology 260A, 260B, eight units of Psychology 205, Psychology 207A, 207B, or 207C. Four additional courses are required in the cognitive area, which must include at least one core course and one seminar.

Developmental. Psychology 240A-240B; two courses from Psychology 242A through 242F, 243B, 244, 299.

Learning and Behavior. Psychology 200A, 200B, plus two courses from 204B through 204E, 210, 290, 293.

Measurement and Psychometrics. Five courses from Psychology 249, 252A, 252B, 253, 254A, 254B, 255, M256, M257, 258.

Social. Psychology 220A, 220B, and three social seminars taught by three different faculty members. In addition, Psychology 226A is required in the first year, and 226B-226C are required in the first, second, and third years of the program.

Minor Area Course Requirements

Students must select one minor area. Students may minor in any of the areas listed under Major Fields or Subdisciplines, with the exception of clinical, as well as in health psychology or political psychology. Students may petition for

individualized minors or a minor in experimental psychopathology. Training is also available in community psychology.

Courses taken to satisfy a student's minor area requirements cannot be chosen from among those that could satisfy the major area requirements. The minor is normally satisfied by taking three to four specified courses as indicated below. Other options are also available; see departmental bulletins for further details. The following is standardized departmental coursework for minors.

Behavioral Neuroscience. Four units from the Psychology 205 series, plus two of the following: four additional units from Psychology 205A through M205Z, 207A, 207B, 207C, or 291. In addition, students may select Neuroscience M201 and M205.

Cognitive. Three of the following courses, two of which must be from Psychology 259 through 266: Psychology 259, 261, 262, 263, 265, 266, 268A through 268E, 269.

Developmental. Psychology 240A or 240B, plus two courses from Psychology 242A through 242F, 243A, 243B, 244, M246, 299.

Experimental Psychopathology. Four courses petitioned and approved by the clinical area.

Health Psychology/Behavioral Medicine. Psychology 227 and two quarters of 425, plus two courses selected from Psychology 222B, four units of 205 or 225, and 298 seminars on relevant topics approved by the health psychology faculty and the Graduate Affairs Committee.

Learning and Behavior. (1) Comparative option — Psychology 210, plus two of the following: Organismic Biology, Ecology, and Evolution 120, C219, 274, Psychology 204E, Anthropology 128A, 128B; (2) learning option — Psychology 200A, 200B, plus one course from Psychology 204B through 204F and 293.

Measurement and Psychometrics. Three courses from Psychology 249, 252A, 252B, 253, 254A, 254B, 255, M256, M257, 258.

Political Psychology. See departmental bulletin for details.

Social. Psychology 220A and 220B, or 220A and 220C, plus one course from Psychology 221, 222A, 222B, 223, 225, 227, M228A, M228B, 231, M239.

Written and Oral Qualifying Examination

The qualifying examination generally consists of three separate sections. The first is an examination administered by the major area, which examines in breadth the student's knowledge of the major field. The second section is an individualized examination which examines in depth the student's knowledge of the area of specialization within the major field. The third section is the University Oral Qualifying Examination. All Ph.D. requirements listed above must be completed before the oral qualifying examination can be taken.

Contact the department for the specific examination requirements of the various areas of specialization.

Psychology

Lower Division Courses

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. 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.

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-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Enforced requisite: course 10. Limited to freshmen/sophomores. Intensive analysis in seminar situations of selected topics of current psychological interest. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit.

88A. Stress, Adaptation, and Coping. 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. P/NP or letter grading.

97. Variable Topics in Psychology. (4) Lecture, three hours. Enforced requisite: course 10. Study of selected topics in psychology at introductory level; lecture format designed for freshmen/sophomores. P/NP or letter grading.

Upper Division Courses

100A. Psychological Statistics. (4) (Formerly numbered 41.) Lecture, three hours; laboratory, two hours. Requisites: course 10, and one course from Computer Science 2, 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. (6) (Formerly numbered 42.) Lecture, two hours; laboratory, four hours. Enforced requisites: courses 10, 100A (C- or better for prepsychology and psychobiology, C or better for precognitive science). 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. P/NP or letter grading.

M107. 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 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; outside study, nine 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. Principles of Skill Acquisition. (4) Lecture, three hours. Requisite: course 110 or 120 (recommended). Designed for Psychology majors. Investigation into principles of human skill learning, with focus on general principles of skill learning derived from laboratory settings. These principles have relevance to various industrial or occupational settings, musical performances, vehicle control, sport, and other activities in which complex perceptual-motor skills must be acquired with practice. Major topics include laboratory measurement procedures, effective structure of practice settings, feedback and knowledge of results, learning of automaticity, individual differences, and evaluation of various theories of skill learning.

113. Behavior and Alcohol Laboratory. (4) Discussion, two hours; laboratory, four hours. Requisites: courses 10, 100A, 100B. Students conduct an experiment studying effects of alcohol on learning and complex processes using paid volunteers. Examination of set and setting and role of individual differences in relation to current theories of alcohol use and abuse. P/NP or letter grading.

113H. Behavior and Alcohol Laboratory (Honors). (4) Discussion, two hours; laboratory, four hours. Requisites: courses 10, 100A, 100B. Honors course parallel to course 113. P/NP or letter grading.

114. Alcoholism. (4) Designed for juniors/seniors. Theories and research on impact, causes, characteristics, and treatment of alcoholism considered from a biobehavioral point of view.

115. Principles of Behavioral Neuroscience. (4) Lecture, three hours; discussion, one hour. Requisites for majors: course 100A, Organismic Biology 2; for nonmajors: Life Sciences 1, 2, 3. Designed for juniors/seniors. Nervous system anatomy, physiology, pharmacology, and their relationship to behavior. P/NP or letter grading.

116. Behavioral Neuroscience Laboratory. (4) Lecture, one hour; laboratory, three hours. Requisites: courses 100A, 100B, 115 (may be taken concurrently). Designed for psychobiology and psychology majors. Laboratory experience with various topics in behavioral neuroscience. P/NP or letter grading.

M117A-M117B-M117C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Physiological Science M180A-M180B-M180C.) Lecture, four hours; discussion, one hour. P/NP or letter grading:

M117A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: Chemistry 14C or 30 or former course 10D (14C may be taken concurrently), Life Sciences 2, Physics 1B or 6C. Not open for credit to students with credit for Physiological Science 111A. 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.

M117B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisites: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A) or Physiological Science 111A, Life Sciences 3, 4. 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.

M117C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, one hour. Requisite: course 115 or M117B (or Molecular, Cell, and Developmental Biology M175B or Neuroscience M101B or Physiological Science M180B) or Physiological Science 111A. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M117J. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M191, Neuroscience M130, Physiological Science M181, and Psychiatry M191.) Lecture, three hours. Requisite: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A) or Physiological Science 111A. Underlying brain systems involved in psychiatric syndromes and neurological disorders, including schizophrenia, depression, bipolar disorders, obsessive/compulsive disorder, eating disorders. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments.

M117K. Introduction to Functional Anatomy of Central Nervous System. (4) (Same as Neuroscience M102.) Lecture, two hours; laboratory, two hours. Requisite: Life Sciences 2. Not open to freshmen. Overview of human nervous system; relation of behavior to higher cognitive function. Development of primate and human brain during past few million years; evolutionary aspects of neuroanatomical structures and effects of behavior and cultural attitudes of modern man. 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. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Analysis of basic pharmacologic principles to include interaction of drugs with neurochemically significant substances in the brain.

119AH. Neuropsychopharmacology (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 119A.

119B. Human Neurophysiology. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Exploration of biological basis of human cognitive processing, with emphasis on function of cerebral cortex.

119D. Behavioral Pharmacology. (4) Requisite: course 115. Designed for juniors/seniors. Experimental and theoretical treatment of drug-behavior relationships. Particular emphasis on behavior and pharmacological mechanisms of drug action and interaction with neuronal function.

119DH. Behavioral Pharmacology (Honors). (4) Lecture, three hours; discussion, one hour. Experimental and theoretical treatment of drug-behavior relationships; pharmacological approaches to mood, aggression, learning, motivation; experimental studies of addiction.

119E. Stress and Bodily Disease. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Psychobiological processes as they pertain to development of stress responses and disease states. Consideration of stress-related topics, including behavioral and pharmacological variables in stress and stress management.

119F. Neuron Circuitry and Behavior. (4) Requisites: course 115, Molecular, Cell, and Developmental Biology 171. 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.

119G. Psychobiology of Pain and Pain Inhibition. (4) Lecture, three hours. Requisite: course 115. Designed for seniors. Lectures and discussions on neural mechanisms of pain and problem of chronic pain disease.

119I. Psychophysiology of Motivation. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Basic psychophysiology, including brain and endocrine mechanisms, involved in control of motivation. Discussion of homeostatic drives such as hunger and thirst and nonhomeostatic drives such as reproduction behavior.

119J. Ethology: Behavior and Learning. (4) (Formerly numbered M119J.) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Basic course for undergraduate students which integrates systematic overview of common forms of behavioral plasticity and standard training procedures in laboratory animals (in behavioral, neurophysiological, and pharmacological studies) with broad biological, evolutionary perspective. P/NP or letter grading.

M119L. Human Neuropsychology. (4) (Formerly numbered 119L.) (Same as Neuroscience M119L.) Lecture, three hours. Requisites: courses 115 (or M117A and M117C), 120. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

119M. Physiological Psychology of Learning. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 115. Designed for juniors/seniors. Introduction to classical and current literature on mechanisms of learning, considering both cell-biological mechanisms and brain circuitry.

M119N. The Visual System. (4) (Formerly numbered 119N.) (Same as Neuroscience M119N.) Lecture, three hours. Requisite: course 115 or Molecular, Cell, and Developmental Biology 171 or Neuroscience M101A or Physiological Science 111A. The ability to image and analyze the visual world is a truly remarkable feat. Coverage of anatomy and physiology of visual processing from the retina to visual cortex through lectures, extensive reading, and discussions.

M119O. 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.

120. 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.

121. Laboratory in Cognitive Psychology. (4) Laboratory, four hours. Requisites: courses 10, 100A, 100B, 120 (may be taken concurrently). 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.

122. Language and Communication. (4) Lecture, three hours. Requisite: course 10. Introduction to psychology of language and communication; verbal and nonverbal channels; interlinguistic and intralinguistic variation; animal communication; biological bases of language; production and comprehension of speech and writing; relation to perception, memory, and thought; conversational interaction; language development.

123. Psycholinguistics. (4) Designed for juniors/seniors. Current theory and research in psycholinguistics: survey of language acquisition, language perception, and language production; language physiology and pathology; problems of representation, sequencing, and timing in language and other cognitive skills; errors in speech production and perception.

124A. Sensation and Perception. (4) Lecture, three hours. Requisites: courses 10, 100A, 120. Designed for juniors/seniors. Contemporary research and theory about visual and auditory perception. Topics include physiological mechanisms, psychophysical studies and models, and computational approaches. P/NP or letter grading.

124AH. Sensation and Perception (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 124A.

124B. Visual Information Processing. (4) Lecture, two hours; discussion, one hour. Requisites: courses 10, 100A, 120. Exploration of issues in visual information, such as storage and representation of visual information in memory, pattern recognition, nature and role of attention in visual processing, word and picture recognition, object perception, and imagery. Possible consideration of developmental aspects. P/NP or letter grading.

124C. Human Memory. (4) Lecture, two hours; discussion, one hour. Requisite: course 120. 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.

124D. Principles of Human Performance. (4) Designed for Psychology majors. Investigation into laboratory-based methods and principles of human performance. Major topics include research methods for human performance, central control of movements, anticipation and timing, automaticity, sensory involvement in action such as vision and kinesthesia, role of reflexes, speed-accuracy trade-offs, and individual differences and abilities. Principles discussed should have relevance for numerous real-world situations in which complex perceptual-motor skills are required, such as in industrial or occupational settings, musical performances, vehicle control, and sport.

124E. Language and Cognition. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 10, 120. Designed for juniors/seniors. Recent theories of language and cognition; nature of categories, feedback, and error detection in language and cognition; modularity; ambiguity; knowledge acquisition; processes and representations underlying perception, production, attention, and awareness in language and cognition.

124F. Thinking. (4) Lecture, three hours. Requisite: course 120. Analysis of experimental studies of human categorization, reasonings, decision making, problem solving, creativity, and related topics.

124FH. Thinking (Honors). (4) Lecture, three hours. Honors course parallel to course 124F. P/NP or letter grading.

124G. Cognitive Aging. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 41, 120. Designed for juniors/seniors. Recent facts and theories on relations between normal aging and cognition, including perception, language comprehension, learning, memory, thinking, inhibitory processes in attention, sequential processes in action, general slowing phenomenon, and related neuropsychological issues. P/NP or letter grading.

127. Abnormal Psychology. (4) Lecture, three hours. Requisite: course 10. Study of dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions, and other abnormal personality patterns.

127H. Abnormal Psychology (Honors). (4) Lecture, three hours. Overview of characteristics of major forms of psychopathology, theories and research on causes of disorder, types of treatment, social and legal issues in mental illness.

129A. Personality Measurement. (4) Lecture, three hours. Requisites: courses 10, 100A. Rationale, methods, and content of studies dealing with problems of describing persons in terms of a limited set of dimensions. Detailed consideration of research literature dealing with a few representative personality dimensions. P/NP or letter grading.

129B. Introduction to Psychoanalysis. (4) Lecture, three hours. Requisites: courses 10, 100A. Development of Freud's ideas from 1895 to 1926, with emphasis on how his theory evolved from a drive-based reinforcement model to the structural theory in which unconscious fantasy plays a crucial role. Coverage of developments beyond Freud, especially work of the British school under leadership of Klein, Winnicott, and Bim. P/NP or letter grading.

129C. Culture and Mental Health. (4) Lecture, two hours; discussion, one hour; outside study, nine hours. 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.

129D. Personality. (4) Lecture, three hours. Requisite: course 10. Survey of major topics in field of personality, including personality theory, personality assessment, and physiological, behavioral, and cultural role of perception, learning, and motivation in personality.

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.

129F. Clinical Psychology of Childhood and Adolescence. (4) Lecture, two hours; discussion, one hour. Requisite: course 127. 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; outside study, eight 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. Letter grading.

132. Learning Disabilities in Perspective. (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 vs. goal focus in learning.

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.

133BH. Seminar: Cognitive Development (Honors). (4) Seminar, three hours. Honors course parallel to course 133B.

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) (Formerly numbered 134.) 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. 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.

133X. Applied Developmental Psychology. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 10. Designed for Applied Developmental Psychology minors. Issues on improving well-being of children and their families, relating research literature to ongoing fieldwork experiences through lectures and discussion, conducting and writing up assessment and observation of children, and designing day-care curricula. P/NP grading.

133Y. Advanced Applied Developmental Psychology. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 133X. Designed for Applied Developmental Psychology minors. Advanced issues on improving well-being of children and their families, relating research literature to ongoing fieldwork experiences through lectures and discussion, conducting and writing up assessment and observation of children, and designing daycare curricula. 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 100A, 100B, 135 (may be taken concurrently). 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 100A, 100B. 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. Survey Methods in Psychology. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 100A, 100B. Designed for Psychology majors. Survey research in psychology, with particular emphasis on surveys of social and political attitudes. Actual experience in systematic survey research such as that done by media polling agencies, market research companies, and academic survey research centers. Topics include survey design, sampling, interviewing techniques, response rates, questionnaire design, data coding, and analysis. Training in telephone interviewing techniques in laboratories. P/NP or letter grading.

137A. Sport Psychology. (4) Lecture, three hours. Designed for junior/senior Psychology majors. Introduction to field of sport psychology. Coverage of research and applied aspects of a range of topics, including youth sport participants as well as world-class performers.

137AH. Sport Psychology (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 137A.

137B. Attitude Formation and Change. (4) Lecture, three hours. Requisites: courses 10, 100A, 135. Structure and functions of attitudes, their measurement, how they develop, and methods for changing them. P/NP or letter grading.

137C. Close Relationships. (4) Lecture, three hours. Requisites: courses 10, 100A, 135. Examination of research and theory about friendship, dating, and marriage, with emphasis on how these relationships are affected by gender and changing sex roles. P/NP or letter grading.

137D. Introduction to Health Psychology. (4) 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 the medical area.

M137E. Work Behavior of Women and Men. (4) (Same as Women's Studies M137E.) Requisite: course 10 or Women's 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.

137F. Introduction to Sport Psychology. (4) Lecture, three hours. Designed for juniors/seniors. Survey of topics in sport psychology, including leadership and team dynamics, moral development and aggression, personality, motivation, fan behavior, and performance enhancement. Consideration of youth sport through world-class athletics. P/NP or letter grading.

137I. Interpersonal Influence and Social Power. (4) Lecture, three hours. Requisite: course 135. Theory and research focusing on how people influence one another and resist such influence, and on the bases of social power. Motivations and effects of influence for the powerholder and target of influence. Applications to such problems and issues as power and leadership in organizations, interpersonal influence and health, power relationships in the family, interpersonal influence in everyday life, social power of political figures.

M137J. Psychology of Language and Gender. (4) (Same as Communication Studies M124 and Women's Studies M137J.) Lecture, three hours. Requisite: course 10. Designed for juniors/seniors. Examination of current topics at intersection of gender and language. Topics include sex differentiation in language cross-culturally; sex bias in lexicon and usage; sex differences in lexicon, syntax, phonology, and nonverbal behavior; development of sex-differentiated language in children; "women's" and "men's" language in various racial/ethnic/class/sexual preference groups; and conversational interaction.

M138. Electoral Politics: Political Psychology. (4) (Same as Political Science M141A.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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.

M140. Introduction to Study of Aging. (4) (Same as Gerontology M140 and 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 the range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

142H. Advanced Statistical Methods in Psychology (Honors). (4) (Formerly numbered 142.) 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. Psychological Tests and Evaluation. (4) Lecture, three hours. Requisite: course 100A. Further study of principles of measurement, stressing basic concepts. Application to problems of test construction, administration, and interpretation. P/NP or letter grading.

150. Mathematical Models in Psychology. (4) Lecture, two hours; discussion, two hours. Requisites: Mathematics 3C or 31B, Computer Science 10C or 10F. Review of theoretical models and experimental evidence for these models in various areas of psychology. Topics include mathematical computer models of learning, perception, cognition, and personality.

151. Computer Applications in Psychology. (4) Lecture, two hours; discussion, two hours. Requisite: Computer Science 10C or 10F. Topics include hardware and software computer problems in design, control, and analysis of experiments; programming problems arising in evaluation of models of psychological processes of various content areas such as learning, perception, social, personality, and clinical.

M163. Death, Suicide, and Trauma. (4) (Same as Sociology M138.) Lecture, three hours. Designed for juniors/seniors. Definition and taxonomy of death; new permissiveness and taboos related to death; romanticization of death; role of the individual in his own demise; modes of death; development of ideas of death through life span; ways in which ideas of death influence conduct of lives; impact of dying on social structure surrounding the individual; preventive, interventive, and postventive practices in relation to death and suicide; developmental perspective on witnessing traumatic death, including posttraumatic and grief reactions; partial death; megadeath; lethality; psychological autopsy; death of institutions and cultures. P/NP or letter grading recommended (letter grading required if course to be applied toward Psychology or Sociology major).

M165. Psychology of Gender. (4) (Same as Women's 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.

168. Environmental Psychology. (4) Lecture, three hours. Requisites: courses 10, 100A. Research-oriented course which surveys theoretical and methodological issues which comprise the area of environmental psychology. Discussion of basic dimensions of emotional response to physical and social environments, measurement of information of rate of situations, and personality variables that are relevant to environmental theory. Residential, therapeutic, work, and recreational environments within a unified framework. P/NP or letter grading.

170A. Behavior Modification. (4) Lecture, three hours. Designed for juniors/seniors. Applied behavior theory; study of application of principles derived from learning theory, as in classical and instrumental (operant) conditioning, to treatment of developmentally disabled, autistic, and schizophrenic children, adult schizophrenics, affective disorders, anxiety states, drug abuse, marital discord, etc. Lectures, discussions, and demonstrations.

170B. Fieldwork in Behavior Modification. (4) Discussion, two hours; fieldwork, six hours. Requisite: course 110 with a grade of A or 170A. Fieldwork in applied behavior theory, especially to problems of retarded and autistic children.

170C. Advanced Fieldwork in Behavior Modification for Nonpsychology Majors. (4) Lecture, two hours; fieldwork, six hours. Requisite: course 170B. Not open to students with credit for course 171A. Does not fulfill laboratory requirement for majors. Advanced fieldwork in applied behavior theory, especially related to problems of retarded and autistic children. Review of current research in the field. May not be applied as an elective toward any Psychology Department major.

171A. Advanced Fieldwork in Behavior Modification for Psychology Majors. (4) Discussion, two hours; fieldwork, six hours; to be arranged, 20 hours. Requisite: course 170B. Designed for Psychology majors. Advanced fieldwork in applied behavior theory, especially related to problems of retarded and autistic children. Students design and carry out individualized experimental study to evaluate behavioral interventions with developmentally disabled clients.

171B. Practicum: Design and Implementation of Behavioral Interventions. (4) Discussion, two hours; fieldwork, six hours; to be arranged, 20 hours. Requisite: course 171A. Design and implementation of behavioral interventions with developmentally disabled children. Topics include goal selection, ethical considerations, behavioral contracting, client right and human use procedures, home and community management, parent and staff training, working with schools, clinical issues.

M172. The Afro-American Woman in the U.S. (4) (Same as Afro-American Studies M172 and Women's Studies M172.) Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of a large society and as members of their biological and ethnic group.

173. Advanced Abnormal Psychology. (4) Lecture, three hours. Requisites: courses 10, 100A, 127. Examination of research and theory concerning origins, course, and outcomes of disordered behavior. Focus on continuity and change in patterns of behavior, assessment methods, and research approaches. Concentration on one of following: childhood disorders, anxiety and stress, the schizophrenias, or mood disorders. P/NP or letter grading.

174. Interpersonal Process Analysis. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 100A, 100B, 127. Designed for Psychology majors. Introduction to conceptual tools for analyzing interpersonal structures and functions in goal-oriented human interaction such as psychotherapy, persuasion, courtship, etc. Small group exercises integrated with lecture and discussion (additional laboratory work to be arranged). 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.

175H. Community Psychology (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 175.

M176. Communication and Conflict in Couples and Families. (4) (Same as Communication Studies M116.) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 127. Examination of (1) dysfunctional communication and conflict in couples and families and (2) relationship of these processes to individual psychopathology, marital discord, and family disruption (e.g., separation and divorce). P/NP or letter grading.

177. Counseling Relationships. (4) Lecture, three hours. Requisites: courses 10, 100A, 127. 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.

178H. Human Motivation (Honors). (4) Lecture, three hours; discussion, one hour. Honors course parallel to course 178.

179A. Health Behavior and Health Status of Ethnic Groups: Behavioral Perspective. (4) Lecture, three hours. Requisite: course 10. Designed for juniors/seniors. Survey course of psychological aspects of health behavior and health status in major ethnic groups in the U.S. Emphasis on major diseases outlined by the U.S. Public Health Service (USPHS).

179B. Biomedical and Psychosocial Aspects of AIDS/HIV. (4) Lecture, three hours. Requisite: course 137D or 179A or Health Services 100. Designed for juniors/seniors. Basics of epidemiology of the disease, routes of transmission, clinical characteristics of AIDS, neurological and psychological aspects of coping with HIV infection and AIDS. Presentation of biologic, behavioral, and therapeutic interventions.

M180A. Contemporary Problems in Mental Retardation. (4) (Same as Psychiatry M180A.) Lecture, three hours. Requisites: courses 10, 100A, and 127 or 130 or 133A through 133I. Corequisite: course M181A. Limited to Immersion Program students. Presentation of concepts, issues, and research techniques in the area of mental retardation. Biological, psychological, and community questions concerning causes and treatment of developmental disabilities, as well as systems for care and training of retarded individuals. Lectures, directed reading, and discussion. P/NP or letter grading.

M180B. Contemporary Issues in Mental Retardation. (4) (Same as Psychiatry M180B.) Lecture, three hours. Requisite: course M180A. Corequisite: course M181B. Limited to Immersion Program students. Psychoeducational issues in mental retardation relating literature to ongoing field experiences through lectures, discussions, media, and six student papers. P/NP or letter grading.

M181A-M181B. Research in Contemporary Problems in Mental Retardation. (4) (Same as Psychiatry M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress and P/NP or letter grading.

186A. Cognitive Science Laboratory: Introduction to Theory and Simulation. (4) Lecture, two and one-half hours; discussion, 30 minutes; laboratory, three hours. Requisites: course 85, Program in Computing 15. Designed for junior/senior departmental majors. Models in several psychological domains (e.g., visual perception, categorization, reasoning, and problem solving). Types of models include semantic networks, search, production systems, connectionist networks, and mathematical models. Lectures and discussions interwoven with computer simulations written in common LISP.

186B. Cognitive Science Laboratory: Neural Networks. (4) Lecture, two and one-half hours; discussion, 30 minutes; laboratory, three hours. Recommended preparation: knowledge of calculus. Requisites: course 85, Program in Computing 10A, 10B (or PASCAL). Designed for junior/senior departmental majors. Lectures and laboratory work 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.

187A. Psychology and Law. (4) Lecture, two hours; discussion, two hours. Designed for juniors/seniors. Study of new topics on legal psychology, including suspect identification, witness reports, and police procedures. Outside speakers utilized in presentation of these materials. Students participate in presentations and/or discussions.

187AH. Psychology and Law (Honors). (4) Lecture, two hours; discussion, two hours. Honors course parallel to course 187A.

187B. Advanced Psychology and Law. (4) Lecture, three hours; discussion, one hour. Requisite: course 187A. Designed for juniors/seniors. Study of additional topics on legal psychology, including gang violence, theories of crime, corrections, repeat offenders, community policing, and interrogation. Outside speakers utilized in presentation of these materials. P/NP or letter grading.

188A. Research in Cognitive Science. (4) Seminar, two hours; laboratory, six hours. Designed for Cognitive Science majors. Practical applications of cognitive science through research. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. May be repeated once for credit. P/NP grading.

188B. Fieldwork in Cognitive Science. (4) (Formerly numbered 188.) Seminar, two hours; fieldwork, six hours. Designed for Cognitive Science majors. Practical applications of cognitive science through fieldwork. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. May be repeated once for credit. P/NP grading.

189. Ergonomics and Human Factors. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 10, 120. Designed for juniors/seniors. Examination of human capabilities and limitations in design of human/machine systems such as vehicles, workspaces, and computer software for goals of safety and efficiency. Topics include sources of error, information processing, manual control, training, and personnel selection.

189H. Ergonomics and Human Factors (Honors). (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Honors course parallel to course 189. P/NP or letter grading.

190A-190B-190C. Honors Course. (4) Seminar, two hours. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with a 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, course 190C may be applied toward elective course requirement for any Psychology Department major.

192. Practicum in Teaching Psychology. (4) Limited to junior/senior Psychology, Cognitive Science, and Psychobiology majors. Training and supervised practicum for advanced undergraduates in teaching psychology. Students serve as junior teaching assistants and assist in preparation of materials and development of innovative programs. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. P/NP grading.

193. Fieldwork in Psychology. (4) Seminar, two hours; fieldwork (approved community setting), six hours. Limited to sophomore/junior/senior Prepsychology, Precognitive Science, Prepsychobiology, Psychology, Cognitive Science, and Psychobiology majors. Fieldwork in applications of psychology. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. P/NP grading.

194A. Research in Psychology. (4) (Formerly numbered 194.) Seminar, one hour; internship (approved research setting), seven hours. Limited to sophomore/junior/senior Prepsychology, Precognitive Science, Prepsychobiology, Psychology, Cognitive Science, and Psychobiology majors. Practical applications of psychology through research. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. P/NP grading.

194B-194C. Ongoing Research in Psychology. (4) (Formerly numbered 194B.) Seminar, one hour; internship (approved research setting), seven hours. Limited to sophomore/junior/senior Prepsychology, Precognitive Science, Prepsychobiology, Psychology, Cognitive Science, and Psychobiology majors. Minimum of two terms required. Practical applications of psychology through research. Consult Undergraduate Advising Office, 1531 Franz Hall, for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. In Progress and P/NP grading.

197. Current Issues in Psychology. (4) Lecture, three hours. Designed for junior/senior majors. Study of selected current topics of psychological interest. Consult *Schedule of Classes* for topics and instructors. Only one graded 197 course may be applied as an elective toward Psychology major. If content is approved in advance by Undergraduate Advising Office, Psychobiology and Cognitive Science majors can petition to use course to satisfy an elective requirement. May be repeated for credit with consent of department.

199. Directed Individual Research and Studies. (4) Preparation: submission of written proposal outlining course of study. Limited to junior/senior Psychology, Psychobiology, and Cognitive Science majors (juniors must have at least 3.0 grade-point average in major). Consult Undergraduate Advising Office, 1531 Franz Hall, for further information and approval forms. Only one four-unit 199 course may be taken per term and only one for a letter grade (additional 199 courses may be taken on a P/NP basis). If approved in advance by Undergraduate Office, four units of course 199 may be applied toward elective course requirement for Psychology major and toward Psychology 188 requirement for Cognitive Science major.

Graduate Courses

200A. Animal Learning and Behavior. (4) Basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning, and species-specific behavior.

200B. Human Learning and Behavior. (4) Lecture, three hours. Topics include human learning and conditioning and application of learning principles in etiology and treatment of a variety of socially significant problems.

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.

202. Research in Learning and Behavior. (2) Forum in which graduate students discuss the literature and methodological, analytical, and interpretational issues related to specific topics of research in learning and behavior. S/U grading.

204B. Theories of Learning. (4) Discussion, three hours. Requisite: course 200A. Critical discussion and in-depth analysis of current major theoretical approaches to associative learning, with emphasis on recent experimental analyses of conditioning phenomena.

204C. Applied Learning. (4) Lecture, three hours. Designed for graduate psychology students. Lectures and discussion on current research in application of learning principles to clinical and social problems such as alcohol and drug abuse, aggression, fear management, mental retardation, behavioral medicine, autism/schizophrenia, etc.

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.

204E. Primitive Motivational Processes. (4) Lecture, three hours. Designed for graduate students. Analysis, using a 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.

204F. Animal Cognition and Cellular Basis of Learning. (4) Discussion, three hours. Designed for graduate students. Discussion of experimental literature on spatial and temporal learning, learning of relative rates of reward (the matching law), and classical conditioning, all treated from a computational/representational, perspective, with emphasis on implications for cellular bases of learning and memory. S/U or letter grading.

205A. Behavioral Neuroendocrinology. (2) Lecture, three hours. Designed for graduate students. Mechanisms of hormone action on the brain that influence behavior, including permanent actions in development and transient actions in adulthood. Using a comparative approach, topics include sexual differentiation, long-term effects of stress, seasonal and other changes in adulthood, and aging.

205B. Human Neurophysiology. (2) Lecture, three hours. Designed for graduate students. Examination of higher cognitive processes in terms of neural mechanisms that underlie them. Topics include cortical modularity and organization, coordinated sensory representation, language, regional functional specialization, attention, and regulation of cortical function by extracortical systems.

205C. Neurotransmitters in Human Disorders of Motor and Cognitive Function. (2) Lecture, three hours. Designed for graduate students. Detailed analysis of molecules involved in interneuronal communication processes (i.e., neurotransmitters, neurohormones, "neuromodulators," neurotropic agents). Discussion of their roles in normal brain physiology, followed by detailed analyses of their perturbations in various disease states. Particular emphasis on current and past thinking about Alzheimer's disease, Parkinsonism, Huntington's disease, and Down's syndrome dementia.

205D. Clinical Psychopharmacology. (2) Lecture, three hours. Designed for graduate students. General principles of brain neurotransmitters, including synthesis, cell bodies and pathways, and receptor subtypes. General principles of drug administration and pharmacokinetics. Major classes of psychoactive drugs, animal models, and "atypical" compounds.

205E. Psychobiology of Emotion and Stress. (2) Lecture, three hours. Designed for graduate students. Overview of literature on role of the brain and autonomic and endocrine systems in emotion and stress-related responses. Some emphasis on involvement of neurotransmitters, neuropeptides, and hormones in emotional plasticity, visceral function, and bodily diseases.

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.

205G. Pain. (2) Lecture, three hours. Designed for graduate students. Consideration of pain from both basic science and clinical perspectives. Discussion of nociceptors, spinal cord, brain mechanisms, pain inhibition, and role of endogenous opioids. Effects of pain and stress on immunity.

205I. Motor Coordination. (2) Lecture, three hours. Designed for graduate students. Elementary and complex units of behavior: reflexes, servomechanisms, oscillators, and central pattern generators. Principles of coordination: efference copy, oscillator coupling, potentiation, and depotentiation. Relation between levels of integration and anatomical levels: transections, lesions, focal stimulation, and single unit recording.

205J. Homeostatic Drive, Hunger, and Thirst. (2) Lecture, three hours. Designed for graduate students. Homeostasis used as framework within which ingestive behavior is discussed. Analysis of thirst on basis of depletions of body fluid compartments. Consideration of hunger, focusing on two theories — "Glucostatic" and "Energostatic."

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.

205L. Cognitive Neuroscience. (2) Lecture, three hours. Designed for graduate students. Overview of neural basis of higher cognitive functions, integrating anatomical, physiological, and behavioral approaches and incorporating clinical and experimental data. Systems covered include attention, perception, memory, language, and hemispheric specialization.

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. S/U or letter grading.

M205Z. Behavioral and Systems Neuroscience. (4) (Same as Neuroscience M205 and Physiological Science M205.) Lecture, three hours. Requisites: Neuroscience M201, M202, M203, M204. Introduction to fundamentals of behavioral and systems neuroscience, with emphasis on role of behavioral analysis in understanding the functioning of nervous system and identifying anatomical circuits, cell physiological processes, and molecular mechanisms that mediate behaviorally defined functions.

207A-207B-207C. Seminars: Physiological Psychology. (4-4-4) Requisite: course 115.

210. Comparative Psychobiology. (4) Requisite: course 115. Survey of determinants of species-specific behavior, including genetic influences and learning.

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.

M213. Neuroimaging and Brain Mapping. (4) (Same as Neuroscience M272 and Physiological Science M272.) Lecture, three hours; outside study, nine hours. Recommended preparation: mathematics and computer background. 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.

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. Designed for graduate psychology students. Research design and methodological issues in experimental and nonexperimental social research.

220C. Advanced Social Psychology. (4) Lecture, three hours. Requisite: course 220A or 220D. Review of contemporary topics and issues in social psychological research and theory.

220D. Introduction to Social Psychology. (4) Lecture, three hours. Designed for graduate students. Introduction to theory and research in social psychology for students who are not psychology majors. Service course for graduate students in education, sociology, political science, management, public health, etc.

221. Seminar: Attitude Formation and Change. (4) Discussion, three hours. Requisites: courses 220A, 220B. Social psychological research and theories on opinions and attitudes. Effects of mass communication, social factors in assimilation of information and influence.

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.

- 222B. Interpersonal Influence and Social Power. (4)** Seminar, three hours. Preparation: advanced social psychology course (psychological or sociological). Review of theory and research on interpersonal influence and social power, with applications to various power relationships such as supervisor/subordinate, health care professional/patient, doctor/nurse, parent/child, wife/husband, teacher/student, political figures, etc.
- 223. Seminar: Social Survey Research. (4)** Seminar, three hours. Requisite: course 220B. Contemporary issues and topics in social survey research methodology.
- 225. Seminar: Critical Problems in Social Psychology. (4)** Discussion, three hours. Requisites: courses 220A, 220B. May be repeated for credit with consent of instructor.
- 226A-226B-226C. Current Literature in Social Psychology. (2-2-2)** Discussion, 90 minutes. Course 226A is limited to first-year social psychology students. Courses 226B-226C are 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.
- 227. Health Psychology. (4)** Lecture, two hours; discussion, one hour. 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 health care and self-care.
- M228A. Proseminar: Political Psychology. (4)** (Same as History M236A and Political Science M261A.) Discussion, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.
- M228B. 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.
- M228C. Critical Problems in Political Psychology. (4)** (Same as Political Science M261E.) Discussion, three hours.
- 229. Social Cognition. (4)** Lecture, one hour; discussion, two hours. Social cognition is concerned with how people organize and interpret social information in their environment. Seminar provides broad background in the field and also gives depth and focus on particular research topics in the field. Weekly papers, as well as a lengthy final paper, required.
- 231. Psychology of Gender. (4)** Seminar, three hours. Preparation: one prior course on gender/women's studies. Critical evaluation of current research and theory concerning psychology of gender, drawing on work from various areas of psychology to understand sources of gender differentiation and its consequences for human behavior and social interaction.
- 232. Human Sexuality. (4)** Lecture, three hours. Designed for graduate students. Intended to teach students how to carry out research on human sexual behavior. Contents include theory construction, scale development, physiological and endocrinological implications, radioimmunoassay (measuring hormones in blood sample), ethical issues, methodological and statistical considerations, measurement of sexual arousal, fantasy, and sexual dysfunction therapy. Discussion-oriented, with emphasis on operationalizing predictions concerning human sexual functioning.
- 233. Seminar: Environmental Psychology. (4)** Requisites: courses 235, 250A, 250B. Critical review of work in environmental psychology designed to identify basic dimensions for analysis of man/environment relationships. Use of human emotional responses to environments as intervening variables linking specific stimulus qualities to a variety of approach-avoidance behaviors. Individual differences and drug-induced states as these relate to emotional response dimensions used to explain within-individual differences in response to same environment over time or between-individual differences to same situation. Review of literature relating information rate from environments to arousal and preferences for those environments.
- 234. Social Psychological Aspects of Competitive Youth Sport. (4)** Review of research concerning social psychological aspects of competitive sport for children. Sport is presented as a major achievement domain for young participants. Topics include sources and consequences of competitive stress, significant adult influences and interactions, predictors of performance, determinants of participation and dropping out, and socialization through sport.
- 235. Personality. (4)** Survey of cognitive, analytic, and learning theory approaches to study of personality. Emphasis on intensive exploration of selected concepts and related research.
- M238. 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.
- M239. Personality, Motivation, and Attribution. (4)** (Same as Education M215.) Current research and theory relating personality variables (e.g., attributional styles, self-esteem) to motivational concerns such as persistence and intensity of behavior. Perceived causes of outcomes in achievement and affiliative domains.
- 240A-240B. Developmental Psychology. (4-4)** Lecture, three hours. Preparation: one undergraduate developmental psychology course. Designed for graduate students. Consideration of variables influencing cognitive social and emotional development of the human organism from conception through adolescence. Emphasis on research methodology and research base for current theories of development.
- 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.
- 242A-242F. Seminars: Developmental Psychology. (4 each)** Seminar, three hours. Requisites: courses 240A-240B. Each course may be taken independently and may be repeated for credit:
- 242A.** Perceptual Development.
- 242B.** Cognitive Development.
- 242C.** Socialization.
- M242D.** Social Development and Education. (Same as Education M217A.) Biological and familial, school, and other influences on the child; 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.
- 242F.** Development of Language and Communication.
- 243A-243B. Seminars: Practical and Societal Issues in Developmental Psychology. (4-4)** Seminar, three hours. Requisites: courses 240A-240B. Socialization processes in human development and implication for social/political, educational, research issues, values, and societal change. In Progress 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.
- M245. Personality Development and Education. (4)** (Same as Education M217C.) 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.
- M246. Psychological Aspects of Mental Retardation. (4)** (Same as Psychiatry M246.) Lecture, 90 minutes. Discussion of psychological aspects of mental retardation, including classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems).
- 249. Evaluation Research. (4)** Requisites: courses 250A, 250B. Introduction to evaluation research in psychology, with emphasis on clinical, community, and social psychology applications. Survey includes policy and strategy issues, design of evaluative studies, data analysis, and utilization of findings.
- 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.
- 251A-251B-251C. Research Methods. (4-4-4)** 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 (course 251A only).
- 252A. Multivariate Analysis. (4)** Lecture, three hours. Requisites: courses 250A, 250B. Introduction to analysis of data having multiple dependent variables. Topics include continuous multivariate distributions, multiple regression, multivariate analysis of variance, discriminant analysis, canonical correlation, principal component analysis. Applications from clinical, cognitive, physiological, and social psychology. Computer methods.
- 252B. Discrete Multivariate Analysis. (4)** Lecture, three hours. Requisites: courses 250A, 250B. Introduction to analysis of frequency table data. Topics include categorical univariate and multivariate distributions, independence and conditional independence, log-linear models, multivariate categorical designs, and ordered categorical variables. Applications from various areas of psychology.
- 253. Factor Analysis. (4)** Theory and practice of factor analysis in psychological research. Methods of factor extraction and rotation. Applications of computers to computations in factor analysis.
- 254A. Psychological Scaling. (4)** Lecture, three hours. Designed for graduate students. Theory of measurement, law of comparative judgment, methods of unidimensional scaling, multidimensional scaling, and related topics of current interest.
- 254B. Cluster Analysis. (4)** Lecture, three hours. Designed for graduate students. Quantitative methods for classification. Theories and assumptions underlying major clustering methods. Use of methods in exploratory data analysis.
- 255. Quantitative Aspects of Assessment. (4)** Fundamental assumptions and equations of test theory. Current problems in assessment.
- M256. Advanced Regression Analysis. (4)** (Same as Political Science M200E.) Seminar, three hours. Diagnostics, robust regression, cross validation, resampling, outliers, missing data, geometry of regression, validity of assumptions, categorical dependent variables, transformation of variables. Access to Macintosh computer very helpful.

M257. Multivariate Analysis with Latent Variables.

(4) (Same as Political Science M208D.) 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 factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications.

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-260B-260C. Proseminars: Cognitive Psychology (1-1-1) 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.

263. Psycholinguistics. (4) Lecture, three hours. Contemporary theory and research in psycholinguistics: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception.

265. Thinking. (4) Lecture, three hours. Contemporary theory and research in thinking, problem solving, inference, semantic memory, internal representation of knowledge, imagery, concepts.

266. Cognitive Science. (4) Lecture, three hours. Major issues in cognitive science. Representation of cognitive structures and higher-level processes. Specific areas include perception, learning and memory, problem solving, and reasoning. Relationships to artificial intelligence.

268A-268E. Seminars: Human Information Processing. (4 each) Seminar, three hours. Topics vary with interests of instructor. Each course may be taken independently and may be repeated for credit. **268A.** Perception; **268B.** Human Learning and Memory; **268C.** Judgment and Decision Processes; **268D.** Language and Cognition; **268E.** Human Performance.

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-270B-270C. Foundations of Clinical Psychology. (4-4-4)

Corequisites: courses 271A-271B-271C. Designed for graduate clinical psychology students. **270A.** Analysis of phenomenological, theoretical, and research issues regarding etiology and mediating mechanisms in neurotic, affective, schizophrenic spectrum, and other personality disturbances. **270B.** Principles and methods of psychological assessment and evaluation. **270C.** Principles and methods of psychological intervention in individuals, families, and community settings.

271A-271B-271C. Clinical Psychological Methods. (2-2-2)

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-271F. Clinical Research Laboratories. (2-2)

Requisite: course 271D. Designed for graduate clinical psychology students. Required of first-year clinical psychology students. S/U grading. **271E.** Brief overview of research design issued in clinical psychology and practical issues in students' own research activities. **271F.** Discussions of students' particular research activities and issues, plus laboratories in computer analysis of statistical data.

272A-272G. Advanced Clinical Psychological Methods. (4 each) Seminar, three hours. Requisite or corequisite: course 401 or 451. Each course may be taken independently for credit:

272A. Behavior Modification with Children. Requisites: courses 271A-271B-271C. Course in series of clinical intervention and assessment offerings for second- and third-year clinical students that covers behavior modification research and practice in clinic, school, institution, and home settings.

272C. Clinical Interventions for Psychological Problems of Children.

272D. Family Therapy and Family Dynamics.

272E. Special Problems.

272F. Behavior Modification with Adults. Designed for second-year graduate clinical psychology students. Current cognitive behavior modification principles and techniques. Major conceptual issues; specific techniques demonstrated and practiced by students to cover a range of adult problems such as depression, stress and anxiety, anger management, assertion problems.

272G. Marital Therapies. 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.

273A-273B-273C. Professional and Ethical Issues in Clinical Psychology. (2-2-2)

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. S/U grading.

275. Family Process: Psychological and Social Perspectives on the Family. (4)

Various theoretical perspectives applicable to analysis of family structure and dynamics. Critical issues in application of family constructs to clinical problems.

276. Clinical Approaches to Children with Learning and Related Behavior Problems. (4)

Lecture, three hours; discussion, one hour. Designed for Ph.D. students. Theoretical and research issues and problems related to purposes of and practices involved in assessment and correction approaches for children with learning and behavior problems. Practicum experiences to illustrate course content and provide opportunities to improve research and clinical competence.

277A-277B. Advanced Clinical Assessment. (4-4)

Laboratory, two hours; additional hours to be arranged through Psychology Clinic. Designed for graduate clinical psychology students. Projective techniques, clinical interpretation, case studies, psychological test battery, psychopathology, and application of assessment to problems in psychotherapy.

279. Seminar: Research in Psychopathology. (4) Seminar, four hours. S/U or letter grading.

M280. Affective Disorders. (2 or 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 four units are assigned a more intensive reading list and required to make a presentation or prepare a research paper.

283. Psychopathology. (4) Survey of dominant psychological attributes of particular forms of psychopathology, including analysis of status of various theories concerned with etiology and mediating mechanisms of personality, neurotic, schizophrenic spectrum, and affective disturbances.

284. Seminar: Clinical Psychology and Communication. (4) Seminar, four hours. S/U or letter grading.

M285. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2 or 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.

286. Issues and Concepts of Clinical Psychology. (4)

Open to graduate students in majors other than clinical psychology. Survey of major issues and alternatives in current practice. Emphasis on assessment and intervention, with consideration of historical, theoretical, and research bases for current trends.

287. Critical Problems in Clinical Research Methodology. (4) Requisites: courses 250A, 250B. Special problems of measurement and design in clinical research.

289A-289B-289C. Current Issues in Clinical Psychology (1-1-1)

Discussion, two hours. Designed for first-year graduate clinical psychology students. Presentation of research and applied topics relevant to clinical psychology. In Progress and S/U grading.

290. History of Psychology. (4) Philosophical and historical context of contemporary psychology. Major trends from the 19th century to contemporary issues.

291. Principles of Behavioral Pharmacology. (4)

Intensive analysis of drug, brain, and behavior relationships. Discussion of nature and source of drugs, general aspects of pharmacology, neurotransmitters and basic neuropharmacology, principles of behavioral pharmacology, categories of psychopharmacological agents, and pharmacological approaches to study of drug addiction, schizophrenia, and other behavioral processes, both normal and pathological.

292. Biobehavioral Mechanisms of Stress and Disease. (4)

Lecture, three hours. Designed for graduate psychology students. Behavior/physiology interactions of some major bodily systems: nervous, cardiovascular, gastrointestinal, and endocrine systems. Usual and altered states of these systems (e.g., stress) as these can promote permanent tissue injuries, disease, or improved bodily function, health enhancement.

293. Behavioral and Psychophysiological Problems of Alcoholism. (4)

Behavioral and psychophysiological characteristics of alcoholism, along with theories concerning their etiology and treatment. Experimental approaches.

M294. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Neurobiology M255 and Physiological Science M255.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of the 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.

M295. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) (Same as Anthropology M236Q, Education M222A, and Psychiatry M235.) Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Discussion of some uses of observations and their implications for research in social sciences. Students expected to integrate observational work into their current research interests.

M296. Neurobiology of Sleep. (3) (Same as Neuroscience M259 and Psychiatry M249.) Lecture, one hour; discussion, two hours. Critical review of primary research publications concerning neural basis of sleep. Discussion of neural and biochemical control of REM and NREM sleep after reviewing sleep behavior and phenomenology, including developmental and comparative aspects. Presentation of relevant clinical phenomena. S/U or letter grading.

297. Issues in Social Development of the Minority Child. (4) Seminar, three hours. Designed for graduate students. Critical evaluation and integration of existing research on social psychological development of the minority child. Emphasis on socialization of cognitive and personality style, with goal of empirically clarifying issues raised in this area of developmental study.

298. Special Problems in Psychology. (4) Content depends on interests of particular instructor. May be repeated for credit.

299. Developmental Methodology. (4) Coverage of both theory and methods in measuring age-related changes in behavior. Experimental designs and data-analytic solutions to problems in measurement of change. Some experience in analysis of actual data sets.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

401. Fieldwork in Clinical Psychology (1 to 12). 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).

402. Clinical Research Practicum. (2) (Formerly numbered 402A-402B-402C.) 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) Under faculty supervision, group of students meets each week for a quarter in a self-led study group to pursue a specific topic of their choice that is not covered in other department courses. S/U grading.

410A-410B-410C. Clinical Teaching and Supervision. (4-4-4) Preparation: completion of Ph.D. 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.

410D-410E-410F. Clinical Assessment Supervision. (4-4-4) Discussion, 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.

420A-420B. Health Psychology Practicum. (2-2) Designed for graduate students. Determination of what areas of health, illness, treatment, and delivery of treatment can be elucidated by understanding of psychological concepts and research; psychological perspective on these problems; how psychological perspective might be enlarged and extended in the medical area. Through practical field placement, students apply knowledge acquired in class to research observation and/or clinical work in the field.

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.

423. Social Survey Research Practicum. (4) Practicum, two hours; additional hours to be arranged. Methods of survey sampling, conduct and management of computer-assisted telephone interview surveys.

425. Health Psychology Lecture Series. (2) Clinicians and researchers in health psychology from Los Angeles area present their research, programs, and/or clinical work as part of a training program in health psychology. May be repeated for credit. S/U grading.

451. Internship in Clinical Psychology. (6 to 12) Preparation: successful completion of departmental qualifying examinations. Requisite: course 401. May be repeated for credit. S/U grading.

454. Internship in Industrial Psychology. (2 to 4) Fieldwork, to be arranged. S/U or letter grading.

495. Presentation of Psychological Materials. (4) Supervised practicum in undergraduate teaching. Students serve as discussion section leaders in selected undergraduate courses. 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 Research and Study in Psychology. (2 to 12) 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 M.A. candidates are exempt from this requirement.) S/U grading.

597. Individual Studies. (2 to 12) Designed primarily as preparation for Ph.D. qualifying examinations. May be required by some area committees as a requisite for taking examinations. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Preparation: successful completion of qualifying examinations. One 599 course is required during each year following completion of qualifying examinations. S/U grading.

PUBLIC HEALTH SCHOOLWIDE PROGRAMS

School of Public Health

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Scope and Objectives

The profession of public health is responsible for the protection, preservation, and promotion of the health of communities and populations. Although the health problems of today differ from those of the past and of the future, the professionals who make up the field need to be trained to respond to broad community problems utilizing the basic ideas of prevention of disease and promotion of well-being. This goal can be achieved only with an understanding of the health status of the population through data gathering and analysis, as well as knowledge of the complex relationships between disease process in the social and biological environment of the community.

The field of public health today needs practitioners from many disciplines. Candidates for graduate study may come from a wide variety of academic backgrounds, training, or experience, including both the natural and social sciences.

Certain degrees within the School of Public Health are not offered by the individual departments but are administered on a schoolwide level: the Master of Public Health; the Doctor of Public Health; three concurrent degree programs: M.B.A./M.P.H. with the John E. Anderson Graduate School of Management and M.A./M.P.H. with Asian American Studies and with Islamic Studies; and three articulated degree programs: M.D./M.P.H. with the School of Medicine and M.A./M.P.H. with African Area Studies and with Latin American Studies.

For information on the Master of Science and Ph.D. degrees in Biostatistics, Environmental Health Sciences, Epidemiology, or Health Services, or the Master of Science and Ph.D. degrees in Public Health within the Department of Community Health Sciences, see the listings for those departments. For information on the interdepartmental D.Env. degree program housed in the Department of Environmental Health Sciences, see the listing for Environmental Science and Engineering.

The Master of Science in Preventive Medicine and Public Health program is not admitting new students at this time.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The School of Public Health offers the Master of Public Health (M.P.H.) degree and participates in concurrent and articulated degree programs with other schools and departments. Master of Science (M.S.) degree programs offered through the school are listed under the departments of Biostatistics, Community Health Sciences, Environmental Health Sciences, Epidemiology, and Health Services.

Master of Public Health

The M.P.H. is a professional degree in the field of public health. Students are expected to focus on public health practice and to acquire a broad knowledge related to professional skills.

Admission

For admission to the M.P.H. program, both the School of Public Health Application for Admission to Graduate Status and the UCLA *Application for Graduate Admission* must be completed. Three letters of recommendation, two from former professors and one from an employer (if no employer, three former professors), test scores, and transcripts are required before an application is considered complete. Application forms and the *Announcement of the UCLA School of Public Health* may be obtained by writing to the Student Affairs Office, School of Public Health, 16-071 CHS, UCLA, Box 951772, Los Angeles, CA 90095-1772. It is the student's responsibility to ensure that the application file is complete.

The preferred date for receipt of applications for the following Fall Quarter is December 15. Applications received after this date have reduced opportunities for admission and financial aid.

Applicants must meet the University minimum requirement of an acceptable bachelor's degree with a B average in upper division coursework and/or prior graduate study. Exceptionally qualified applicants may be considered on an individual basis. Prior field experience is not required as a condition of admission, although a background of public health experience may be considered. In addition, applicants must be accepted by and accommodated in the department of the School of Public Health in which they wish to study. Applicants who need help in deciding on a department should speak either to the department administrators or to the staff in the Student Affairs Office.

Applicants to the School of Public Health must perform satisfactorily on the verbal and quantitative sections of a recent Graduate Record Examination (GRE), Medical College Admission Test (MCAT), or Dental Admission Test (DAT). MCAT or DAT scores are accepted only for applicants already holding M.D. or D.D.S. degrees. Graduate Management Admission Test (GMAT) scores are accepted only for applicants to the joint M.B.A./M.P.H. program.

The Epidemiology Department requires GRE scores. The Biostatistics Department has different criteria for evaluating performance on aptitude tests for its master's and doctoral degrees. Those applying to the biostatistics program should contact that department. No screening examination is required for admission; however, specified courses are required by the Departments of Biostatistics and Environmental Health Sciences. Applicants whose undergraduate coursework has been deficient in breadth of fundamental training have to take specified undergraduate courses after admission.

The prior program of study for applicants to the Master of Public Health degree should include adequate preparation in mathematics, physical sciences, biological sciences, and social sciences, and typically includes two courses each in mathematics, biological sciences, social sciences; one course in physical sciences; and other courses that constitute an adequate preparation for the proposed area of specialization.

Applicants whose prior work in the biological, physical, mathematical, and social sciences does not constitute adequate preparation for the proposed area of specialization must include courses in those sciences in their graduate programs; these may not be applied toward the minimum requirements for the degree.

Interdivisional International Health. The school offers several options for international or domestic students interested in international health. Faculty in all departments of the school are actively involved in health-related programs in foreign settings, and many departments on campus have international, health-related interests and courses relevant to health occupations and cross-cultural settings.

Interested students must specify the department most relevant to their skills area on their application, clearly indicating their international interests. Once admitted, students are given an appropriate adviser and directed to the international health committee, which is interdepartmental and promotes internationally oriented training and research. Its members consult with interested students and attempt to optimize the learning experience.

Applicants with particular interest in primary health care, including maternal and child health, family planning, applied nutrition, family health program planning, administration and evaluation, and refugee health, are advised to

apply to the Community Health Sciences Department.

Biostatistics

Students concentrating in biostatistics should have completed at least one year of calculus. Students whose mathematical preparation does not include sufficient calculus must take courses in the Mathematics Department while in the M.P.H. program. Majors in mathematics, statistics, computer science, or a field of application in biostatistics are preferred.

Environmental Health Sciences

Students concentrating in environmental health sciences should have a bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Preparation should include at least three quarters of general chemistry (including quantitative analysis) and two quarters of organic chemistry and/or biochemistry, mathematics through calculus, three quarters of biological sciences, and three quarters of physics. Substitutions for these requirements are considered for applicants with an otherwise superior academic background.

Health Services

Applicants interested in the joint M.P.H./M.B.A. program in the Health Services Department must take the GMAT, not the GRE.

Applicants to the one-year health services organization program must have a prior doctoral degree (M.D., D.D.S., J.D., Ph.D., or equivalent). Applicants with doctoral degrees from other countries should plan to take the two-year program. Satisfactory performance on the GRE is required, and a personal interview is recommended.

M.P.H. Program for Health Professionals

Health and allied professionals who are unable to pursue a degree program during their regular working hours may earn the M.P.H. degree by completing coursework in intensive summer sessions and in extended weekend sessions during the academic year. Courses are taught by the faculty of the School of Public Health, and all five departments in the school have the option to offer a specialization in their area.

Applicants are expected to fulfill the minimum overall requirements for admission to the M.P.H. program. In addition, they must have at least three years of professional experience or its full-time equivalent in a health care setting.

The first year of study is devoted to the specific core requirements in the area of specialization and to the required M.P.H. core courses in biostatistics, community health sciences, epidemiology, health services, and environmental health sciences. The second year of study entails completing required and elective courses in the specialty area, a master's project, and a report on that project. The master's project, which includes an internship carried out under faculty supervision, addresses a significant public health problem. The master's report, based on that project, focuses on the integra-

tion and application of theoretical and methodological approaches within public health to a specific problem. For further information, contact the department of interest.

Areas of Study

Areas of specialization and typical course plans, in addition to mandatory courses, are listed below.

Biostatistics

Required department courses include Biostatistics 110A and 110B (100A and 100B may be substituted with departmental permission); Biostatistics 200A, 201, 402A, 402B (402B satisfies the field training requirement), 403A, and 406; and eight units of elective courses from Biostatistics 200B, 200C, M210 through M237B, or 403B through 419 (except 406). Additional elective courses are recommended and should be selected in public health, biostatistics, or mathematics.

Community Health Sciences

Students select one of the following areas of concentration: health education/promotion, international family health, public health nutrition, public health policy, or sociocultural aspects of health. All students are required to complete Community Health Sciences 210, 211A-211B, and 400. It is expected that Community Health Sciences 210 and 211A-211B be completed during the student's first three quarters in residence. Normally two years or six quarters are needed to complete the 60 units of coursework required. Candidates with a prior doctoral degree or advanced preparation in a related field may complete an M.P.H. degree in one year (48 units), but only after formal consideration and approval by the department's faculty.

Health Education/Promotion. Community Health Sciences 282, 482, 483, and 487 are required. In addition, two to three elective courses from the list of specialty areas are selected in consultation with the adviser. Individual and experimental courses may not be applied toward the required course units. Additional courses may be elected, in consultation with the faculty adviser, from within the school or in other departments/schools at UCLA.

International Family Health. For health professionals (physicians, nurses, and nutritionists) who intend to work or have worked in developing areas and nonhealth professionals with work experience in international health, community development, or related work. Community Health Sciences 200, 434A, and 441 are required. In consultation with the adviser, additional elective courses are selected from Community Health Sciences 132, M140, 231, 233, M236, 246, 280, 294, 443, 447, 448, and relevant courses from within the school or other departments/schools at UCLA.

Public Health Nutrition. The public health nutrition specialization is for dietitians and nutritionists who have an R.D., are R.D.-eligible, or have an equivalent licensure/credential from another country; persons concurrently enrolled in an internship leading to R.D. eligibility; physi-

cians and dentists; and other health professionals on a case-by-case basis depending on completed graduate and undergraduate coursework. Community Health Sciences 231 and 443 are required. In consultation with the adviser, elective courses are selected from Community Health Sciences 212, 218, 233, 432, M436A, M436B, 444, 448, 449, and relevant courses from within the school and currently under development in the Community Health Sciences Department.

Public Health Policy. The public health policy specialization provides education in the policy process and policy analysis applied to health promotion and disease prevention. In addition to department requirements, Community Health Sciences M252, M287, and 482 are required; the internship requirement may be reduced for students with extensive prior experience. In consultation with the adviser, students must also select two courses from Community Health Sciences 214, 230, M236, 237, M274, 291, 432, M436A, M436B, and relevant courses from within the school or in other departments/schools at UCLA.

Sociocultural Aspects of Health is for students interested in the relation between social and cultural characteristics and health-related behaviors and outcomes. At least 20 units of sociocultural aspects of health courses are required. Students are required to complete Community Health Sciences 221 and one course from each of the following four areas: (1) age and the course of one's life: 237, 238, 285, 291; (2) ethnicity and culture: M140, M239, 447, 483; (3) gender: 220, 246, 431, 435; (4) social context: 230, 235, 272, 273, M275, 284. In consultation with the adviser, students may select additional electives from Community Health Sciences 283, 293, 294, 433, 474, and relevant graduate and professional courses from within the school or in other departments/schools at UCLA.

Environmental Health Sciences

Required courses include Biostatistics 100B; Environmental Health Sciences 200A, 200B 201, 210, 401 (or 410A and 410B), M411. Each departmental required course may be waived if a similar college-level course has been taken elsewhere, students can pass the waiver examination. Elective courses should be selected in the chosen area of specialization.

At least five of the courses must be graduate courses (200, 400, and 500 series). Thus, approximately 20 units are to be completed by specialty courses and electives for a two-year program, assuming a minimum of 12 units per quarter. It should be noted that the department core, supplemented by Environmental Health Sciences 470, satisfies the requirement for taking the registered sanitarian's examination.

Epidemiology

Students with no prior clinical doctorate degree are required to complete Biostatistics 100B, Epidemiology 200, 201A-201B, 220, 400, and

12 elective units, at least four of which must be selected from one of the following courses featuring computer use and applications, or a relevant course decided on after consultation with the adviser: Biostatistics 403A, 403B, Epidemiology 261, 401, 402, 410A, 410B, 414, 415, 418, and 419. The eight remaining units must be selected from either the computer use and applications courses or the following list of general electives: Epidemiology 202A, 203, 210, M212, 221, 222 223A, 223B, 224A, 224B, 227, M228, 230, 240, 241, 246, 247, 248, 251, 252, 253, M255, 260, 270, 280, 290, 411, and 417.

Students with a prior clinical doctoral degree are required to complete Biostatistics 100B, Epidemiology 200, 201A-201B, 400, and eight total elective units from either the general list of electives or those featuring computer use and applications.

All students must submit a report demonstrating competence in epidemiologic methodology. The report may not be submitted prior to the completion of Epidemiology 400, which must be taken after completion of course 201B.

Health Services

Health Services specialization programs include (1) health care management, (2) health policy, (3) health professionals, (4) health services organization, and (5) a cooperative M.P.H./M.B.A. All specialization programs require Health Services 200A-200B, 400, and a summer internship in a local health care organization, as well as School of Public Health core courses: Biostatistics 100A, Community Health Sciences 100, Environmental Health Sciences 100, and Epidemiology 100.

Students with a prior M.B.A. and three years of managerial experience in health care are required to take 15 courses rather than 18.

Health Care Management. The health care management specialization is a two-year program requiring 21 full courses and a major written research report based on the summer internship. Required courses include Health Services 234, M236, M249L, 251, 400, M422, 431, 433, 436, 442A, 442B, and Management 403. In addition, students select at least one elective course from Health Services 131, 132, 134, M204A, M204B, M204C, 214, 220, 231, 232, M233, 235, 238, 239, 240, CM241, M242, 249A through 249L, 250, M287, M411, 427, 434, 435, 438, 441, 444, 446, or 447E.

Health Policy. The Health Policy specialization is a two-year program requiring 21 full courses, a summer internship in a local health care organization, and a major written research report. Required courses include Health Services 214 or 249F or 249K, M233, M236, M249E, M249L, M287, 400, M422, 427, and 431. In addition, students select at least two elective courses from Health Services 131, 132, 134, M204A, M204B, M204C, 220, 231, 232, 234, 235, 238, 239, 240, CM241, M242, 249A through 249L, 250, M411, 431, 433, 434, 435, 438, 441, 442A, 444, 446, or 447E.

Health Professionals. The Health Professionals specialization is an executive-style program for people with at least three years of managerial experience in the health care field. It is a two-year program requiring 18 full courses and a major written research report based on the summer internship. Required courses include Health Services 132, 234, M236, M422, 431, 433, 436, 440A, 442A, 450, and Biostatistics 100B.

Health Services Organization. The health services organization specialization is a one-year program requiring a minimum of 12 full courses (48 units). Admission is limited to students with prior doctoral-level degrees (M.D., Ph.D., J.D., D.D.S., or equivalent). Required courses include Health Services M236 and either Management 403 or Health Services M249E. Students may petition to waive out of the summer internship and Health Services 400 requirements if they have prior experience of relevance to public health practice.

Cooperative M.P.H./M.B.A. The cooperative M.P.H./M.B.A. program is a three-year concurrent degree program. It requires a minimum of 12 full courses (48 units) in the School of Public Health and a summer internship in a local health care organization. Required courses include Health Services 400 and M422. Management 402 may substituted for Biostatistics 100A. Students are waived out of the Health Services 400 requirement if they have successfully completed an equivalent course in the M.B.A. program.

Cooperative Master's Degrees

Following are descriptions of combined programs of study leading to the M.P.H. degree. In the articulated degree programs listed below, no course may be used for credit toward more than one degree.

M.A. African Area Studies/M.P.H.

The School of Public Health and the African Area Studies Program have an articulated degree program whereby students can work sequentially for the Master of Arts degree in African Area Studies and the Master of Public Health. By planning the major field emphasis in public health while working toward the M.A. in African Area Studies, it may be possible to shorten the amount of time it would normally take to complete both degrees.

Students interested in this articulated program should write to the Assistant Graduate Adviser, African Area Studies Program, UCLA African Studies Center, and/or the Student Affairs Office, UCLA School of Public Health.

M.A. Asian American Studies/M.P.H.

The Asian American Studies Program and the Department of Community Health Sciences in the School of Public Health offer a concurrent degree program whereby students can work for the Master of Arts degree in Asian American Studies and the Master of Public Health. Students must complete the program requirements for both degrees. However, a maximum of 12 units of coursework in the School of Pub-

lic Health. may be applied toward both the M.A. in Asian American Studies and the Master of Public Health. When applying, the same statement of purpose may be submitted to each program. Applicants interested in this concurrent program should contact the Asian American Studies Program and the Student Affairs Office, UCLA School of Public Health.

M.A. Islamic Studies/M.P.H.

The School of Public Health and the Islamic Studies Program have a concurrent degree program whereby students can work for the Master of Arts degree in Islamic Studies and the Master of Public Health. A maximum of 12 units of coursework in the School of Public Health may be applied toward both the M.A. in Islamic Studies and the Master of Public Health. Applicants interested in this concurrent program should write to the Islamic Studies Program and the Student Affairs Office, UCLA School of Public Health.

M.A. Latin American Studies/M.P.H.

The School of Public Health and the Latin American Studies Program have arranged an articulated degree program, organized to permit specializations within the M.A. and the M.P.H. degrees, with the award of both degrees after approximately three years of graduate study. Qualified students apply to the graduate adviser of the Latin American Studies M.A. degree program and to a relevant area of public health, such as (1) environmental and nutritional sciences, (2) epidemiology, (3) health education, (4) population and family health.

Potential applicants should contact the Graduate Adviser, Latin American Studies, UCLA Latin American Center, and/or the Public Health/Latin American Studies Articulated Degree Program Adviser, UCLA School of Public Health.

M.B.A./M.P.H.

The Department of Health Services and the John E. Anderson Graduate School of Management offer a three-year concurrent degree program designed for students who desire a management career in health care and related fields. The program reflects the combined interest of employers, faculty, and students who recognize the increasing challenges facing managers in the health care industry and the need for highly skilled and sensitive individuals who can creatively take on these challenges. Students should request application materials from both the M.B.A. Admissions Office, John E. Anderson Graduate School of Management, and the Health Services Management Program, UCLA School of Public Health. GMAT scores are required for admission.

Course Requirements

Students must complete at least one year of graduate residence at the University of California and a minimum of 11 full courses (44 units), at least six of which must be graduate courses and at least two of which must be 400-series courses. Only one 596 course (four

units) may be applied toward the six graduate courses; 597 and 598 courses may not be applied toward the degree.

Required school core courses include Biostatistics 100A or 110A; Community Health Sciences 100 (210 for community health sciences majors); Environmental Health Sciences 100 (200A-200B for environmental health sciences majors); Epidemiology 100 (200, 201A-201B for epidemiology majors); and Health Services 100 (200A-200B for health services majors). Each core course may be waived if students have taken a similar college-level course elsewhere and can pass the waiver examination.

In addition to the core courses, at least three courses (two or four units) outside the area of specialization are strongly recommended.

Only courses in which a grade of C- or better is received may be applied toward the requirements for a master's degree. Students must maintain an average of no less than 3.0 (B) in all courses required or elected during graduate residence at the University of California.

Comprehensive Examination Plan

Students must pass a comprehensive examination in their department. Students may be reexamined once. The aim of the examination, as a culminating experience, is to assess the student's ability to select theories, methods, and techniques from across the content matter of a field, integrate and synthesize knowledge, and apply it to the solution of public health problems.

Thesis Plan

None.

Doctoral Degree

Admission

In addition to the University minimum requirements, for admission to the Doctor of Public Health (Dr.P.H.) degree program, the school requires:

(1) Satisfactory performance on the Graduate Record Examination (GRE). Applicants to the Department of Community Health Sciences, at the discretion of the department, may substitute equivalent performance on the Medical College Admission Test (MCAT) or the Law School Admission Test (LSAT).

(2) Completion of the M.P.H. or a master's degree in an appropriately related field. If the master's degree is in a field other than public health, applicants must have taken the equivalent of the core mandatory M.P.H. courses or include them in the course of study after admission.

(3) At least a 3.0 junior/senior grade-point average, at least a 3.5 GPA in graduate studies or demonstrated superiority in graduate work, and at least a B in each of the mandatory core courses.

(4) A positive recommendation by a department in the School of Public Health. Applicants to the Department of Community Health Sci-

ences must have acceptance by an initial doctoral adviser in the department.

(5) Approval by the doctoral admissions committee and the associate dean for Student Affairs. Screening examinations may be required by each department.

(6) A writing sample is required by the Department of Community Health Sciences.

(7) The Department of Community Health Sciences requires at least 600 on the Test of English as a Foreign Language (TOEFL) for students whose undergraduate degree is from an institution whose primary language of instruction is not English.

It is recommended that applicants to the Department of Community Health Sciences contact one or more members of the faculty whom they are considering as advisers in order to ensure acceptance by a faculty mentor as the initial adviser. The applicant should have favorable recommendations from teachers and employers concerning past performance and potential as a doctoral student in public health. The statement of purpose must be clear, outlining goals and career objectives as they relate to the focus of the doctoral program.

Major fields or Subdisciplines

Major fields and subdisciplines and typical course plans are listed below.

Biostatistics

Consult the graduate adviser.

Community Health Sciences

There are five areas of specialization or examination within the department: public health policy, health education/promotion, sociocultural aspects of health, public health nutrition, and international family health.

Environmental Health Sciences

Recommended courses are determined in consultation with the adviser. Six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments other than Environmental Health Sciences are required for breadth. The major requires an additional area of concentration which may be either inside or outside the school.

Epidemiology

The recommended program includes additional courses in biostatistics, demography, and epidemiology beyond those required for the M.P.H.; courses or directed group study in specialized areas of infectious and chronic disease epidemiology or application of epidemiology to health planning, management, and/or policy; and laboratory and clinical studies in medical, health, or biological sciences.

Six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments other than Epidemiology are required for breadth. (Students may petition to include up to two 100-level courses.) The major requires an additional area of concentration which may be either inside or outside the

school (e.g., biostatistics, biology, microbiology and immunology, neuroscience).

Health Services

The Dr.P.H. in Health Services is intended to prepare students for leadership positions in health services administration. In contrast to the Ph.D., the orientation is professional rather than academic and comprehensive rather than specialized.

The requisites are an M.P.H. degree or its equivalent, and full-time work experience in some aspect of public health is highly recommended. Candidates are then enrolled in the Dr.P.H. which may (with full-time study) be completed in three years.

In the first two doctoral years, the formal coursework is intended to acquaint students with the full scope of public health knowledge. Students are normally expected to complete 72 units or 18 full courses beyond the M.P.H. degree to develop mastery in the following areas: (1) basic tools of social analysis; (2) health and disease in populations; (3) promotion of health and prevention of disease; and (4) health systems and their management. The specific course program depends on the applicant's previous coursework and experience.

Students must take a minimum of six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments other than Health Services.

The third doctoral year includes a residency in a public or private health services organization, seminar courses (eight units) devoted to principles and strategies of health services leadership, and the preparation of a problem-solving dissertation related to the residency experience.

After completion of the second doctoral year, candidates must pass a qualifying examination. Normally, one reexamination after failure is allowed. After the third doctoral year, a final oral examination based on the dissertation is required of all candidates.

Course Requirements

Course requirements in the major field depend on the department/program and the field chosen. Students must take a minimum of six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments outside the major department.

The major department requires an additional area of concentration which may be either inside or outside the school. In departments allowing it, an equivalent field experience completed while a doctoral student and approved by the guidance committee may be substituted for the additional area of concentration.

Biostatistics

A written screening examination of all students entering the doctoral program is required and must be successfully completed before the end of the first year in the program, if not taken prior to entering. Courses covered by this and other examinations are determined in consul-

tation with an adviser and the department faculty. Students must complete the following courses, unless previously taken: Biostatistics 115, 200A, 200B-200C, M250A-M250B; any three additional graduate-level courses in biostatistics selected with consent of the adviser; three courses in the 400 series selected with consent of the adviser; Statistics M100A, 100B. All registered doctoral students must enroll in Biostatistics 402B (consulting laboratory/field training course) for one quarter each year and in Biostatistics 245 every quarter.

In addition, six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments/programs other than Biostatistics are required for breadth. The department also requires an additional area of concentration which may be either inside or outside the school. Biostatistics 402B may be used as the additional area of concentration.

Electives, selected in consultation with the adviser, should be chosen from courses in mathematics, biomathematics, survey research methods, operations research, computer data processing, and other appropriate areas.

Community Health Sciences

If students do not have a master's degree in public health, the school's core courses for the Master of Public Health (M.P.H) degree are required: Biostatistics 100A, Epidemiology 100, Health Services 100, and Environmental Health Sciences 100; and the department's core courses, Community Health Sciences 210, 211A-211B. Additionally, all students are required to take the following courses if they have not already taken them or their equivalents during the course of their master's studies: Community Health Sciences 212, Biostatistics 100A, 100B, and 406. These courses do not count toward the minimum course requirements for the doctoral degree.

In addition to the coursework specified above, students must take a minimum of 48 units in residence in the doctoral program. Twenty of the 48 units required must be taken within the Department of Community Health Sciences. Only four units of individual studies (Community Health Sciences 596) may be counted toward the 48-unit minimum requirement. Students must take a minimum of two courses (eight units) in research methodology (i.e., data acquisition) and two courses (eight units) in statistics (i.e., data analysis). These courses may be taken inside or outside of the School of Public Health. Students are required to attend the Doctoral Roundtable (Community Health Sciences 286) continuously from the first year of residency until they have been advanced to candidacy. The Doctoral Roundtable does not fulfill any of the 48 units required for the doctorate.

Students must complete a minor which is expected to be in another department within the School of Public Health. Six graduate-level courses (24 units) are required, four units of which must be taken from within one depart-

ment. Students must consult with their advisers before declaring a minor.

Written and Oral Qualifying Examinations

Before advancement to candidacy, students must pass written examinations in the major field prepared and administered by the guidance committee or by the faculty of the department. Normally no more than one reexamination after failure is allowed. The doctoral committee is nominated after students have made a tentative decision on a dissertation topic.

The doctoral committee consists of at least four faculty members who hold professorial appointments. Two of the faculty must be tenured. Three of the four must hold appointments in the School of Public Health; one must be an outside member who holds no appointment in the School of Public Health; one of the four must be from the minor field.

The doctoral committee administers the University Oral Qualifying Examination after the written examinations have been successfully completed.

Community Health Sciences

Before advancement to candidacy, all coursework must have been completed, and students must have passed two written examinations and an oral qualifying examination in the major field. The first written examination is taken by all students. The other is tailored to the specific interests of the individual student. Both written examinations may be repeated only once. Additionally, students must complete the requirements for the minor field.

The first examination provides an assessment of the student's breadth of substantive knowledge, theory, and methods that are common to the disciplines that comprise community health sciences. Students are expected to demonstrate a coherent and well-synthesized command of this material. The examination is administered by the departmental doctoral committee in the Fall Quarter of each year. The second examination is in one of the areas of specialization: public health policy, health education/promotion, sociocultural aspects of health, public health nutrition, and international family health. Students are expected to demonstrate in-depth knowledge in the area and to be able to apply this knowledge and knowledge derived from the minor to problems or practice and policy. The examination is based on a reading list generated by the student in consultation with the student's guidance committee, which also administers the examination. It is administered after the first examination at a time that has been agreed upon mutually by the students and the guidance committee.

After the student has passed the written qualifying examinations and completed the minor requirements, and at least one month prior to taking the University Oral Qualifying Examination, a doctoral committee is nominated. The student first selects the committee chair, who

also serves as the adviser. The student and chair then work together to nominate the remaining committee members. The doctoral committee consists of at least four faculty members including the chair, who hold professorial appointments at UCLA. Two of the faculty must be tenured. Two of the four must hold appointments in the Department of Community Health Sciences; one must be an outside member who holds no appointment in the School of Public Health; one of the four must be from the minor field. Eligible faculty include those in the tenure-eligible series, the in-residence series, acting or emeritus in these series; in addition, one of the four committee members, who may also cochair if appropriate, may hold an appointment in the adjunct or clinical professorial series. The composition of the committee must be approved by the department chair. The doctoral committee guides the student's progress toward completion of the dissertation.

The student is advanced to candidacy and commences work on a dissertation by passing the University Oral Qualifying Examination, which is administered by the doctoral committee. Only the student and the committee members attend this examination; all committee members must be present. The examination may be repeated once if a majority of the committee so recommends.

PUBLIC POLICY AND SOCIAL RESEARCH SCHOOLWIDE PROGRAMS

School of Public Policy and Social Research

UCLA
3250 Public Policy Building
Box 951656
Los Angeles, CA 90095-1656
(310) 206-4613
<http://www.spspr.ucla.edu/>

Scope and Objectives

The School of Public Policy and Social Research offers an undergraduate minor in Public Policy.

Undergraduate Study

Public Policy Minor

The Public Policy minor provides undergraduates with a systematic overview of public policy questions, deals with these questions in theoretical and conceptual ways, and exposes students to practical issues of public policy through the examination of specific policy issues and real-world policy questions.

To enter the minor, students must have an overall grade-point average of 2.0 or better, enroll in Policy Studies 10A, and file a petition at the School of Public Policy and Social Research Office of Academic Services, 3371 Public Policy Building. For further information, contact Professor Eric H. Monkkenon at (310) 206-4613.

Required Lower Division Core Courses (eight units): Policy Studies 10A, 10B. Highly recommended: one statistics course.

Required Upper Division Courses (20 units): (1) Three courses from one of the following clusters: *labor and work cluster* — Policy Studies 141, C142, C144, 145, 148; *policy studies cluster* — Policy Studies 101, 102, 103, 104, M120; *social welfare cluster* — Social Welfare 100A, 100B, 101, 102, 104A through 104E, 105; *urban policy and planning cluster* — Urban Planning 191, 192, 193 (may be repeated for credit with topic change), 197; (2) one elective course offered by the School of Public Policy and Social Research not used to satisfy the core or cluster requirement; (3) research seminar (Policy Studies 197); fieldwork experience taken for credit may be substituted for the research seminar by petition.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

RADIATION ONCOLOGY

School of Medicine

UCLA
B265 UCLA Medical Plaza 200
Box 956951
Los Angeles, CA 90095-6951
(310) 794-1252
<http://www.radonc.ucla.edu/rowww/rohome.html>

Chairs

H. Rodney Withers, M.D., D.Sc., *Chair*
Guy J.F. Juillard, M.D., *Vice Chair, Clinical Affairs*
William McBride, D.Sc., *Vice Chair, Division of Experimental Radiation Oncology*
James B. Smathers, Ph.D., *Vice Chair, Physics*

Scope and Objectives

The Department of Radiation Oncology includes clinical divisions at the UCLA Medical Plaza and Medical Center, West Los Angeles VA Medical Center, and divisions of experimental radiation biology and medical radiation physics. Research and teaching facilities are available at the UCLA Medical Plaza, UCLA Medical Center, and West Los Angeles VA Medical Center.

The primary clinical mission of the department is the management of patients who have cancer. The purpose of using radiation therapy, rather than or in addition to surgery, is to pre-

serve function and/or cosmesis while eliminating the cancer. Other activities include total body irradiation before bone marrow transplantation and stereotactic radiosurgery for A-V malformations, meningiomas, and malignant intracranial lesions. Research interests include clinical trials, radiation biology, radiation modifiers, molecular biology, immunology, and applied physics. Knowledge of the disease in question, the comparative efficacy of radiation therapy and other methods, radiation biology and pathophysiology, and the physical characteristics of various radiations is essential.

The educational programs serve medical, dental, basic science (biology and physics), nursing, and radiation therapy students, and community and postgraduate physicians; there also is a four-year program for residents who are qualifying for certification in radiation oncology by the American Board of Radiology.

For further details on the Department of Radiation Oncology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

RADIOLOGICAL SCIENCES

School of Medicine

UCLA
BL-428 Center for the Health Sciences
Box 951721
Los Angeles, CA 90095-1721

(310) 825-6800
fax: (310) 794-6613
<http://www.radsci.ucla.edu/>

Chairs

Richard J. Steckel, M.D. (*Leo G. Rigler Professor of Radiological Sciences*), *Chair*
Richard H. Gold, M.D., *Executive Vice Chair*
Barbara M. Kadell-Wootton, M.D., *Vice Chair*
Osman Ratib, M.D., Ph.D., *Vice Chair*

Scope and Objectives

The medical student program in radiological sciences is designed to introduce students to the spectrum of diagnostic imaging modalities and their role in the clinical management of patients. It provides knowledge of essential radiographic anatomy and key imaging features of common diseases. The basic principles of all forms of diagnostic imaging pertaining to thoracic, musculoskeletal, gastrointestinal, genitourinary, cardiac, neuroradiology, mammography, pediatrics, emergency radiology, nuclear medicine, computed tomography, magnetic resonance imaging, ultrasound, and interventional radiology are provided. Students acquire interpretative skills by didactic instruction and interactive teaching sessions and through self-study of radiologic film files. A two-week core clerkship is offered once every four weeks to

third- and fourth-year medical students. There are no on-call responsibilities.

Greater depth of experience is provided by the four weeks of elective clerkship offered to fourth-year medical students which emphasizes training in the subspecialties selected by students from the list above.

For further details on the Department of Radiological Sciences and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

RELIGION, STUDY OF

*Interdepartmental Program
College of Letters and Science*

UCLA
329 Dodd Hall
Box 951451
Los Angeles, CA 90095-1451
(310) 206-1356, 825-4641
<http://www.humnet.ucla.edu/humnet/religion/IDP.HTM>

S. Scott Bartchy, Ph.D., *Chair*

Professors

Edward G. Berenson, Ph.D. (*History*)
Robert E. Buswell, Ph.D. (*Chinese and Korean Buddhism*)
Donald J. Cosentino, Ph.D. (*English*)
Brian P. Copenhaver, Ph.D. (*History, Philosophy*)
Eric L. Gans, Ph.D. (*French*)
Richard Hovannisian, Ph.D. (*History*)
Henry Ansgar Kelly, Ph.D. (*English*)
Antonio Loprieno, Dr.phil.habil. (*Near Eastern Languages and Cultures*)
Donald F. McCallum, Ph.D. (*Art History*)
Ronald J. Mellor, Ph.D. (*History*)
Joseph F. Nagy, Ph.D. (*English*)
Herbert E. Plutschow, Ph.D. (*Japanese Religion and Cultural History*)
Ismail Poonawala, Ph.D. (*Arabic*)
David C. Rapoport, Ph.D. (*Political Science*)
Yona Sabar, Ph.D. (*Hebrew*)

Professors Emeriti

Arnold J. Band, Ph.D. (*Hebrew*)
Kees W. Bolle, Ph.D. (*History*)
Seeger A. Bonebakker, Ph.D. (*Arabic*)
Giorgio Buccellati, Ph.D. (*Ancient Near East, History*)
Herbert A. Davidson, Ph.D. (*Hebrew*)
Vinton A. Dearing, Ph.D. (*English*)
William A. Lessa, Ph.D. (*Anthropology*)
Bengt T.M. Löfstedt, Ph.D. (*Medieval Latin*)
Jacques Maquet, Ph.D. (*Anthropology*)
Afaf Marsot, D.Phil. (*History*)
Philipp L. Newman, Ph.D. (*Anthropology*)
Merrick Posnansky, Ph.D. (*History, Anthropology*)
Douglass R. Price-Williams, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)
Jaán Puhvel, Ph.D. (*Classics, Indo-European Studies*)
Hartmut E.F. Scharfe, Ph.D. (*Sanskrit*)
Hanns-Peter Schmidt, Ph.D. (*Indo-Iranian*)
Stanislav Segert, Ph.D. (*Northwest Semitics*)
Johannes Wilbert, Ph.D. (*Anthropology*)

Associate Professors

Ruth Bloch, Ph.D. (*History*)
William M. Bodiford, Ph.D. (*Japanese Buddhism*)
Robert L. Brown, Ph.D. (*Art History*)
Robert A. Hill, M.Sc. (*History*)
Steven Lattimore, Ph.D. (*Classics*)
Michael G. Morony, Ph.D. (*History*)
David N. Myers, Ph.D. (*History*)

Kenneth Reinhard, Ph.D. (*English*)
Hossein Ziai, Ph.D. (*Iranian and Islamic Studies*)

Assistant Professors

Michael D. Cooperson, Ph.D. (*Near Eastern Languages and Cultures*)
Vinay Lal, Ph.D. (*History*)
Claudia Rapp, D.Phil. (*History*)
William M. Schniedewind, Ph.D. (*Near Eastern Languages and Cultures*)

Adjunct Associate Professor

S. Scott Bartchy, Ph.D. (*History*)

Adjunct Assistant Professor

David C. Wilson, Ph.D. (*Philosophy*)

Scope and Objectives

The UCLA major in the Study of Religion is designed to give students a broad humanistic perspective. It introduces students to several religious traditions and thus to an appreciation of the very nucleus of civilization in various periods of history and various parts of the world, as well as to an understanding of fundamental human orientations. The program also provides opportunity to study one or more particular religious traditions in greater depth. Cohesion and integrity in the program are furthered by courses dealing with philosophical problems in religion and with general anthropological reflections.

Undergraduate Study

Study of Religion B.A.

Preparation for the Major

Required: History 4; Philosophy 2; two courses from Anthropology 9, East Asian Languages and Cultures 60, History 1A, 1B, 1C, 9A, 9C, 9D, 10A, 10B, 11A, 11B.

The Major

Required: A minimum of 14 upper division courses from the list below, of which at least four (including Study of Religion 100 and Philosophy 175) must be from Group I, at least two must be from each of Groups II and IV, and at least three must be from Group III (at least one on each of the three religious traditions listed). No more than five of the 14 may be from any one group. A course may be taken twice, on different topics, for credit toward the major where repetition is allowed by the department offering the course. Variable topics courses not listed below (e.g., History 197) may be approved by the adviser as satisfying requirements for which their content is appropriate. A maximum of two upper division courses, not listed below, in an ancient language relevant to the course of study may be applied toward the major requirements (but not the group requirements) with consent of the adviser.

Special studies courses (199) may be applied toward the major but not toward a group requirement; a maximum of 12 units, approved by the adviser, may be applied. No course for the major or preparation for the major may be taken on a P/NP grading basis.

Honors Program

The honors program provides exceptional students with an opportunity to do independent research under the tutorial guidance of a faculty member. Students admitted to honors should take three 199 courses under the guidance of the sponsoring professor. The first 199 course should be taken in Spring Quarter of the junior year, the second during the following Fall Quarter, and the third during Winter Quarter of the senior year. The three courses count as part of the regular requirement of 14 upper division courses. The program culminates in an honors thesis.

In order to qualify for admission, students should have a minimum grade-point average of 3.4. The 199 courses designed for the program and the thesis topic should be approved by the committee in charge of the major.

For further information, contact Professor S. Scott Bartchy at the program address.

Study of Religion

Upper Division Courses

100. Undergraduate Seminar: Study of Religion. (4) Limited to 20 students. 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.

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.

120. Abrahamic Religions: Traditions in Tension. (4) Seminar, three hours. Examination of Abrahamic tradition as received and developed by Jews, Christians, and Muslims according to rubrics of linkage and interaction, with view both to potential clashes in the 21st century and to resources inherent in these traditions for heading off such clashes and misunderstandings.

Course List

Courses marked with an asterisk have readings in foreign languages. See departmental course listings for requisites.

Group I: Methods

Anthropology

156. Comparative Religion

History

193A. History of Religions: Myth

193E. Special Topics in History of Religions

Philosophy

175. Topics in Philosophy of Religion

Study of Religion

100. Undergraduate Seminar: Study of Religion

110. Religion and Violence

Theater

101A. History of World Theater and Drama: Ritual and Religious Drama

Group II: Nonliterate and Ancient Religious Traditions

Ancient Near East (Near Eastern Languages)

130. Ancient Egyptian Religion

Anthropology

114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere)

114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere)

171. Sub-Saharan Africa

174P. Ethnography of South American Indians

177. Cultures of the Pacific

Classics

166A. Greek Religion

166B. Roman Religion

168. Comparative Mythology

Folklore and Mythology

M122. Celtic Mythology

M126. Baltic and Slavic Folklore and Mythology

130. North American Indian Folklore and Mythology Studies

131. Folklore of India

M155. Oral Traditions in Africa

History

193D. Religions of the Ancient Near East

Iranian (Near Eastern Languages)

170. Religion in Ancient Iran

World Arts and Cultures

181B. Dance in Southeast Asia

181D. Dance in South Asia

C187. Dance in Native American Cultures

Group III: Western and Near Eastern Religious Traditions

Christianity

Classics

M170. Power and Imagination in Byzantium

Greek (Classics)

*130. Readings in the New Testament

History

119M. The Christian Church, 100 to 1517

120M. The Christian Religion, 100 to 1350

125B. History of Modern Europe: Baroque Culture and Absolutist Politics, 1600 to 1715

150C. History of Religion in the U.S.

194A. History of Early Christians

194B. Religious Environment of Early Christians

194C. Jesus of Nazareth in Historical Research

Philosophy

100B. Medieval and Early Modern Philosophy

107. Topics in Medieval Philosophy

118. Kierkegaard

Slavic (Slavic Languages)

201. Introduction to Old Church Slavic

Islam

Arabic (Near Eastern Languages)

*120. Islamic Texts

Art History

C104C. Problems in Islamic Art

History

107A-107B. Islamic Civilization

109A. History of North Africa from the Moslem Conquest: To 1578

110A. Iranian History: Islamic Iran to 1800

Islamic (Near Eastern Languages)

110. Introduction to Islam

Judaism

Ancient Near East (Near Eastern Languages)

162. Archaeology and Religion of the Holy Land

170. Introduction to Biblical Studies

Comparative Literature

M101. Hebrew Literature in English — Literary Traditions in Ancient Israel: Bible and Apocrypha

Hebrew (Near Eastern Languages)

*120. Biblical Texts

125. Hebrew Bible with Medieval Commentaries

*130. Rabbinic Texts

History

111C. History of Jews in the Ottoman Empire and the Turkish Republic, 1300 to 1923

M191A-M191B. Survey of Jewish History

191G. European Jewry from 1881 to the Present

M192A-M192B. Jewish Intellectual History

Jewish Studies (Near Eastern Languages)

130. Modern Jewish Religious Movements and Their Ideologies

M150A-M150B. Hebrew Literature in English

Sociology

159. Comparative Studies of Jewish Communities in the U.S. and Abroad

Group IV: South Asian and East Asian Traditions

Art History

114A. Early Art of India

114C. Japanese Art

114D. Later Art of India

114E. Arts of Korea

114F. Arts of Southeast Asia

Chinese (East Asian Languages)

160. Chinese Buddhism

*165. Introduction to Chinese Buddhist Texts

175. Introduction to Chinese Thought

265A-265B. Seminars: Chinese Buddhist Texts

East Asian Languages and Cultures

161. Buddhist Literature in Translation

162. Buddhist Meditation Traditions

History

186. Shinto, Buddhism, and Japanese Folk Religion

188A. Early History of India

193B, 193C. Religions of South and Southeast Asia

Indic (East Asian Languages)

175. Introduction to Indic Philosophy

Japanese (East Asian Languages)

C160. Japanese Buddhism

161. Religious Life in Modern Japan

175. Introduction to Japanese Thought

265A. Seminar: Japanese Buddhist Texts

Korean (East Asian Languages)

160. Korean Buddhism

*165. Introduction to Korean Buddhist Texts

175. Introduction to Traditional Korean Thought

ROMANCE LINGUISTICS AND LITERATURE

*Interdepartmental Program
College of Letters and Science*

UCLA
212 Royce Hall
Box 951535
Los Angeles, CA 90095-1535
(310) 825-0237
fax: (310) 825-9754
e-mail: romance@humnet.ucla.edu
<http://www.humnet.ucla.edu/humnet/romancell/rll.htm>

Dominique L. Sportiche, Ph.D., *Chair*

Professors

Shirley L. Arora, Ph.D. (*Spanish*)
Luigi Ballerini, Dottore in Lettere (*Italian*)
Franco Betti, Ph.D. (*Italian*)
Jean-Claude Carron, Docteur ès Lettres (*French*)
Patrick Coleman, Ph.D. (*French*)
Marga Cottino-Jones, Ph.D., Dottore in Lettere (*Italian*)
Eric Gans, Ph.D. (*French*)
Peter Haidu, Ph.D. (*French*)
Bruce P. Hayes, Ph.D. (*Linguistics*)
Carroll B. Johnson, Ph.D. (*Spanish*)
J. Randal Johnson, Ph.D. (*Portuguese*)
Hilda J. Koopman, Ph.D. (*Linguistics, African Languages*)
Efraín Kristal, Ph.D., (*Spanish*)
Gerardo Luzuriaga, Ph.D. (*Spanish*)
José Montelón, Ph.D. (*Spanish*)
C. Brian Morris, Litt.D. (*Spanish*)
Susan Plann, Ph.D. (*Spanish*)
A. Carlos Quicoli, Ph.D. (*Portuguese, Romance Linguistics*)
Enrique Rodríguez-Cepeda, Ph.D. (*Spanish*)
Dominique L. Sportiche, Ph.D. (*Linguistics*)
Donca Steriade, Ph.D. (*Linguistics*)
Edward F. Tuttle, Ph.D. (*Italian*)
Stephen D. Werner, Ph.D. (*French*)

Professors Emeriti

Rubén A. Benítez, Ph.D. (*Spanish*)
Marc Bensimon, Ph.D. (*French*)
E. Mayone Dias, Ph.D. (*Portuguese*)
Hassan el Nouty, Docteur ès Lettres (*French*)
Joaquín Gimeno, Ph.D. (*Spanish*)
Claude L. Hulet, Ph.D. (*Spanish and Portuguese*)
Bengt T.M. Löfstedt, Ph.D. (*Classics*)
C.P. Otero, Ph.D. (*Spanish, Romance Linguistics*)
José Pascual-Buxó, Ph.S. (*Spanish*)
Pier-Maria Pasinetti, Ph.D., Dottore in Lettere (*Italian*)
Paul C. Smith, Ph.D. (*Spanish*)

Associate Professors

Adriana Bergero, Ph.D. (*Spanish*)
Verónica Cortínez, Ph.D. (*Spanish*)
Andrea Loselle, Ph.D. (*French*)
Sara Melzer, Ph.D. (*French*)
Claudia Parodi, Ph.D. (*Spanish*)
Lucia Re, Ph.D., Dottore in Lettere (*Italian*)
A. John Skirius, Ph.D. (*Spanish*)
Malina Stefanovska, Ph.D. (*French*)
Timothy A. Stowell, Ph.D. (*Linguistics*)

Scope and Objectives

The Romance Linguistics and Literature Program emphasizes modern linguistic and literary theories in the study of Romance languages. Linguistic and literary theories can be pursued independently or jointly; however, the integration of linguistic and literary knowledge is taken to be one of the highest aims of this interdepartmental graduate program.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Romance Linguistics and Literature Program offers the Master of Arts (M.A.) degree in Romance Linguistics and Literature.

Admission

The UCLA B.A. degree in French, Italian, Portuguese, or Spanish, or equivalent, is required. Applicants to the M.A. program are expected to have a grade-point average of at least 3.4 in upper division courses, especially in those judged germane to the proposed program. Three letters of recommendation and the General Test of the Graduate Record Examination (GRE) are also required. Applicants admitted from elsewhere with preparation considered deficient in view of the intended specialization are required to take specified upper division courses. Such courses may be taken concurrently with graduate courses, but they may not be applied toward the course requirements for the M.A. degree. Before enrolling for the first quarter in the program, new students must consult the program chair concerning the formation of their guidance committee. If students know only the language of their majors, they should prepare in at least one other Romance language during the first graduate year so they can take courses in their minor no later than the second year of graduate study.

Areas of Study

Consult the department.

Course Requirements

Twelve courses are the minimum requirement, of which six courses (at least five of them graduate) must be in the major language, with specialization either in linguistics or in literature. One course in the history or development of the major language is highly recommended. At least three courses would be in the minor language, also with specialization in either linguistics or in literature. The remaining three courses should be selected in consultation with the guidance committee so as to be logically supportive of the student's major field of study. Linguistics 20 is required as a requisite for all students majoring in the linguistics field but is not counted as part of the total number of courses required for the degree. Up to eight units of Romance Linguistics and Literature 596 may be applied toward the M.A. degree. Courses 597 and 598 may not be applied toward the degree.

Comprehensive Examination Plan

The comprehensive examination is administered by three members of the guidance committee, appointed by the program chair. The written examination, consisting of one four-hour examination in the major field, one two-hour examination in the minor field, and one oral examination not to exceed one hour, is given each quarter in the second week prior to final examinations. If the examination or any part thereof is failed, the failed portions may be retaken once when the examination is next regularly offered. Only those students who attain a high pass grade on the master's examination are automatically admitted to the Ph.D. program.

Thesis Plan

The program favors the comprehensive examination plan, but under special circumstances M.A. theses for exceptionally well-qualified students are approved. Students may petition for authorization to write an M.A. thesis only after completion of six courses applicable toward the degree. It is the student's responsibility to choose an appropriate topic and find a professor to direct the thesis. After completion of the thesis, students must pass a two-hour oral examination testing knowledge of the field of the thesis and general competence. Only those students who attain a high pass on the examination are automatically eligible for admission to the Ph.D. program.

Doctoral Degree

Admission

The UCLA Master of Arts degree in Romance Linguistics and Literature or the UCLA Master or Arts degree in French, Italian, Portuguese, or Spanish, or equivalent is required for admission to the program leading to the Ph.D. degree in Romance Linguistics and Literature. A strong academic record (normally a grade-point average of 3.4 or better), three letters of recommendation, and the Graduate Record Examination (GRE) General Test (normally a combined verbal/quantitative score of 1,100 or better) are required.

Formal application is required of all candidates. Applicants who have completed the UCLA M.A. degree in Romance Linguistics and Literature with distinction (high pass) are automatically eligible for admission to the Ph.D. program; those who received a middle pass are reviewed like candidates from other institutions; those who received a low pass are ineligible for admission. Students whose M.A. program registers deficiencies in scope or quality may be admitted but are required to pass (with grades of B or better) three graduate courses approved by the chair.

Following formal admission, students form a guidance committee in consultation with the chair. Students then meet as soon as possible with their guidance committee to work out a program of courses and set a tentative date for the qualifying examinations. The guidance

committee has final authority to prescribe the course of study. Until students have met with this committee and placed themselves under its direction, they are not officially in the Ph.D. program.

Major Fields or Subdisciplines

The program recognizes two fields of specialization: linguistics or literature.

Linguistics. (1) The present-day grammar of the Romance language of major interest and its relation to the grammar of its sister languages and to language in general, (2) the development of the Romance language of major interest in relation to its sister languages (and possibly other interrelated cultural aspects) from the perspective of historical linguistics, and (3) the genetic and typological relationships of the Romance languages to other Indo-European languages and to language in general. The two minors may be other Romance languages, or one other Romance language plus a field of Romance literature.

Literature. One of the following in the literatures of at least two Romance languages: (1) early Romance literature and philology; (2) Renaissance and baroque; (3) modern literature, preferably with emphasis in one century.

The first minor may be one of the preceding fields not chosen for the major. The second minor may be the same field or a new field in another Romance language, or some other related field in the major language or in Romance linguistics.

Course Requirements

In each of the two specializations (linguistics or literature) the Ph.D. program consists of a major and two minors. The courses (a minimum program) are distributed as follows: major — five courses; first minor — three courses; second minor — two courses. At least one seminar is required in each of the three fields. In addition to those required for the master's degree (or equivalent), at least 10 other graduate courses (of which no more than two 596 courses may be applied), as well as such courses as the guidance committee may prescribe, are required. Linguistics 20 is required as a prerequisite for all students majoring in the linguistics field but is not counted as part of the total number of courses required for the degree.

Written and Oral Qualifying Examinations

The qualifying examinations, given by the doctoral committee during the Fall, Winter, and Spring Quarters, consist of (1) a three-hour written examination in the major field; (2) a two-hour examination in the first minor; (3) a one-hour examination in the second minor; and (4) a two-hour University Oral Qualifying Examination in the three fields, at which time the prospectus for the dissertation is also discussed and approved. Failed portions of the examination may be repeated once after any

remedial preparation the committee may specify.

The dissertation may be on any subject within the general area of Romance linguistics and literature. If more than five calendar years elapse between advancement to candidacy and the presentation of the dissertation, the program may require revalidation of the qualifying examinations.

Romance Linguistics and Literature

Graduate Courses

202A-202B. Topics in Historical Romance. (4-4) Seminar, three hours; outside study, nine hours. Requisites: Linguistics 120A/120B or Spanish 120A/120B. Course 202A is requisite to 202B. Study of main historical changes in phonology, morphology, and syntax undergone by different Romance languages (mainly Spanish, Italian, and French). S/U or letter grading.

204A-204B. Romance Syntax: French (1 to 4 each). Lecture, three hours. Requisites: Linguistics 120B, 200B. Course 204A is requisite to 204B. Structure of French from point of view of contemporary syntactic theory, with emphasis on considerations of comparative syntax with other Romance languages. Topics include verbal/auxiliary system; WH-movement and Complementizer system; clitic constructions, causatives, inversion phenomena; quantifier distribution; impersonal constructions; negation and subjunctive. S/U or letter grading.

211. Comparative Romance Syntax. (4) Lecture, three hours. Requisite: French 210A or Portuguese 204A or Spanish 204A. Comparative study of syntactic processes in Romance languages. Investigation of parameters underlying linguistic variation.

255. Topics in Romance Syntax. (1 to 4) Topics in syntax of Romance languages, with emphasis on recent development in comparative studies; theoretical innovations based on Romance syntax.

596. Directed Individual Study or Research. (4 to 8) Study or research in areas or on subjects not offered as regular courses. Eight units may be applied toward M.A. degree requirements. S/U grading.

597. Preparation for Graduate Examinations. (4 to 12) Individual preparation for M.A. comprehensive examination or Ph.D. 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 M.A. Thesis. (2 to 12) Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Preparation: successful completion of Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

Course List

In consultation with the appropriate adviser(s), courses should be selected with an eye to the organic relationship between them, preferably among those listed below and/or their requisites:

Introductory Courses

Italian

201. Bibliography and Methods of Research

Spanish

M200. Research Resources

Linguistics Courses

Grammatical Theory: Linguistics

201. Phonological Theory II

206. Syntactic Theory II

Development of the Romance Languages

Hispano-Romance: Spanish

M205A-M205B. Development of Portuguese and Spanish Languages

Indo-European: Indo-European Studies

210. Indo-European Linguistics: Advanced Course

280A-280B. Seminars: Indo-European Linguistics

Italic Dialects: Latin

242. Italic Dialects and Latin Historical Grammar

Italo-Romance: Italian

222A. History of the Italian Language

Latin History: Latin

240. History of the Latin Language

Medieval Latin: Latin

231A-231B. Seminars: Medieval Latin

Paleography: History

219A-219B. Paleography I, II

Romance Dialectology: Italian

222C. Italian Dialectology

Spanish

209. Dialectology

Romance Linguistics: Linguistics

225G. Linguistic Structures

Vulgar Latin: Latin

232. Vulgar Latin

Studies in the History of the Romance Languages

Gallo-Romance: French

214. Problematics of Medieval Language and Literature

Hispano-Romance: Spanish

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish

Italo-Romance: Italian

210. Studies in Early Italian Literature

222A-222B-222C. Studies in History of Italian Language

Synchronic Linguistics

Advanced Grammar: French

201. Literary Research and Composition

Italian

222B. Structure of Modern Italian

Portuguese

202. Synchronic Morphology and Phonology

204A-204B. Generative Grammar

Spanish

202A. Phonology

202B. Morphology

204A-204B. Generative Syntax and Semantics

Studies in Linguistics and Dialectology: Spanish

256A-256B. Studies in Spanish Linguistics

257. Studies in Dialectology

Literature Courses

History of Ideas: French

260A-260B. Studies in History of Ideas

Literary Criticism: French

202. Historical and Philosophical Background to French Literary Criticism

203. Contemporary Theories

258A-258B. Studies in Literary Criticism

Italian

205A-205B. Studies in Criticism

Spanish

M201A-M201B. Literary Theory and Criticism

Literary History: History

218. Medieval Latin Literary History

Philosophy and Literature: French

259A-259B. Studies in Philosophy and Literature

Early Romance Literature

Petrarca: Italian

214C. Studies in Medieval Literature: Petrarca's *Canzoniere*

251. Seminar: Petrarch

Studies in Early Romance Literature: French

215A-215B. Medieval Literature

250A. Major Medieval Texts

250B. Structures of Medieval Literature

250C. Problems in Medieval Literature

Italian

210. Studies in Early Italian Literature

214A-214F. Studies in Medieval Literature

215A-215B. Studies in 15th-Century Literature

250A-250D. Seminars: Dante

252. Seminar: Boccaccio

Portuguese

C224. Early Portuguese Literature

Spanish

222. Medieval Epic and Narrative Poetry

223. Medieval Prose

262A-262B. Studies in Medieval Spanish Literature

Modern Romance Literature

Genre Studies: Portuguese

252. Studies in Early Portuguese Literature

253. Studies in Modern Portuguese Literature

254. Studies in Early Brazilian Literature

255. Studies in Modern Brazilian Literature

Studies in the 18th Century: French

218. Enlightenment

254A-254B. Studies in the 18th Century

Italian

218A-218D. Studies in 18th-Century Literature

256A-256B. Seminars: 18th Century

Portuguese

C227. 19th-Century Portuguese Literature

C232. 19th-Century Brazilian Literature and Culture

Spanish

229. Romanticism

239. Romanticism and Realism in Spanish-American Literature

270A-270B. Studies in 18th-Century Spanish Literature

277A-277B. Studies in Colonial Spanish-American Literature

Studies in the 19th Century: French

219. 19th Century

255A-255B. Studies in the 19th Century

Italian

219A-219D. Studies in 19th-Century Literature

257A-257B. Seminars: Romanticism

Portuguese

C228. Post-Romanticism and Naturalism in Portuguese Literature

Spanish

230. Realism and Naturalism

271A-271B. Studies in 19th-Century Spanish Literature

278A-278B. Studies in 19th-Century Spanish-American Literature

Studies in the 20th Century: French

220. 20th Century

221A-221B-221C. French-African Literature

256A-256B. Studies in Contemporary Literature

257A-257B. Studies in French-African Literature

Italian

220. Studies in Turn-of-the-Century Literature

221A-221E. Studies in 20th-Century Literature

258A-258B. Seminars: Contemporary Italian Literature

Portuguese

C229. 20th-Century Portuguese Literature

C234. Brazilian Modernism

C235. 20th-Century Brazilian Literature

Spanish

232. Spanish Prose Literature from 1898 to the Civil War

233. Spanish Prose Literature after the Civil War

234. Spanish Drama and Poetry from 1898 to the Civil War

235. Spanish Drama and Poetry after the Civil War

240. Major Currents in Modern Spanish-American Literature

243A-243B. Contemporary Spanish-American Poetry

244A-244B. Contemporary Spanish-American Novel

245. Contemporary Spanish-American Essay

272A-272B. Studies in 20th-Century Spanish Literature

280A-280B. Studies in Contemporary Spanish-American Literature

Renaissance and Baroque Literature

Cervantes: Spanish

227. Cervantes

Studies in Renaissance and Baroque Literature: French

216. Renaissance

217. 17th Century

251A-251B. Studies in the Renaissance

253A-253B. Studies in the 17th Century

Italian

216A-216E. Studies in the Renaissance

217. Studies in 17th-Century Literature

253A-253B-253C. Seminars: Chivalric Poetry in Italy

255A-255B. Seminars: Baroque

Portuguese

C225. Camões and the Portuguese Renaissance

C226. Baroque and Neoclassical Portuguese Literature

C231. Colonial Brazilian Literature and Culture

Spanish

224. Poetry of the Golden Age

225. Drama of the Golden Age

226. Prose of the Golden Age

237. Literature of the Spanish Conquest

264A-264B. Studies in Golden Age Spanish Literature

ROTC PROGRAMS

College of Letters and Science

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920.

This voluntary training allows students to qualify for an officer's commission in the Army, Navy, Air Force, or Marine Corps while completing their college education. ROTC courses are offered by three departments within the College of Letters and Science: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). They are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of the major. The ROTC program is also available through UCLA Extension.

All three ROTC departments offer voluntary four-year programs for incoming freshmen and two-year programs for students who apply early in their sophomore year. All have leadership laboratories which teach management skills.

All commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance of \$150 per month during the academic year. Applications for four-year scholarships may be obtained by calling the appropriate department at UCLA — Army, (310) 825-7381; Air Force, (310) 825-1742; Navy, (310) 825-9075 — or by writing to Armed Forces Opportunities, P.O. Box 2865, Huntington Station, NY 11746-2102. When writing, specify which service (Army, Air Force, Navy/Marine) scholarship is desired. Applications for Army scholarships can also be obtained by calling (800) 872-7682. Completed applications should be submitted prior to July 15 (Army) or August 15 (Air Force and Navy) for early consideration, but no later than December 1 (all services) of the year preceding college matriculation. Two-year scholarship applications may be obtained from the appropriate UCLA department and are considered when received.

AEROSPACE STUDIES

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David L. Terrell, M.S., *Lieutenant Colonel, Chair*

Professor

David L. Terrell, M.S., *Lieutenant Colonel*

Adjunct Assistant Professor

David R. Shepler, M.A., *Captain*

Scope and Objectives

Air Force ROTC provides selected students the opportunity to develop those attributes essential to positions of high responsibility as commissioned officers in the U.S. Air Force. This includes understanding Air Force history, doctrine, operating principles, and national security policies, demonstrating ability to apply modern principles of management and human relations in the Air Force environment, and mastering of leadership theory and techniques. Students must demonstrate dedication to their assignments, willingness to accept responsibility, and the ability to think critically and communicate with clarity and precision.

Undergraduate Study

Four-Year Program

The four-year program is available to first-term freshmen and those full-time students with at least four years of undergraduate and/or graduate study remaining and consists of an initial two-year General Military Course, or GMC (Aerospace Studies 1A-1B-1C and 20A-20B-20C), followed by a two-year Professional Officer Course (POC) described under Two-Year Program. GMC participation requires one hour of academic class and two hours of leadership laboratory each week during the academic year. Students incur no military obligation for GMC participation unless they qualify and accept an Air Force ROTC Scholarship during or after their sophomore year.

Students who complete GMC and wish to enter POC attend a four-week field training course the summer following GMC completion. At field training, students are provided meals, quarters, clothing, and travel and incidental expenses. Subjects covered at field training include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions, Air Force environment, and physical training.

Two-Year Program

The two-year program is known as the Professional Officer Course (POC) and consists of Aerospace Studies 130A-130B-130C and 140A-140B-140C. POC participation requires two hours of leadership laboratory and three hours of academic class each week during the academic year.

Requisites for the two-year program are successful completion of the GMC and a four-week field training course (see Four-Year Program above), or successful completion of a five-week field training program on an Air Force base during the summer preceding enrollment in the program.

Students interested in the five-week field training program must apply to the department chair early during Fall Quarter of their sophomore year. U.S. citizenship is required. There is no obligation to apply. Students are selected on a competitive basis with consideration given to academic major, grade-point average, apti-

tude examination scores, medical examination results, performance during an officer board interview, and a physical fitness test.

Students selected for the five-week summer field training are provided meals, quarters, clothing, and travel and incidental expenses. Subjects are the same as those in the four-week course plus the academic portion of the GMC (see Four-Year Program above).

Students enrolled in the POC incur a military obligation and are paid \$150 per month during the academic year. Additionally, they can qualify for up to \$3,450 for tuition and textbooks. Graduation and successful completion of the POC leads to a commission as a second lieutenant. Cadets then report to one of the challenging assignments in the Air Force.

Aerospace Studies

Lower Division Courses

Freshman-Year Courses

Z. Leadership Laboratory. (No credit) 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 an 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.

1A-1B-1C. Foundation of U.S. Air Force. (2-2-2) Lecture, one hour. Survey course designed to introduce students to the U.S. Air Force and Air Force Reserve Officers' Training Corps. Topics include mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and introduction to communication skills. P/NP or letter grading.

Sophomore-Year Courses

20A-20B-20C. Evolution of U.S. Air Force Air and Space Power. (2-2-2) Lecture, one hour. Historical survey of air and space power designed to motivate students to transition from Air Force ROTC cadet to officer candidate. Featured topics include Air Force heritage and leaders; introduction to air and space power through examination of competencies, functions, and doctrines; and continued application of communication skills. P/NP or letter grading.

Upper Division Courses

130A-130B-130C. Air Force Leadership Studies. (4-4-4) Lecture, three hours. Study of leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Use of case studies to examine Air Force leadership and management situations as means of demonstrating and exercising practical application of concepts being studied. P/NP or letter grading.

140A-140B-140C. National Security Affairs/Preparation for Active Duty. (4-4-4) Lecture, three hours. Study of national security processes, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics focus on the military as a profession, officership, military justice, civilian control of the 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.

199. Special Studies in Aerospace Studies. (2 or 4) Course of study for undergraduates who wish to engage in independent research under direct supervision of a department faculty member. P/NP or letter grading.

MILITARY SCIENCE

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Rita J. Salley, M.S., *Lieutenant Colonel, Chair*

Professor

Rita J. Salley, M.S., *Lieutenant Colonel*

Adjunct Assistant Professors

Jonathan Beard, B.S., *Major*

Jonathan Fox, B.S., *Captain*

David Pojtinger, M.B.A., *Captain*

Scope and Objectives

Army ROTC prepares selected students for leadership as commissioned officers in the U.S. Army, Army Reserve, or National Guard. This training includes in-depth study of the military establishment, military history, doctrine, leadership principles, management, and many other basic skills required of motivated, effective leaders.

Undergraduate Study

The military science curriculum is divided into two parts: (1) the Basic Course, two years of lower division study during which students must complete 12 units of coursework and (2) the Advanced Course, two years of upper division study consisting of 14 units of coursework and a six-week summer camp.

Army ROTC students may satisfy military history requirements by completing History 125E, 125F, 127A, 127B, 130, 147A, 148A, 148B, 148C, 152A, or 152B in lieu of Military Science 110, with consent of the ROTC adviser.

Transfer students and others who were unable to enroll in the Basic Course can receive equivalent credit in several different ways (see Two-Year Program below).

Admission to the Advanced Course is limited to selected students who meet all academic and physical requirements. Students in this course receive a subsistence allowance of \$150 a month for 10 months during each of the two academic years, plus military science books and uniforms. After completion of the Advanced Course and graduation, students have the opportunity to be commissioned as second lieutenants in one of the Army's 17 specialty areas in either the Army National Guard, Reserves, or Active Army. Students' preferences are a major factor in determining which specialty is awarded.

Students selected for Advanced ROTC must attend a six-week Advanced Camp between their Military Science III and IV years. Cadets receive an allowance for travel expenses and are paid for attendance.

The active duty obligation for those students selected to enter the Reserves or National Guard is for initial training, and only for a period of several months. Students accepting ROTC Scholarships and a commission in the Regular Army, or who are selected to enter the Active Army, serve longer terms. ROTC students wishing to obtain advanced degrees may be granted a delay in reporting to their initial assignment.

Four-Year Program

Students are enrolled in the Basic Course (freshman and sophomore years) on a voluntary basis. After completion of the Basic Course and before entrance into the Advanced Course (junior and senior years), students are required to execute a contract with the Department of the Army agreeing to complete the Advanced Course and accept a commission if offered.

Two-Year Program

The two-year program is designed for students who receive placement credit for two years of ROTC and directly enter the Advanced Course. Placement credit may be given for completing three years of high school Junior ROTC, attending a paid ROTC Basic Camp, membership in the Army Reserve or National Guard, completing two years of college-level Air Force or Navy ROTC, or previous active duty military service.

Commissioning

Successful completion of the Advanced Course program and a bachelor's degree may lead to a commission as a second lieutenant in the Army Reserve, National Guard, or Active Army. Distinguished graduates may qualify for a commission in the Regular Army.

Military Science

Lower Division Courses

Z. Leadership Laboratory. (No credit) 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.

10. Introduction to Leadership. (2) Lecture, one hour; discussion, one hour. Introduction to leadership and motivational theory. Topics include nature of organizations, individual behavior, motivation and performance, values and organizational commitment, and influence processes.

11. U.S. Defense Establishment I. (2) Lecture, one hour; discussion, one hour. Study of evolution and organization of U.S. Department of Defense, including study of military services, with emphasis on the U.S. Army. P/NP or letter grading.

12. U.S. Defense Establishment II. (2) Lecture, one hour; discussion, one hour. Fundamentals of national security policy development. P/NP or letter grading.

14. Principles of Land Navigation Applicable in Maneuver. (2) Lecture, one hour; discussion, one hour. Introduction to topographic maps and aerial photographs and their relation to land navigation; conceptual linkage to basic military tactics. Topics include map coordinate systems, scale and distance relationships, intersection and resection, photo interpretation, squad and platoon operations, and resource planning techniques. Introduction to new technologies, including Global Positioning Systems (GPS).

18. Modern Guerrilla Warfare. (2) Lecture, one hour; discussion, one hour. Limited to undergraduate students. Introduction to low intensity conflict and guerrilla strategies; explanation/discussion of political, economic, religious, and social factors contributing to civil unrest and/or insurgencies. Topics include nonmilitary responses, military tactics, interrelationship of military and government, psychological warfare, and civic actions.

21. Psychology of Leadership I. (2) Lecture, one hour; discussion, one hour. Study of relationship of individual differences, group dynamics, formal organizational constraints, and impact of society on leadership process. Introduction to external environmental pressures on a leader and psychology of the individual as a follower, examined in areas of motivation, peer pressure/conformity, and group norms.

24. Theory of Warfare. (2) Inquiry into theory, nature, causes, and elements of warfare, with attention also to evolution of weapons and warfare.

Upper Division Courses

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.

112. Psychology of Leadership II. (3) Lecture, one hour; discussion, one hour. Introduction to various individual leadership styles and personalities to assist students in development of their own individual style. Different philosophies of leadership, along with dimensions of leader behavior. Special consideration to counseling, management, and communication techniques that must be mastered to be an effective leader.

113. Theory of Learning Applied to Teaching. (2) Lecture, one hour; discussion, one hour. Study of instructional processes, lesson content planning procedures, techniques of applicatory education, role of testing (including evaluation and analysis). Emphasis on development of training programs to maximize organizational effectiveness. P/NP or letter grading.

123. Military Legal Systems. (2) Lecture, one hour; discussion, one hour. Introduction to theory and application of military law and legal systems, with emphasis on Uniform Code of Military Justice and rights of the accused under the constitution.

125. Decision Making. (2) Lecture, one hour; discussion, one hour. Designed to present students who become commissioned officers with new insight into modern methods of managerial decision making and into various steps involved in the process. Introduction to various components of leadership and functions of management in order to understand where areas of problem analysis and decision making impact and how they fit into leadership and management. Various steps which comprise the problem analysis and decision-making processes.

126. Military Professionalism and Ethics. (2) Lecture, 30 minutes; discussion, 90 minutes. Ethical concepts held by America's military institution. Classification of the military as a profession, special social responsibilities of those in the military, values related to and accepted by military society, and an ethical reasoning/decision-making process and model.

199. Supervised Independent Studies (1 to 3 units). Limited to juniors/seniors. Supervised independent studies and research for undergraduate students who desire to pursue topics of their own selection.

NAVAL SCIENCE

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William H. Allen, M.A., *Captain, Chair*

Professor

William H. Allen, M.A., *Captain, U.S. Navy*

Adjunct Assistant Professors

William B. Eckerdt, B.S., *Lieutenant, U.S. Navy*
Gregory P. Torgersen, B.S., *Captain, U.S. Marine Corps*

James L. Trotter, M.S., *Commander, U.S. Navy*
Chad M. Smith, B.A., *Lieutenant, U.S. Navy*

Scope and Objectives

The Department of Naval Science provides professional training for students leading to a reserve commission at graduation in the U.S. Navy or Marine Corps. Through the Naval Reserve Officers' Training Corps (NROTC), scholarship students receive full tuition, fees, books, and \$150 per month subsistence pay. Non-scholarship students may apply to participate as members of the midshipman battalion with limited financial assistance, earning a reserve commission on completion of the baccalaureate degree. Because of the rapid development of highly technical ship systems, aviation, and other military equipment, science and engineering majors are highly desirable; however, Navy Scholarships are currently available to students pursuing any major offered by the University, as long as they complete basic technical requirements. In addition to University requirements, midshipmen must complete 28 units of naval science courses, a physical fitness test, and three summer cruises, each about four to eight weeks long. The department also conducts a sail training program for all midshipmen. All naval science courses, from ship systems and management to naval operations and amphibious warfare, are open to students who are not in the program but have an interest in the Navy and related fields, such as engineering, navigation and naval operations, history, and management.

Undergraduate Study

Scholarship Program

The majority of naval science students attend the University on Naval Scholarships which are awarded primarily on a four-year basis to high school seniors selected in nationwide competition. A two-year upper division scholarship program is also available, with a similar selection process, to students who have not yet begun their junior year in college. Applications for both types of scholarships are due by December 1 and March 1, respectively, each year. In addition to tuition, fees, books, and uniforms, students receive subsistence pay of \$150 per

month. Scholarship students are obligated to serve on active duty for a minimum of four years following graduation and commissioning.

College Program (Nonscholarship)

Three- and four-year College Program students are selected by the department chair at the beginning of each academic year from applicants of the freshman and sophomore classes. These students must compete for advanced standing prior to their junior year. A two-year program is also available to students who have not yet started their junior year. Students enter the two-year program with advanced standing after selection through national competition and completion of a six-week summer training period. Applications for the two-year program are due March 1 of the sophomore year. All College Program students receive uniforms, naval science textbooks and, once selected for advanced standing, subsistence pay of \$150 per month in their junior and senior years. Nonscholarship students serve on active duty for a minimum of three years following graduation and commissioning. College Program students may be recommended for scholarship benefits based on superior academic performance and participation in NROTC.

Marine Corps Option

Highly motivated NROTC students may request designation as Marine Corps option students and may also pursue any UCLA academic degree. The final summer cruise involves intensive Marine training. Marine Corps option students also participate, on a limited basis, in field training exercises during the academic year.

Commissioning

Students must meet UCLA degree requirements in their selected fields and complete the naval science courses as follows: Naval Science 1A, 20A (freshman year), 102B (sophomore year), 103 (junior year), 102C (senior year). Courses 1B, 20A, 101A, and 101B can be taken in either the sophomore or junior year. Courses 103 and 104 are to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A and 101B.

In addition, scholarship students must include in their programs one year of approved calculus, one year of approved calculus-based physics, one year of approved freshman English, one term of American military history, and one term of computer science. Nonscholarship students must include in their programs one year of college algebra or higher mathematics, physical science, and English, and one term of computer science. Of these requirements, Marine Corps option students are only obligated to fulfill the American military history/national security policy requirement.

Naval Science Minor

The Naval Science minor is designed for students completing a major in a departmental

program who wish to augment that major. Naval science courses are open to all students with an interest in history, national security, foreign policy, organizational leadership, management, ethics, and the military sciences.

To enter the minor, students must have an overall grade-point average of 2.0 or better. For further information, contact Donna Tenerelli at (310) 825-9075.

Required Lower Division Courses (10 units):
Naval Science 1B, 20A, 20B.

Required Upper Division Courses (20 units):
Naval Science 101A, 101B, 102B, 103, 104.

All minor courses must be taken for a letter grade, with a grade-point average of 2.5 or better in each. Successful completion of the minor is indicated on the transcript and diploma.

Naval Science

Lower Division Courses

1A. Introduction to Naval Science. (2) Introduction to organization of the Naval Service, various components of the Navy, career opportunities, shipboard damage control, fire fighting, propulsion systems, and some customs and traditions of the Naval Service.

1B. Naval Ship Systems I. (4) 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.

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. (2) Conceptual study of seapower, emphasizing historical development of naval and commercial power. Seapower examined in relation to economic, political, and cultural strengths, focusing on current abilities of specific nations to use the oceans to attain national objectives.

Upper Division Courses

101A. Navigation I. (4) 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.

101B. Navigation II. (4) Requisite: course 101A. Study of rules of the 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.

102B. Naval Leadership and Management I. (4) 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.

102C. Leadership and Ethics. (2) Requisite: course 102B. Current leadership and management in the U.S. Navy. Areas include human resources management, personnel management, material management, and performance and career evaluation.

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. Expeditionary Military Operations. (4) Study of historical use of expeditionary military operations, with particular emphasis on doctrine, tactics, and equipment used. Examination of topics through study of political and military objectives by focusing on historical examples, including Marathon, Gallipoli, World War II, Korea, Beirut, and Grenada. Examination of contemporary doctrine through study of recent operations.

199. Supervised Independent Studies. (1 to 4) Limited to juniors/seniors. Supervised independent studies and research for undergraduate students who desire to pursue topics of their own selection. P/NP or letter grading.

SCANDINAVIAN SECTION

College of Letters and Science

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James R. Massengale, Ph.D., *Head*

Professors

James R. Massengale, Ph.D.
Mary Kay Norseng, Ph.D.
Ross P. Shideler, Ph.D.

Professor Emeritus

Kenneth G. Chapman, Ph.D.

Assistant Professor

Timothy Tangherlini, Ph.D.

Lecturer

Jules L. Zentner, Ph.D.

Scope and Objectives

Scandinavia consists of five Northern European countries: Denmark, Finland, Iceland, Norway, and Sweden. These countries form a geographic bridge between the American and European continents and a political bridge between Western and Eastern Europe. For all students of literature, language, the arts, and the social and physical sciences, Scandinavia is of particular interest.

The modern Scandinavian program educates students about Scandinavia through the study of its languages and literatures. The Scandinavian Section offers both undergraduate and graduate degrees in the languages and literatures of Denmark, Norway, and Sweden. Danish, Norwegian, and Swedish are mutually understandable languages, giving the student of one access to the literatures and cultures of the other two. Both undergraduate and gradu-

ate majors are expected to concentrate on one Scandinavian language, though they study the literatures of the other language areas.

Undergraduate Study

Undergraduate Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Danish, Norwegian, and Swedish grammar and/or composition. Students with demonstrated preparation may be permitted a more advanced program by the section or may be transferred to a more advanced course with consent of the instructor.

Native speakers of Norwegian, Swedish, and Danish may not enroll in any language course (including courses 105, 110, 115) in the Scandinavian Section except by petition in writing to the section. Non-Scandinavian students with knowledge of one of these Scandinavian languages may not take courses in the others except by petition in writing. Petitions must include a description of the student's linguistic background and the reason for wanting to take the language course in question.

Scandinavian Languages B.A.

Preparation for the Major

Required: Scandinavian 1, 2, 3, 4, and 5, or 11, 12, 13, 14, and 15, or 21, 22, 23, 24, and 25, or equivalent.

The Major

Required: Twelve upper division Scandinavian courses, including 105 or 110 or 115, 141, 142, 143. As an option, three upper division courses in a related field may be taken if approved in advance by the undergraduate adviser. It is recommended that students who plan to do graduate work in Scandinavian take German 1 through 6.

Scandinavian Minor

To enter the Scandinavian minor, students must have an overall grade-point average of 2.0 or better.

Required Courses (28 units): Any seven Scandinavian courses, two of which may be lower division courses selected from Scandinavian 1 through 50.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in

Program Requirements for the year in which they matriculate.

Master's Degree

The Scandinavian Section offers the Master of Arts (M.A.) degree in Scandinavian.

Admission

In addition to the University minimum requirements, prospective students in the M.A. program must have an undergraduate major in Scandinavian languages or equivalent. Applicants who have deficiencies in the undergraduate major must remedy them by taking the appropriate courses as recommended by the graduate adviser. A placement examination in the Scandinavian languages, as well as in German, may be required.

Three letters of recommendation are required by the Graduate Division. The Scandinavian Section welcomes applications for all three quarters (Fall, Winter, Spring).

For the Ph.D. degree in Germanic Languages with Scandinavian literature as a major or minor field, see the Ph.D. in Germanic Languages. For a brochure describing the program and requirements, write to the department.

Areas of Study

There are no specific major fields or disciplines in the M.A. program, but students emphasize one modern language and literature area in Danish, Norwegian, or Swedish.

Course Requirements

A total of 12 courses is required for the M.A. degree. These include a minimum of nine upper division and graduate courses in Scandinavian languages, at least five of which must be graduate courses. Three courses on the upper division or graduate level may be taken in a related field of linguistic or literary study to be determined in consultation with the graduate adviser; at least one of these must be at the graduate level. Comparative Literature 200 or an equivalent course in methodology is required as one of the 12 courses.

Three 596 courses (12 units) may be applied toward the total course requirement, but only one (four units) may be applied toward the minimum graduate course requirement.

Comprehensive Examination Plan

A comprehensive examination, based on the required coursework and a reading list, is required of all candidates for the M.A. degree. The examination is given whenever students have completed the course requirements and feel prepared to be examined on both the coursework and the reading list. The comprehensive examination is both written and oral; students who fail may be reexamined once without petitioning.

Thesis Plan

None.

Scandinavian

Lower Division Courses

1. **Elementary Swedish. (4)** Discussion, four hours. P/NP or letter grading.
2. **Elementary Swedish. (4)** Enforced prerequisite: course 1.
3. **Elementary Swedish. (4)** Enforced prerequisite: course 2.
4. **Intermediate Swedish. (4)** Enforced prerequisite: course 3.
5. **Intermediate Swedish. (4)** Enforced prerequisite: course 4.
11. **Elementary Norwegian. (4)** Discussion, four hours. P/NP or letter grading.
12. **Elementary Norwegian. (4)** Enforced prerequisite: course 11.
13. **Elementary Norwegian. (4)** Enforced prerequisite: course 12.
14. **Intermediate Norwegian. (4)** Discussion, four hours. Enforced prerequisite: course 13.
15. **Intermediate Norwegian. (4)** Discussion, four hours. Enforced prerequisite: course 14.
21. **Elementary Danish. (4)** Discussion, four hours. P/NP or letter grading.
22. **Elementary Danish. (4)** Enforced prerequisite: course 21.
23. **Elementary Danish. (4)** Enforced prerequisite: course 22.
24. **Intermediate Danish. (4)** Enforced prerequisite: course 23.
25. **Intermediate Danish. (4)** Enforced prerequisite: course 24.
50. **Introduction to Scandinavian Literature. (4)** Lecture, three hours; discussion, one hour; outside study, eight hours. 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.

Upper Division Courses

105. **Advanced Swedish. (4)** Discussion, three hours. Requisite: course 5. Readings, composition, and conversation in Swedish. May be repeated once for credit. P/NP or letter grading.
110. **Advanced Norwegian. (4)** Discussion, three hours. Requisite: course 15. Readings, composition, and conversation in Norwegian. May be repeated once for credit. P/NP or letter grading.
115. **Advanced Danish. (4)** Discussion, three hours. Requisite: course 25. Readings, composition, and conversation in Danish. May be repeated once for credit. P/NP or letter grading.
141. **Backgrounds of Scandinavian Literature. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of representative texts selected from literature of medieval, Renaissance, baroque, and Enlightenment periods. P/NP or letter grading.
142. **Scandinavian Literature of the 19th Century. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected works from Romantic, realistic, and post-Romantic literature of Scandinavia in the 19th century. P/NP or letter grading.
143. **Scandinavian Literature of the 20th Century. (4)** Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected works of modern Scandinavian literature from beginning of the century to the present. P/NP or letter grading.

C144. Henrik Ibsen on the World Stage. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C251. P/NP or letter grading.

C145. Getting Married: Strindberg and Battle of the Sexes. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of the so-called battle of the sexes. His work, as well as its literary transformations, placed into a Scandinavian, European, and feminist context. May be concurrently scheduled with course C252. P/NP or letter grading.

C146. Kierkegaard and Foundations of Existentialism. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of selected works by Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C253. P/NP or letter grading.

C147. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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 C254. P/NP or letter grading.

C180. Literature and Scandinavian Society. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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 C263. P/NP or letter grading.

181. Contemporary Swedish Literature. (4) Discussion, three hours. Preparation: reading knowledge of a Scandinavian language. Reading and analysis of selected texts by major 20th-century Swedish authors.

C182. Theory of the Scandinavian Novel. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Analysis of predominant structures of the Scandinavian novel from its 18th-century beginnings through its rise in the 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to the novels. May be concurrently scheduled with course C264. P/NP or letter grading.

184. Hans Christian Andersen. (4) Lecture, two hours; discussion, one hour; outside study, nine hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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.

C185. Seminar: Scandinavian Literature. (4) Discussion, 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 undergraduate adviser. May be concurrently scheduled with course C265.

CM186. Voices of Women in Scandinavian Literature. (4) (Formerly numbered C186.) (Same as Women's Studies M186.) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course C266. P/NP or letter grading.

187. Scandinavian Film: Bergman and Others. (4) Discussion, three hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. 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.

C188. Scandinavian Folk Narrative. (4) Lecture, three hours; outside study, nine hours. Requisite: course 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies which strive to answer the question "why do people tell the stories that they tell?" Concurrently scheduled with course C267. Letter grading.

190. Honors Course in Scandinavian. (4) Limited to seniors with a minimum 3.0 grade-point average in major. Intensive study of a selected special topic in Scandinavian. Discussions, oral and written reports.

199. Special Studies in Scandinavian. (2 or 4) Limited to seniors and graduate students. To be arranged with faculty member who directs the study (course section to be identified by two-letter code using initials of sponsoring instructor — see section for I.D. number). Independent studies designed for graduates and senior undergraduates who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite.

Graduate Courses

C251. Henrik Ibsen on the World Stage. (4) Discussion, three hours. Preparation: advanced knowledge of a modern Scandinavian language. Intensive study of works of Henrik Ibsen. May be concurrently scheduled with course C144. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C252. Getting Married: Strindberg and Battle of the Sexes. (4) Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of the so-called battle of the sexes. His work, as well as its literary transformations, placed into a Scandinavian, European, and feminist context. May be concurrently scheduled with course C145. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C253. Kierkegaard and Foundations of Existentialism. (4) Discussion, three hours. Preparation: advanced knowledge of a modern Scandinavian language. Readings and discussion of selected works of Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C146. S/U or letter grading.

C254. Pan's Prophets: Knut Hamsun and Other Interpreters of Nature as Modern Idyll. (4) Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. Intensive study 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 C147. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C263. Literature and Scandinavian Society. (4) Discussion, three hours. Designed for graduate students. Intensive study of selected aspects of Scandinavian society based on readings in the 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.

C264. Theory of the Scandinavian Novel. (4) Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. Analysis of predominant structures of the Scandinavian novel from its 18th-century beginnings through its rise in the 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to the novels. May be concurrently scheduled with course C182. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C265. Seminar: Scandinavian Literature. (4) Discussion, 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.

C266. Voices of Women in Scandinavian Literature. (4) Discussion, three hours. Preparation: advanced knowledge of a Scandinavian language. Intensive study of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course CM186. Graduate students may meet as a group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C267. Scandinavian Folk Narrative. (4) Lecture, three hours; outside study, nine hours. Preparation: advanced knowledge of a modern Scandinavian language. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies which strive to answer the question "why do people tell the stories that they tell?" Concurrently scheduled with course C188. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 6) Limited to graduate Scandinavian students. To be arranged with faculty member who directs the study or research. Twelve units may be applied toward total course requirement, but only four units may be applied toward minimum graduate course requirement. May be repeated twice. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4 to 8) To be arranged with faculty member who directs the study or research. May be repeated once. May not be applied toward M.A. minimum course requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4) To be arranged with faculty member who directs the study or research. May be repeated. S/U grading.

SLAVIC LANGUAGES AND LITERATURES

College of Letters and Science

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Michael H. Heim, Ph.D., *Chair*

Professors

Henning Andersen, Ph.D. (*Slavic Languages*)
 Michael H. Heim, Ph.D. (*Czech and Russian Literature*)
 Vyacheslav Vs. Ivanov, Ph.D. (*Slavic Languages, Russian Literature*)
 Emily Klenin, Ph.D. (*Slavic Languages and Literatures*)
 Gail Lenhoff, Ph.D. (*Russian Literature*)
 Aleksandr L. Ospovat, Ph.D. (*Russian Literature*)
 Ronald Vroon, Ph.D. (*Russian Literature*)
 Olga Yokoyama, Ph.D. (*Slavic Languages*)

Professors Emeriti

Aleksandar Albijanić, Ph.D.
 Henrik Birnbaum, Ph.D.
 Thomas Eekman, Ph.D.
 Kenneth E. Harper, Ph.D.
 Peter C. Hodgson, Jr., Ph.D.
 Vladimir Markov, Ph.D.
 Rochelle Stone, Ph.D.
 Dean S. Worth, Ph.D.

Assistant Professor

Roman Koropecjy, Ph.D. (*Polish and Ukrainian Literature*)

Senior Lecturer S.O.E.

Olga Kagan, Ph.D. (*Russian*)

Lecturers

Edward Denzler, M.A., *Emeritus*
 Georgiana Galateanu, Ph.D.
 Susan Kresin, Ph.D.
 Judith Simon, Ph.D.

Scope and Objectives

The Bachelor of Arts degree in Russian Language and Literature is designed to provide students with basic mastery of the Russian language and familiarity with the classics of Russian literature. Within the major, students concentrate either in Russian literature and culture or Russian linguistics. Students typically begin to study Russian in their first year, but those contemplating a Russian major later in their academic program can fulfill the Russian language requirements by combining regular coursework with summer programs or with the University of California semester program in Moscow, which is open to students who have completed the equivalent of two years of study (American Council of Teachers of Foreign Languages — ACTFL — level 1). Students interested in this program should consult the undergraduate adviser as early as possible.

The Bachelor of Arts degree in Slavic Languages and Literatures is designed to provide students with basic mastery of two Slavic languages and familiarity with their literatures, as well as general background in the cultural, political, and social history of the Slavic peoples.

The department also offers a Bachelor of Arts degree in Russian Studies in which students achieve a basic mastery of the Russian language, as well as familiarity with Russian literature, history, and culture.

The graduate program provides advanced training in the Slavic literatures and linguistics leading to the M.A. and Ph.D. degrees. The primary task of the department faculty is to develop and refine the critical and analytic skills of its students in preparation for productive ca-

reers in college teaching and research in the Slavic field. Alternative careers include language teaching, business, translation, interpreting, librarianship, and government service.

Undergraduate Study

The department offers three majors: (1) Russian Language and Literature, with concentrations in Russian literature or Russian linguistics, (2) Slavic Languages and Literatures, and (3) Russian Studies. The equivalent of a major in Slavic or Russian Language and Literature is normally required for admission to the department's graduate program and is used to determine the number of courses in Russian literature and/or linguistics that students majoring in Russian Studies are expected to make up in order to receive graduate degrees in the department. Students not majoring in Slavic or Russian Language and Literature who intend to pursue graduate study in the department are strongly encouraged to take courses in Russian literature and linguistics during their undergraduate years to reduce the number of makeup courses required. Qualified seniors may also take graduate courses numbered below 220 with consent of the instructor and the graduate and undergraduate advisers.

Russian Language and Literature B.A.**Preparation for the Major**

Required: Russian 1, 2, 3, 4, 5, 6, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1), 99A.

The Major

Required: Russian language skills equivalent to ACTFL level 2 (students usually take Russian 101A-101B-101C and 102A-102B-102C to attain level 2 proficiency; consult the undergraduate adviser for information on summer programs and the Moscow semester program), Russian 106, 130A, 140A.

Students also must concentrate in either literature or linguistics. For the *literature* concentration, Russian 118, 119, 120 (all three may be taken in the sophomore year), and two courses from 124C through 124T, 125, 130B, 130C, 140B, 140C, 140D, M150 are required. For the *linguistics* concentration, two courses from Linguistics 103, 110, 120A, 120B, and two courses from Slavic 201, 202, Russian 118, 119, 120, 124C through 124T, 125, 130B, 130C, 140B, 140C, 140D, M150, Linguistics 103, 110, 120A, 120B, 127 are required.

Slavic Languages and Literatures B.A.**Preparation for the Major**

Required: Russian 1, 2, 3, 4, 5, 6, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1), Slavic 99.

The Major

Required: Russian 101A-101B-101C or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1+); courses 118, 119, 120 (all three may be taken in the sophomore year); one three-course sequence from Czech 102A-102B-102C, 102D-102E-102F, Polish 102A-102B-102C, 102D-102E-102F, Serbian/Croatian 103A-103B-103C, 103D-103E-103F (placement with consent of instructor); three courses from Czech 102D, 102E, 102F, Polish 102D, 102E, 102F, Serbian/Croatian 103D, 103E, 103F, Russian 102A, 102B, 102C, 123, 130A, 130B, 130C, 140A through 140D, M150; two courses from Czech 155, Polish 152A, 152B, Serbian/Croatian 154, Slavic 125, 126.

Russian Studies B.A.**Preparation for the Major**

Required: Russian 1, 2, 3, 4, 5, 6, or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1), 99A.

The Major

Required: Russian 101A-101B-101C or equivalent proficiency as determined through departmental testing (equivalent to ACTFL level 1+), three courses in Russian literature, two courses from History 131A through 131D, two courses from Economics 182, Geography 184, Political Science 128A, 128B, 156A, Russian M170, and five additional courses selected from those listed above, from Russian language, literature, or linguistics courses, or from special courses (approved by the undergraduate adviser) offered by the Departments of Art, Art History, Design, Film and Television, History, Music, Political Science, Slavic Languages and Literatures, and Theater.

Russian Language Minor

To enter the Russian Language minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (13 units): Russian 6 and two courses from 25, 99A, 99B.

Required Upper Division Courses (23 units): Russian 101A-101B-101C and two additional upper division Russian language and literature courses.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Language and Literature Minor

The Russian Language and Literature minor was discontinued effective Fall Quarter 1998. Students currently participating in the program (1) must fulfill all requirements for the minor by Winter Quarter 2001 or (2) may modify their programs to fit any of the three new minors.

Required Lower Division Courses (10 to 15 units): Russian 3 or 13B or 15B and two courses from 25, 99A, 99B.

Required Upper Division Courses (20 units): Five Russian language or literature courses, including at least two from Russian 118, 119, 120.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Literature Minor

To enter the Russian Literature minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (10 to 15 units): Russian 3 or 13B or 15B and two courses from 25, 99A, 99B.

Required Upper Division Courses (20 units): Five Russian language or literature courses, including at least two from Russian 118, 119, 120, 130A, 130B, 130C, 140A through 140D.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Studies Minor

To enter the Russian Studies minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (10 to 15 units): Russian 3 or 13B or 15B and two courses from 25, 99A, 99B.

Required Upper Division Courses (20 units): Five courses dealing directly with Russia, to be selected from any upper division Russian language and literature courses, Economics 182, Geography 184, History 131A through 131D, Political Science 128A, 128B, 156A, Russian M170. With approval of the undergraduate adviser, other related courses may be applied toward the minor.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Slavic Languages and Literatures offers the Master of Arts (M.A.) degree in Slavic Languages and Literatures.

Admission

In addition to the University minimum requirements, the department requires the following from applicants to the M.A. program: the equivalent of a UCLA B.A. in Russian Language and Literature, Slavic Languages and Literatures, or Russian Studies, or three years of Russian language and a variety of Russian history, literature, and linguistics courses.

All applicants must submit three letters of recommendation from persons capable of judging their academic potential and a writing sample in the field they wish to pursue. The Graduate Record Examination (GRE) is also required as part of the application; it is not an obligation for foreign students whose native language is not English, unless they have a bachelor's degree from a university where the instruction is in English. The Test of English as a Foreign Language (TOEFL) is required of all international students whose first language is not English.

A departmental brochure describing the curriculum in some detail (graduate and undergraduate) is available from the department.

Areas of Study

Candidates for the M.A. degree choose a specialization in either literature or linguistics, with Russian as the principal language and literature.

Course Requirements

A minimum of 36 units is required of students in literature and 40 units of students in linguistics.

Slavic 201, Russian 204, 212A, and 220A are required of all M.A. students.

Literature students must also take Russian 211A, 211B, 212B, 213, and 219.

Linguistics students must also take Slavic 202; Russian 220B; one course from Russian 211A, 211B, 212B, 213; three courses from Russian 241, 242, 265; Russian 243, 263, 264; and Russian 210, Slavic 241A, 241B.

Courses in the 500 series may not be applied toward the M.A. course requirements.

Students with M.A. degrees from other institutions must pass the M.A. comprehensive examination in order to be admitted to the doctoral program. Those whose degree is in Slavic languages and literatures and who are continuing in the same area of specialization (literature or linguistics) should take the examination within three quarters following matriculation. Courses should be selected to fill in lacunae as determined by the requirements of the UCLA M.A. program. All lacunae must be filled before admittance to the doctoral examinations.

Students with M.A. degrees in disciplines other than that of their planned specialization, or students who do not have an M.A. but have taken graduate-level courses equivalent to those re-

quired at UCLA for an M.A. degree, must complete the required number of course units; course substitutions may be made with the permission of the graduate adviser. Independent study courses (500-level) may not be used as substitutes.

Comprehensive Examination Plan

Applications for advancement to candidacy must be made no later than the second week of the quarter in which the M.A. examinations are to be taken and are accepted only if students have passed the Russian language proficiency examination. M.A. examinations are offered at the end of each quarter. After students have declared their intention to take the examination in a given quarter, a committee consisting of three members is appointed by the chair. The examination has two parts — written (three hours) and oral (two hours) — and is based on coursework and the departmental reading list. The oral part may be conducted partly in Russian.

The student's combined performance in the written and oral examinations is graded high pass, pass, or fail. A grade of high pass or pass is necessary to receive the M.A. degree; the grade of high pass is necessary to enter the Ph.D. program. Examinations may be repeated once; there is a six-month limit on re-taking examinations graded pass and a one-year limit on examinations graded fail.

Thesis Plan

None.

Doctoral Degree

Admission

Applicants are formally admitted to the Ph.D. program after (1) passing the UCLA M.A. comprehensive examination with a grade of high pass; (2) passing the reading examination in both French and German; and (3) demonstrating proficiency in modern Slavic languages other than Russian as follows: applicants to the literature area must complete one year of the language of their second Slavic literature; applicants to the linguistics area must complete one year of one language and two years of another (one of the languages should represent the West Slavic group, the other the South Slavic group). Equivalent language proficiency may be demonstrated through written and oral examinations rather than coursework.

Applicants who do not have an M.A. in Slavic Languages and Literatures from UCLA must provide three letters of recommendation from persons capable of judging their academic potential and submit a writing sample in the field they wish to pursue. The Graduate Record Examination (GRE) is also required as part of the application.

Major Fields or Subdisciplines

Candidates for the Ph.D. degree choose a specialization in either literature or linguistics, with Russian usually as the principal language and literature. By special arrangement doctoral stu-

dents may specialize in a language or literature other than Russian.

Course Requirements

Before the formation of a doctoral committee, students must be officially admitted to the doctoral program and have taken the following required courses.

Students whose specialization is linguistics must take Slavic 221, 222, 223, and three other advanced linguistics courses or seminars. Recommended preparation for linguists includes Linguistics 103, 110, 120A, 120B, M150.

Students whose specialization is literature must take two courses from Slavic 230A-230B-230C and four advanced literature courses or seminars. Students are also advised to acquire a sound general knowledge of modern Western European literature.

Written and Oral Qualifying Examinations

Qualifying Paper. Students are required to submit to the faculty a qualifying paper that demonstrates their ability to conduct serious and original research. The paper must be received and approved by the faculty adviser (usually the prospective examination and dissertation committee chair) no later than one quarter preceding the quarter in which students expect to take the qualifying examinations.

Examinations. All students are expected to have a sound general knowledge of both Slavic philology and Russian literary history.

Students in linguistics take two three-hour written examinations and a two-hour oral examination. Usually one of the written examinations is on the structure of modern Russian and the other on comparative Slavic linguistics, the history of Russian, and the history and structure of a second Slavic language. The oral examination is designed to test fields of major interest and general background and typically includes discussion of the dissertation topic.

Students in literature must take a series of written examinations on Russian literature and one on a Slavic literature other than Russian. For the examination on Russian literature, students choose six fields and make up an appropriate reading list for each with members of their doctoral committee. A field may cover an author, genre, theme, literary movement, school of theory, etc. Each of four periods — early Russian literature, the 18th century, the 19th century, and the 20th century — must be represented by a field; the other two fields may cross period boundaries. The examination in a Slavic literature other than Russian tests students' knowledge of the history of the literature and familiarity with representative works. Each examination is one hour in length; the seven examinations are taken over the course of a single week.

Students who receive a grade of pass on the written examinations are admitted to a two-hour University Oral Qualifying Examination,

which is designed to test the fields of major interest and general background and which typically includes discussion of the dissertation topic.

After considering students' overall performance in both the oral and written examinations, the committee assigns a cumulative grade. A pass grade entitles students to write a dissertation. At the committee's discretion, students may be required to retake any or all portions of the Ph.D. examinations within one calendar year after the first attempt.

Within two quarters (or one quarter and a summer) after passing the qualifying examinations, students must submit a prospectus and commence writing the dissertation.

Formal Lecture. Students are required to deliver a formal lecture in the California Slavic Colloquium no later than two calendar years after advancement to candidacy.

Slavic

Lower Division Courses

88. Seminar: Literature and Culture. (4) Seminar, three hours. Variable topics course designed to explore themes and issues pertinent to Slavic literature and culture. Consult *Schedule of Classes* or department for topics to be offered in a specific term.

99. Introduction to Slavic Civilization. (4) Lecture, three hours. Introductory survey of social and cultural institutions of the Slavic peoples and their historical background.

Upper Division Courses

125. Interwar Central European Prose. (4) (Formerly numbered M125.) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative authors of the 1920s and 1930s in translation. Special attention to relation between literature and historical and ethnic concerns. P/NP or letter grading.

126. Postwar Central European Prose. (4) (Formerly numbered M126.) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative contemporary authors in translation. Special attention to relation between art and ideology. P/NP or letter grading.

M179. Baltic and Slavic Folklore and Mythology. (4) (Same as Folklore M126.) Lecture, three hours. General course for students interested in folklore and mythology and for those interested in Indo-European of antiquities.

199. Special Studies. (2 to 8) Limited to seniors.

Graduate Courses

Linguistics

201. Introduction to Old Church Slavic. (4) Lecture, three hours. Required for M.A. (linguistics, literature). Introduction to phonology and grammar; readings.

202. Introduction to Comparative Slavic Linguistics. (4) Lecture, three hours. Requisite: course 201. Required for M.A. (linguistics). Introduction to comparative phonology and grammar of Slavic languages.

211. Slavic Gender Linguistics. (4) Lecture, three hours. Examination of linguistic differences between male and female speech and of language used to refer to females and males. Course contributes to understanding of language, literature, sociolinguistics, gender issues, and Slavic culture in general. S/U or letter grading.

221. Introduction to East Slavic Languages. (4) Lecture, three hours. Requisites: Russian 102A-102B-102C or Ukrainian 101A-101B-101C. Recommended: course 202. Required for Ph.D. (linguistics). Introduction to structure and history of East Slavic languages.

222. Introduction to West Slavic Languages. (4) Lecture, three hours. Requisite: course 202. Recommended: Czech 102A-102B-102C or Polish 102A-102B-102C. Required for Ph.D. (linguistics). Introduction to structure and history of West Slavic languages.

223. Introduction to South Slavic Languages. (4) Lecture, three hours. Requisite: course 202. Recommended: Serbian/Croatian 103A-103B-103C or Bulgarian 103A-103B-103C. Required for Ph.D. (linguistics). Introduction to structure and history of South Slavic languages.

M229. Introduction to Slavic Bibliography. (2) (Same as Library and Information Science 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 East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of on-line databases; compilation of bibliographies. S/U grading.

241A-241B. Advanced Old Church Slavic. (4-4) Lecture, three hours. Requisite: course 201. **241A.** Advanced Readings in Canonical Texts; **241B.** East, West, and South Slavic Recensions of Church Slavic.

242. Comparative Slavic Linguistics. (4) Lecture, three hours. Requisite: course 202. Selected topics in development of Common Slavic.

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.

261. Slavic Paleography. (4) Lecture, three hours. Requisite: course 201. Introduction to Slavic paleography: inscriptions, birchbark letters, Glagolitic and Cyrillic texts.

281. Seminar: Slavic Linguistics. (4) Seminar, three hours. Selected topics in comparative and historical Slavic linguistics. May be repeated for credit with consent of instructor and graduate adviser.

282. Seminar: Structural Analysis. (4) Seminar, three hours. Selected topics. May be repeated for credit with consent of instructor and graduate adviser.

Literature

230A-230B-230C. Topics in Comparative Slavic Literature. (4-4-4) Lecture, three hours. Recommended preparation: upper division courses in Czech, Polish, Russian, and Yugoslav literatures. Two terms required for Ph.D. (literature). May be repeated for credit with consent of instructor and graduate adviser. **230A.** Middle Ages through Baroque; **230B.** Classicism to Romanticism; **230C.** Realism to Modernism.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

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) Tutorial, to be arranged. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

Bulgarian

Upper Division Courses

103A-103B-103C. Elementary Bulgarian. (5-5-5) Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Bulgarian language. P/NP or letter grading.

154. Survey of Bulgarian Literature. (4) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Survey of Bulgarian literature from the Middle Ages to the present.

Czech

Upper Division Courses

102A-102B-102C. Elementary Czech. (5-5-5) Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Czech language. P/NP or letter grading.

102D-102E-102F. Advanced Czech. (4-4-4) Recitation, three hours. Requisite: course 102C.

155. Survey of Czech Literature from Middle Ages to the Present. (4) (Formerly numbered 155A-155B.) Lecture, three hours. Lectures and readings in English. P/NP or letter grading.

Polish

Upper Division Courses

102A-102B-102C. Elementary Polish. (5-5-5) Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Polish language. P/NP or letter grading.

102D-102E-102F. Advanced Polish. (4-4-4) Recitation, three hours. Requisite: course 102C.

152A-152B-152C. Survey of Polish Literature. (4-4-4) Lecture, three hours. Lectures and readings in English. **152A.** From the Middle Ages to Neoclassicism; **152B.** Reimagining a Nation. Readings in 19th-century Polish literature and culture. **152C.** Dreaming, Mocking, and Writing "as if." Readings in modern Polish literature and culture.

Graduate Course

280. Seminar: Polish Literature. Seminar, three hours. Selected topics in Polish prose, poetry, and drama. May be repeated for credit with consent of instructor and graduate adviser.

Russian

Language

1. Elementary Russian. (5) Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

2. Elementary Russian. (5) Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

3. Elementary Russian. (5) Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

4. Intermediate Russian. (5) Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

5. Intermediate Russian. (5) Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

6. Intermediate Russian. (5) Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

10. Intensive Elementary Russian. (12) Intensive basic course in the Russian language equivalent to courses 1, 2, and 3.

11A-11B-12A-12B-13A-13B. Self-Paced Program in Russian. (2 each) Basic courses in the Russian language; two to four units per term recommended. Each two-unit course in sequence requires 30 minutes of laboratory session per week and 30 minutes of discussion session per week, plus individual instruction as required by the staff. Courses 11B and higher require completion of or simultaneous enrollment in all courses lower in sequence. P/NP or letter grading.

15A-15B. Accelerated Elementary Russian. (8-7) Recitation, five hours; laboratory, two hours; outside study, 15 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.

16. Preintermediate Russian. (2) Enforced requisite: course 3 or 13B or 15B. Designed for students who have completed first year of Russian (course 3 or 13B or 15B) but cannot take course 4 immediately. Conversation, reading, and composition. P/NP or letter grading.

20. Intensive Intermediate Russian. (12) Requisite: course 10 or one year of elementary Russian. Intermediate instruction in reading, writing, and speaking Russian equivalent to courses 4, 5, and 6.

100A-100B. Literacy in Russian. (4-4) Discussion, three hours. For students who speak Russian but have difficulty reading and writing. Each course may be taken independently for credit with consent of instructor. P/NP or letter grading.

101A-101B-101C. Third-Year Russian. (5-5-5) Recitation, five hours; outside study, 10 hours minimum. Requisite: course 6. Advanced grammar, reading, and conversation. P/NP or letter grading. **101A.** Russia and the West; **101B.** Soviet Russia; **101C.** Contemporary Russia.

102A-102D. Fourth-Year Russian. (4-4) (Formerly numbered 102A-102B-102C.) Lecture, three hours. Requisite: course 101C. Advanced conversation and composition, with emphasis on vocabulary development and review of selected grammar topics in fiction, nonfiction, poetry, film. Each course may be taken independently for credit. P/NP or letter grading. **102A.** The Individual and the State; **102B.** The Family in Contemporary Russia; **102C.** Growing Up in Russia; **102D.** Emphasis on Social Science.

103A-103B-103C. Russian for Native and Near-Native Speakers. (4-4-4) (Formerly numbered 103.) Discussion, three hours. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. Courses may be taken independently for credit and may be repeated for credit with topic and/or instructor change. P/NP or letter grading. **103A.** Russian National Identity. Readings in literature, philosophy, criticism, film. **103B.** Literature and Film. Film adaptations of Russian literature. Readings and screenings. **103C.** Special Topics.

106. Russian for Advanced Native and Near-Native Speakers. (4) Lecture, three hours. Requisite: course 101C. Analysis of literary texts. P/NP or letter grading.

107. Russian for Social Scientists. (2) Preparation: three years of Russian. Reading of texts relevant to social scientists: viewing of Soviet TV. May be repeated for credit.

108. Russian for Business: Language and Culture. (4) (Formerly numbered 108A-108B-108C.) Recitation, three hours. Discussion of economics and business in Russia, language and advertising, business and official correspondence. P/NP or letter grading.

Linguistics

123. Historical Commentary on Modern Russian. (4) Lecture, three hours. Requisite: course 101C. Historical explanation of phonological and morphological anomalies of modern Russian.

Literature and Civilization

25. The Russian Novel in Translation. (4) Lecture, three hours; discussion, one hour. Designed for non-majors. Study of major works by the great 19th-century Russian novelists.

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, focusing 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.

99A. Introduction to Russian Civilization. (4) Lecture, three hours. Introductory survey of social and cultural institutions of the Russian people and their historical background.

99B. Russian Civilization in the 20th Century. (4) Lecture, three hours. 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.

118. Russian Literature of Middle Ages and Enlightenment. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors should take this course in their sophomore year. Lectures and readings in English. Survey of Russian literature from its origins through the Enlightenment, with focus on influence of church, state, and society in evolution of a national literature.

119. Golden Age and the Great Realists. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors should 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.

120. Literature and Revolution. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors should 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.

124C-124T. Studies in Russian Literature. (4 each) (Formerly numbered 124A-124G.) Lecture, three hours. Lectures and readings in English. P/NP or letter grading. Following writers are alternately discussed: **124C.** Chekhov. (Formerly numbered 124F); **124D.** Dostoevsky; **124G.** Gogol. (Formerly numbered 124B); **124N.** Nabokov. (Formerly numbered 124G.) Nabokov as writer (the European stories and novel *The Gift*, originally written in Russian, and the American novels *Lolita*, *Invitation to a Beheading*, and *Pale Fire*, originally written in English) and as critic (with excerpts from his criticism and from works by Pushkin, Gogol, and Lermontov), translator (*Eugene Onegin*), and memoirist (*Speak, Memory*). **124T.** Tolstoy. (Formerly numbered 124E.)

125. The 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.

127. Women in Russian Literature. (4) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to "alternative tradition" of women's writings in Russia and the Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers.

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.

130A-130B-130C. Russian Poetry. (4-4-4) Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. **130A.** Introduction to Analysis of Russian Poetry. Role of biography, cultural subtexts, rhetoric, and form in interpreting poetic texts. **130B.** Poetry of Russian Neoclassicism, Romanticism, and Realism. Major works of late 18th and 19th centuries in their historical and cultural contexts. **130C.** Russian Poetry in the 20th Century. Major poetic schools from early modernism (symbolism, futurism, acmeism) to contemporary avant-garde.

140A-140D. Russian Prose Fiction. (4-4-4-4) Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. **140A.** Introduction to Analysis of Russian Narrative Prose. Close analysis of genre, narrative, and rhetorical strategies and interplay of literature, history, and culture. **140B.** Russian Romantic Prose. Karamzin, Pushkin, Gogol, and others. **140C.** Great Realists. Dostoevsky, Tolstoy, and others. **140D.** 20th-Century Modernism.

M150. Russian Folk Literature. (4) (Same as Folklore M150.) Lecture, three hours. Lectures and readings in Russian.

M170. Russian Folklore. (4) (Same as Folklore M170.) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena.

193. Seminar: Russian Literature. (4) Seminar, three hours. Requisite: course 6. Recommended: course 101C. Reading and discussion of selected authors; written seminar papers usually required. May be repeated for credit with topic and/or instructor change.

Graduate Courses

201A-201B-201C. Russian: Vocabulary, Pronunciation, Style. (4-4-4) Lecture, three hours. Requisites: courses 102C, 106. Conducted in Russian. Reading and analysis of texts with focus on vocabulary, pronunciation, and style, respectively, in three consecutive terms. Letter grading.

Linguistics

202. Structure of Colloquial Russian. (4) Phonology, morphology, word formation, lexicon, and sentence and discourse structure of contemporary vernacular of Russian intelligentsia in context of linguistic variation. S/U or letter grading.

203. Practicum in Russian. (2) Requisite: course 201C. Two terms per year required of Ph.D. students. Reading of advanced texts; advanced composition, conversation; stylistics. May be repeated for credit. S/U grading.

204. Introduction to History of the Russian Language. (4) Lecture, three hours. Requisites: course 220A, Slavic 201. Required for M.A. (linguistics, literature). Survey of history of the Russian language from its beginning to the present.

210. Readings in Old Russian Texts. (4) Lecture, three hours. Requisite: Slavic 201. Readings in pre-modern Russian texts. May be repeated for credit.

220A-220B. Structure of Modern Russian. (4) Lecture, three hours. **220A.** Phonology and Morphology. Required for M.A. (literature, linguistics). Advanced study and analysis of problems in Russian phonology, inflection, and derivation. **220B.** Morphosyntax. Requisite: course 220A. Required for M.A. (linguistics). Survey of Russian syntax and grammatical categories.

241. Topics in Russian Phonology. (4) Lecture, three hours. Requisite: course 220A. Selected topics in Russian phonology. May be repeated for credit with consent of instructor.

242. Topics in Russian Morphology. (4) Lecture, three hours. Requisite: course 220A. Selected topics in Russian inflection and derivation. May be repeated for credit with consent of instructor.

243. Topics in Historical Russian Grammar. (4) Lecture, three hours. Requisites: course 204, Slavic 221. Selected topics in Russian historical phonology, morphology, and syntax. May be repeated for credit with consent of instructor.

261. Discourse Grammar of Russian. (4) Analysis of phenomena of Contemporary Standard Russian controlled by discourse/pragmatic factors at all levels of linguistic structure from phonology to intersentential syntax. S/U or letter grading.

263. Russian Dialectology. (4) Lecture, three hours. Requisite: Slavic 221. Phonology and grammar of modern Great Russian dialects.

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.

265. Topics in Russian Syntax. (4) Lecture, three hours. Requisite: course 220B. Traditional and generative approaches to Russian syntax. May be repeated for credit with consent of instructor.

Literature and Civilization

211A. Literature of Medieval Rus'. (4) Lecture, three hours. Required for M.A. (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 M.A. (literature). Lectures and readings in major and secondary writers. Analysis of related literary works.

212A-212B. 19th-Century Russian Literature. (4-4) Lecture, three hours:

212A. The Golden Age. Required for M.A. (literature, linguistics). 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.

212B. Age of Realism. Required for M.A. (literature). Survey devoted to emergence of critical and psychological realism, beginning with early works of Turgenyev, Goncharov, and Dostoevsky, moving to major novels of Tolstoy, Dostoevsky, and Saltykov-Shchedrin, and concluding with works of the presymbolist period, especially the short stories of Chekhov.

213. 20th-Century Russian Literature. (4) Lecture, three hours. Required for M.A. (literature). Lectures and readings in major and secondary writers.

215. Contemporary Russian Literature. (4) Discussion, three hours. Requisite: course 213. Close readings in selected texts of poetry and prose, metropolitan and emigre, of recent vintage. May be repeated for credit. S/U or letter grading.

219. Movements and Genres in Russian Literature. (4) Lecture, three hours. Required for M.A. (literature). Introduction to most important theoretical issues of Russian literature viewed in diachronic perspective.

227. Linguistic Approaches to Russian Poetry. (4) Lecture, three hours. Designed for graduate students. Introduction to use of linguistic methods in study of Russian poetic texts. May be repeated for credit.

251. Topics in Literature of Medieval Rus'. (4) Lecture, three hours. Requisite: course 211A. Detailed discussion of particular writers, periods, or genres. May be repeated for credit with consent of instructor and graduate adviser.

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.

290. Seminar: Russian Poetry. (4) Seminar, three hours. Recommended preparation: course 270. Detailed study of a single author, period, or work. May be repeated for credit with consent of instructor and graduate adviser.

291A. Seminar: Literature of Medieval Rus'. (4) Seminar, three hours. Requisite: course 211A. Selected topics from the 11th through the 17th century. May be repeated for credit with consent of instructor and graduate adviser.

291B. Seminar: 18th-Century Russian Literature. (4) Seminar, three hours. Requisite: course 211B. Selected authors and works from 18th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

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. Requisite: course 213. Selected authors and works from 20th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

294. Seminar: Russian Literary Criticism. (4) Seminar, three hours. Requisites: courses 211B, 212A-212B, 213. 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 the West. May be repeated for credit with consent of instructor and graduate adviser.

296. Seminar: History of Russian Culture. (4) Discussion, three hours. Reading and discussion on selected topics in history of Russian culture.

Serbian/Croatian

Upper Division Courses

103A-103B-103C. Elementary Serbian/Croatian. (5-5-5) Recitation, five hours; outside study, 10 hours minimum. Basic courses in Serbian/Croatian. P/NP or letter grading.

103D-103E-103F. Advanced Serbian/Croatian. (4-4-4) Recitation, three hours. Requisite: course 103C. P/NP or letter grading.

154. South Slavic Literature. (4) (Formerly numbered 154A-154B.) Lecture, three hours. Lectures and readings in English. Survey of South Slavic literature from Middle Ages to the present. P/NP or letter grading.

Ukrainian

Upper Division Courses

101A-101B-101C. Elementary Ukrainian. (5-5-5) Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Ukrainian language. 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 I. Kotlyarevsky, T. Shevchenko, I. Franko, L. Ukrainka, and P. Tytchyna.

Non-Slavic Languages of Eastern Europe

Hungarian

Upper Division Courses

101A-101B-101C. Elementary Hungarian. (4-4-4) Discussion, three to four hours. Course 101A is requisite to 101B, which is requisite to 101C. Introduction to grammar; instruction in speaking, listening, reading, and writing. P/NP or letter grading.

199. Special Studies in Hungarian. (2 to 4) Tutorial, to be arranged. Independent studies course for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a requisite. P/NP or letter grading.

Romanian

Lower Division Course

99. Introduction to Romanian Civilization. (4) Lecture, three hours. Introductory survey of social and cultural institutions of the Romanian people and their historical background.

Upper Division Courses

101A-101B-101C. Elementary Romanian. (5-5-5) Recitation, five hours; outside study, 10 hours. Basic courses in the Romanian language. P/NP or letter grading.

101D-101E-101F. Advanced Romanian. (5-5-5) Recitation, five hours; outside study, 10 hours. Requisite: course 101C. Course 101D is requisite to 101E, which is requisite to 101F. 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.

104. Intensive Elementary Romanian. (12) 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 the Middle Ages to the present.

Graduate Course

201. Romanian as a Romance Language. (4) Lecture, three hours. Survey of structure and development of the Romanian language, with special emphasis on relationship of Romanian to other members of the Romance group.

Related Courses

Economics

182. Centralized Economics Systems

Ethnomusicology

91C. Music and Dance of the Balkans

128. Folk Music of Eastern Europe

130. Folk Music of the Mediterranean

Geography

184. Russia

History

131A-131D. History of Russia

200D. Advanced Historiography: Europe

233A-233B. Seminars: Russian/Soviet History

Linguistics

20. Introduction to Linguistics

103. Introduction to General Phonetics

110. Introduction to Historical Linguistics

120A. Phonology I

120B. Syntax I

M150. Introduction to Indo-European Linguistics

Political Science

128A. U.S./Soviet Relations

128B. International Relations of Post-Communist Russia

156A. Government and Politics of Post-Communist States: Russia

156B. Government and Politics of Post-Communist States: Eastern Europe

SOCIAL SCIENCES

College of Letters and Science

UCLA

1312 Murphy Hall

Box 951438

Los Angeles, CA 90095-1438

(310) 825-4017

Scope and Objectives

There is no major in social sciences; however, several undergraduate courses are offered for interested students.

Social Sciences

Lower Division Courses

20. Racial Minorities in the U.S. (4) Lecture, three hours; discussion, one hour. Multidisciplinary examination of history and culture of Afro-Americans, Asian Americans, Chicanos, and Native Americans in the U.S. Topics include origins and maintenance of inequality, ethnic images in literature and art, psychosocial dimensions of racism, social movements, and minorities in California.

30. Law and Society. (3) Introduction to nature of legal institutions, processes, and norms.

40. Introductory Statistics. (4) In a series of case studies from science and decision making, use of probability and statistics to quantify uncertainty and figure out how to make sensible choices in the face of it. Topics include how to design experiments and conduct surveys to reduce uncertainty, how to analyze data, and how to validly assess causality. Discussion-style learning blended with interactive sessions on personal computers, making numerical and graphical summaries that both measure uncertainty and help figure out what to do about it. P/NP or letter grading.

88. Introduction to Social Sciences. (4) Seminar, three hours. Introduction to methods, concepts, and practices of social scientific scholarship. Organized around broad, interdisciplinary themes in anthropology, economics, geography, history, political science, psychology, and sociology. Emphasis on social sciences disciplines as a whole. P/NP or letter grading.

Upper Division Course

100. History and Politics of Affirmative Action. (4) Lecture, three hours; discussion, one hour. Selected themes in sociology, politics, and education to explore questions surrounding diversity, affirmative action, and discrimination. P/NP or letter grading.

SOCIAL WELFARE

School of Public Policy and Social Research

UCLA

3357 Public Policy Building

Box 951656

Los Angeles, CA 90095-1656

(310) 825-1429

http://www.sppsr.ucla.edu/acad/sw/aca_sw.html

James E. Lubben, D.S.W., *Chair and Director, MSW Program*
Joseph A. Nunn, Ph.D., *Vice Chair, Agency and Community Relations*
A.E. Benjamin, Ph.D. *Vice Chair, Academic Affairs*

Professors

Rosina M. Becerra, Ph.D.

A.E. Benjamin, Ph.D.

Yehekel Hasenfeld, Ph.D.

Stuart A. Kirk, D.S.W. (*Marjorie Crump Professor of Social Welfare*)

Duncan Lindsey, Ph.D.

James E. Lubben, D.S.W.

Barbara J. Nelson, Ph.D., *Dean*

Paul Ong, Ph.D.

Robert F. Schilling, Ph.D.

Fernando M. Torres-Gil, Ph.D.

Professors Emeriti

Jerome Cohen, Ph.D.

Nathan E. Cohen, Ph.D.

Maurice F. Connery, D.S.W.

Jeanne M. Giovannoni, Ph.D.

Doris S. Jacobson, Ph.D.

Alfred H. Katz, D.S.W.

Harry H.L. Kitano, Ph.D. (*UCLA Alumni and Friends of Japanese Ancestry Professor Emeritus of Japanese American Studies*)

Alex J. Norman, D.S.W.

Jack Rothman, Ph.D.

Leonard Schneiderman, Ph.D.

Harry Wasserman, D.S.W.

Associate Professors

Diane de Anda, Ph.D.

Alfreda P. Iglehart, Ph.D.

Linda G. Mills, Ph.D.

Ailee Moon, Ph.D.

Rachelle A. Zukerman, Ph.D.

Assistant Professors

Pauline Agbayani-Siewert, Ph.D.

Todd M. Franke, Ph.D.

Mitchell T. Maki, Ph.D.

Adjunct Associate Professors

JoAnn Damron-Rodriguez, Ph.D.

Adjunct Assistant Professor

JoAnn Damron-Rodriguez, Ph.D.

James McGuire, Ph.D.

Jorja J. Prover, Ph.D.

Valentine Villa, Ph.D.

Fieldwork Consultants

Pamela Davis, L.C.S.W.

Lartha R. Dunham, M.S.W.

Colleen Friend, L.C.S.W.

Cheryl Gully, L.C.S.W.

Katherine M. Kolodziejski, Ph.D., *Emerita*

Jane E. Kurohara, M.S.W., *Emerita*

Gerardo P. Laviña, L.C.S.W.

Joseph A. Nunn, Ph.D.

Mary Kay Oliveri, L.C.S.W.

Winifred E. Smith, M.S.W., *Emerita*

Mary Brent Wehrli, M.S.W.

Scope and Objectives

The primary objectives of the Department of Social Welfare graduate program are to prepare leaders for the profession of social work and to develop the empirical base for all facets of practice. In response to changing demographic trends and the emergence of new social problems, the department provides leadership in the areas of policy, practice, and research and in the development of an innovative curriculum for training students and professionals to meet the service needs of a multicultural clientele.

The educational program is based on the premise that all students need to acquire a common body of knowledge and basic skills, and a common understanding of the philosophy and values of the profession. These then form a sound foundation for the development of more specialized knowledge and skills along the lines of each student's interests and the needs of the field.

Students are encouraged to take advantage of the resources within the University by selecting elective courses in related disciplines. In addition, as a department within the School of Public Policy and Social Research, the program affords students instructional opportunities in the other affiliated departments — Policy Studies and Urban Planning.

Beyond national opportunities in the profession of social work, there is increasing demand for qualified and experienced social workers to serve in the international field, where many social service programs are conducted under the auspices of the United Nations, the U.S. government, and national sectarian organizations. Graduates of the doctoral program generally secure appointments at major universities or research centers.

The challenge to the department, the profession, and those who join us as students is to prepare to forge the paths, build the bridges, and shape the future to ensure that all individuals, families, and communities enjoy better education, better health care, better job training, and better economic futures.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Social Welfare offers the Master of Social Welfare (M.S.W.) degree.

Admission

In addition to University graduate admission requirements, the M.S.W. program requires a minimum of seven courses in the liberal arts, including three in the sociobehavioral sciences, or a combination of liberal arts and social welfare subjects as requisite undergraduate preparation for graduate study in the field of social work. An elementary statistics course with a grade of B or better and one course with human biology content are also required.

A grade-point average of 3.0 or better is required in all courses taken during the junior and senior years. However, applicants who have a grade-point average below 3.0 may be considered when there is clear evidence of capacity for academic achievement and professional development. In addition, the department applies the following criteria in the selection of candidates: personal suitability for professional education and a potential for successful social work practice, a satisfactory state of health, and an adequate financial and personal plan to permit completion of degree requirements.

The General Test of the Graduate Record Examination (GRE) is required, as are official transcripts from every school attended since high school. GRE results must be submitted prior to any evaluation of the application for admission. GRE scores must be less than five years old and may be repeated to achieve a higher score, if desired. In addition, international students whose native language is not English and whose higher education was not obtained in an English-speaking institution are required to take the Test of English as a Foreign Language (TOEFL). The department may request that specified additional examinations are taken to assist in the assessment of candidacy for admission.

Three letters of recommendation are required. In addition, an autobiographical statement and a professional concepts and goals statement must accompany the application.

Although a personal interview is not normally required as part of the application procedure, whenever possible a meeting with a member of the faculty is arranged for applicants.

Admission to the department requires simultaneous application to (1) the Department of Social Welfare and (2) the Graduate Division. Both applications and the program brochure can be obtained on written request to the Department of Social Welfare Admissions.

Concurrent Degree Program

The Department of Social Welfare and the School of Law offer a concurrent degree program whereby students may pursue the M.S.W. and the Juris Doctor degrees at the same time. For admission, applicants are required to satisfy the regular admission requirements of both schools. Students complete their first year of law study in the first year of the four-year program. Students complete their first year of social welfare study in the second

year of the four-year program. In the third and fourth years, students meet the other requirements for both programs. The total number of units reduced from the social welfare portion of the concurrent program is 10, and the total number reduced from the law portion of the concurrent program is 12. Students complete a total of 66 quarter units in social welfare and 75 semester units in law to achieve both degrees. Students must qualify for graduation in both the School of Law and Social Welfare to obtain either degree. Applicants interested in the program should contact the Department of Social Welfare or the School of Law.

Areas of Study

Social work practice in organizations, communities, and policy settings (SWCOPS), and social work practice with individuals, families, and groups (SWIFG) are offered as social work methods concentrations. Specializations (sub-concentrations) are available in gerontology, child welfare, school and youth services, health services, and mental health services.

Course Requirements

A total of 76 units in departmental courses is required, including three courses in the sequence of social welfare policy and services, three courses in the human behavior and social environment sequence, six courses in methods of social work practice, four courses in social welfare research, plus six quarters of field practicum. Appropriate substitutions or waivers may be requested. With the consent of the chair, students may take courses in other graduate schools or programs of the University in fulfillment of the degree requirements.

With the consent of the instructor and chair, tutorial studies of comparable material in the 500 series may be substituted for either required or elective courses. A maximum of nine units of 500-series courses may be applied toward the entire graduate course requirement for the degree.

While no University-approved specific thesis is required for the M.S.W. degree, the curriculum requires theoretical courses in research methodology. An option to the second-year required substantive social welfare research course is the satisfactory completion of an individual research project, or participation in a group research project concerned with a social welfare problem. This research option requires approval of the department chair and faculty research adviser.

Comprehensive Examination Plan

All M.S.W. candidates must pass an oral comprehensive examination in the Spring Quarter of the second year of study. The examination covers the entire range of the student's program of study.

Thesis Plan

None.

Doctoral Degree

Admission

Admission requirements for the program leading to the Ph.D. degree in Social Welfare include meeting the general admission requirements of the Graduate Division and a Master of Social Work (M.S.W.) degree from an accredited school of social work with a superior academic record. Students who possess a master's degree in social science and professional experience in a related field may also be admitted under one of the following plans:

(1) Applicants who wish to obtain an M.S.W. are required to complete the first-year M.S.W. program. Students can be exempted from some second-year M.S.W. requirements via examinations on the basis of preparation received in doctoral courses. This plan is also available to applicants with a B.A. degree who possess an outstanding academic record.

(2) Applicants who do not wish to obtain an M.S.W. may be required to take certain M.S.W. courses as requisites to doctoral courses.

The Graduate Record Examination (GRE) General Test is required. International applicants are required to take the Test of English as a Foreign Language (TOEFL). The program may request that additional examinations be taken to assist in the assessment of candidacy for admission.

Official transcripts from every school attended since high school are required. Three letters of recommendation and a typewritten statement of professional and educational objectives are required. To exemplify communication skills, applicants may submit any of the following: published articles, master's thesis, unpublished papers, or term papers written in graduate courses.

Admission criteria include quality of performance in previous undergraduate and graduate study, capacity for doctoral-level scholarship, ability to express oneself clearly in writing, success in professional employment and other pertinent experiences, results of the GRE, and other qualifications indicating eligibility for advanced study and research. Enrollment in the doctoral program is limited, and it may not be possible to accept all applicants who meet the formal qualifications for admission.

Prospective students must apply separately to the Department of Social Welfare and to the Graduate Division. Both applications and the school brochure are available on written request to the Department of Social Welfare doctoral program.

Major Fields or Subdisciplines

The program trains research-oriented scholars to advance the field of social welfare through research and knowledge development, and to assume leadership roles in academic, policy, and practice settings. The curriculum is organized into three major areas: (1) specialization in a substantive area of social welfare, (2) integration of social and behavioral

science knowledge into social welfare, and (3) research methods. Programs of study are planned in relation to the special and individual needs and interests of students.

Course Requirements

There is a minimum core of required courses which includes two seminars on practice theory and research; two seminars on social welfare policy; and two graduate-level courses in statistics. In addition, students are required to take (1) at least three graduate-level courses in the social and behavioral sciences outside the department related to their specialization in social welfare; (2) three courses in advanced research methods; and (3) three quarters of research internship.

Every effort is made to individualize the curriculum around students' area of interest and plans for the dissertation. In order to achieve this goal, a variety of patterns is utilized, including tutorials, small seminar groups, special courses in the M.S.W. program, and courses in other departments and schools of the University.

Written and Oral Qualifying Examinations

The qualifying examinations consist of two parts:

(1) An examination in social welfare policy and practice, reviewing current theory and research. The examination is given at the end of the third quarter of the first year.

(2) A major publishable scholarly paper on a social welfare topic, demonstrating the student's mastery of social science theory and methods of scientific inquiry. The paper is evaluated by a three-member committee appointed by the chair of the doctoral committee.

The qualifying examinations are graded on a pass/fail basis, and passing them is requisite to pursuing the dissertation. If students fail one or more components, they may be permitted to re-take the examination only on recommendation of the department's doctoral program committee.

Advancement to doctoral candidacy follows successful completion of both the written qualifying examination and subsequently the University Oral Qualifying Examination, which covers the dissertation proposal and related areas. It is administered by a doctoral committee which consists of three members from the Department of Social Welfare and at least one faculty member from another department of the University.

Social Welfare

Upper Division Courses

100A. Introduction to Social Welfare: Policies and Programs. (4) 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 the profession to major social problems.

100B. Social Welfare Policy: Overview. (4) Requisite: course 100A. Review of existing policy regarding major social issues in the 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.

101. Social Welfare in a Multicultural Society. (4) 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.

102. Social Welfare Organizations and Community Systems. (4) Recommended requisites: courses 100A, 100B. Detailed demonstration of implementation of policy via the functioning of human service organizations. Examination of organizational structures/functions. Exploration of characteristics and organization of the community and forces that influence its development and change.

103. Introduction to Direct Practice with Individuals, Families, and Groups. (4) Requisites: courses 100A, 100B, 101. Description and demonstration of basic skills employed in direct social work practice via the casework process. Students practice these skills in written, role-play, small group, and video or audio exercises. P/NP or letter grading.

104A. Filipino American Community and Family. (4) Examination of interaction of Filipino American families and communities within the larger social and political environment to understand importance of social, cultural, and political influences of Filipino American families and communities. P/NP or letter grading.

104B. Japanese American Redress. (4) Examination of process through which Civil Liberties Act of 1988 was created, pursued, and passed. This act was the official apology from the U.S. government to over 110,000 Japanese Americans incarcerated in concentration camps during World War II. P/NP or letter grading.

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Formerly numbered 104C.) (Same as Gerontology M104C and Women's Studies M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of the aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in a multidisciplinary perspective utilizing faculty from a variety of fields to address issues of diversity. Letter grading.

M104D. Public Policy and Aging. (4) (Formerly numbered 104D.) (Same as Gerontology M104D.) Examination of theoretical models and concepts of the 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 the elderly. P/NP or letter grading.

M104E. Social Aspects of Aging. (4) (Formerly numbered 104E.) (Same as Gerontology M104E.) Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around a key aspect of social gerontology. P/NP or letter grading.

104F. Japanese American Community and Family. (4) Examination of interaction of Japanese American families and communities within the larger social and political environment to understand importance of social, cultural, and political influences of Japanese American families and communities. 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.

106. Research Seminar and Field Observation: Social Welfare. (4) Seminar, 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.

M108. Violence against Women. (4) (Same as Women's Studies M187.) Lecture, three hours. Requisites: Women's Studies 10, 110A. 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.

M140. Introduction to Study of Aging. (4) (Formerly numbered 140.) (Same as Gerontology M140 and 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 the range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

199. Special Studies in Social Welfare. (2 or 4) Preparation: 3.0 grade-point average. Designed for juniors/seniors. Intensive directed research in social welfare. P/NP or letter grading.

Graduate Courses

201A-201B. Dynamics of Human Behavior. (3-3) Lecture, two hours; discussion, one hour. Biopsychosocial factors associated with individual and group behavior and development as applicable in social functioning of individuals and groups. Emphasis on theoretical issues and research evidence which contribute to a unified theory of human development. Letter grading.

202A-202B. Dynamics of Human Behavior. (2-2) 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 the social worker.

203A-203B-203C. Integrative Seminars. (2-2-2) Integrative courses which bring together theory and practice of social work in a variety of topic areas relevant to the profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

M203D. Supporting Families of Children with Special Needs. (2) (Same as Psychiatry M254.) Techniques and issues in counseling families through evaluation, feedback, and treatment. Social and psychological stresses on family unit, professional's reactions, community resources, and issues of genetic counseling, placement, and developmental crises. S/U grading.

M203E. Hispanic Mental Health Issues and Treatment. (2) (Same as Psychiatry M231.) Mental health issues and needs of Hispanics through seminars and videotapes dealing with historical comparison of psychiatry in Mexico and the U.S., analysis of various theoretical perspectives regarding biopsychosocial behavior; distinguishing psychodynamic from cultural factors in treatment of Spanish-speaking patients; treatment of Hispanic families, couples, undocumented persons, and criminal justice system clientele.

205. Cross-Cultural Awareness. (4) (Formerly numbered 205A.) Lecture, two hours; discussion, two hours. Designed to aid students in development of professional perspectives that will allow them to work effectively with members of myriad cultural groups, to discuss with clarity alternative concepts of culture in determination of individual behavior responses, and to identify their own personal cultural values and assumptions. S/U or letter grading.

220. History and Philosophy of Social Welfare. (2) History of social work as a field: body of knowledge, method and process, and point of view analyzed within context of economic, political, social, philosophical, and scientific climate of the period.

M221A. Foundations of Social Welfare Policy. (4) (Formerly numbered 221A.) (Same as Policy Studies M210.) Lecture, three hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of the welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

221B. Social Welfare Policy and Services II. (2) Understanding of significant theoretical constructs and relevant empirical evidence dealing with how organizations develop and maintain their internal functions. Development of beginning skill in organizational analysis. Special attention to organizational analysis of social welfare services.

223. Seminar: Social Work Profession. (2) Nature and role of social work in contemporary society; relationships with other professions; probable future trends in the profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of the profession. S/U grading.

225A-225B. Social Welfare Policy. (4-4) Discussion, three hours. Designed for Ph.D. students:

225A. Formulation and Analysis. Examination of principal issues in development, formulation, and adoption of U.S. social welfare policies, with particular focus on income distribution and redistribution. Emphasis on analysis of social policy issues and conceptual frameworks for analysis.

225B. Implementation and Evaluation. Examination of issues in implementation and evaluation of social welfare policies, particularly those pertaining to provision, organization, and delivery of social services, including auspices funding, distribution, criteria for effectiveness, and use of quantitative methods in policy analysis.

230A-230B-230C. Theory of Social Welfare Practice with Individuals, Families, and Groups I, II, III. (2-2-2) Lecture, two hours. Corequisite: required social work practicum. Introduction to theory of social work with individuals and small groups and to principles of practice which are derivative of this and related theory. S/U or letter grading.

231A-231B-231C. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups IV, V, VI. (4-4-4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced level, critical analysis of theories, concepts, and principles underlying social case-work 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.

240A-240B-240C. Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings I, II, III. (2-2-2) Lecture, two hours. Corequisite: required social work practicum. Historical and theoretical developments in administration, planning, and community organization; understanding the community as a social system, administration of organizations; role of the practitioner in identification, analysis, and evaluation of needs, existing programs, policies, structures, and strategies of intervention. S/U or letter grading.

241A-241B-241C. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings IV, V, VI. (4-4-4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Emphasis on various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. S/U or letter grading.

M241D. Social Advocacy and Domestic Violence. (4) (Same as Law M359.) Lecture, three hours; field-work. Use of domestic violence as a case study to give students skills needed to advocate for individuals or issues. How systems work, how law legitimizes systems, and how advocacy can be used to change the systems.

245A-245B. Development of Social Work Practice Theory. (4-4) Discussion, three hours. Designed for Ph.D. students:

245A. Epistemology of Practice. Guiding scientific models of practice theories; process of emergence, development, and change of practice theories; intellectual foundations of practice theories; how professionals learn, apply, accumulate, and modify their practice knowledge; science and practice interplay.

245B. Models of Social Work Practice Research. Research for practice, with major emphasis on methods of intervention research which seek to design, test, evaluate, and disseminate innovative intervention technologies.

258. Critical Problems in Social Welfare. (2) Designed for Ph.D. students. Current problems in the field of social welfare. Specific topics vary depending on research and educational interests and needs of class. May be repeated for credit. S/U grading.

280. Social Welfare Research. (3) Lecture, three hours; outside study, six hours. Sources, nature, and uses of social work theory and research-based knowledge and of broader social data relevant to social welfare activities. Critical analysis of major methods of developing scientific knowledge. S/U or letter grading.

281A-281B-281C. Advanced Social Welfare Research. (2-2-2) Individual or group research projects requiring intensive examination and analysis of a social problem area, directed toward development of research knowledge and techniques for social work practice. In Progress and S/U or letter grading.

285A-285B-285C. Research in Social Welfare. (4) 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.

286A. Survey of Research Methods. (4) Discussion, four 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. S/U or letter grading.

286B. Advanced Research Methods. (4) Discussion, four 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. S/U or letter grading.

286C. Research Internship. (4) Discussion, 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 or letter grading.

290A-290B-290C. Seminars: Social Work. (4-4-4) 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.

M290D. Women, Health, and Aging: Policy Issues. (4) (Same as Health Services CM241.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Letter grading.

M290E-M290F-M290G. Child Abuse and Neglect (2-2-1) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300.5A-M300.5B-M300.5C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, and Nursing M290A-M290B-M290C.) Lecture, two hours. Course M290E is requisite to M290F, which is requisite to M290G. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of the Schools of Dentistry, Law, Medicine, Nursing, and Public Health and the Departments of Education and Psychology, as well as by the relevant public agencies. S/U or letter grading.

M290I. Children with Special Health Care Needs: Systems Perspective. (4) (Same as Community Health Sciences M420.) Lecture, three hours; field-work, one hour. Examination and evaluation of principles, policies, programs, and practices which 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.

M290J. Child Welfare Policy. (4) (Same as Policy Studies 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 an infrastructure to support needs of children and families. S/U or letter grading.

M290K. Mental Health Policy. (4) (Same as Policy Studies M213.) Lecture, three hours. Examination of evolution of social policy and services for the mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of the mentally ill and services they are provided. S/U or letter grading.

M290L. Poverty, the Poor, and Welfare Reform. (4) (Same as Policy Studies M214.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward the poor in the U.S. S/U or letter grading.

M290M. Health Policy. (4) (Same as Policy Studies M215.) Lecture, three hours. Introduction to contemporary issues in health care 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.

M290N. Public Policy for Children and Youth. (4) (Same as Policy Studies M216.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and the community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

M290P. Public Policy for the Elderly and Their Families. (4) (Same as Policy Studies M211.) Lecture, three hours. 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. S/U or letter grading.

M290Q. 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.

M290R. Law and the Poor. (4) (Same as Law M215, Policy Studies M295, and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in the U.S., with emphasis on interaction of moral attitudes toward the poor and structure and implementation of the law, policy, and administration. Current reform consensus and major reforms. Letter grading.

401A-401B-401C. Practicum: Social Work. (3-3-3) Laboratory, 20 hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. Provides opportunities for students to test their theoretical knowledge and to acquire a disciplined practice foundation in the profession. In Progress and S/U grading.

402A-402B-402C. Advanced Practicum: Social Work. (4-4-4) Laboratory, 24 hours. Requisites: courses 401A-401B-401C. Practicum in social work, arranged for students in keeping with their major field of study. In Progress and S/U grading.

490. Professional Communication for Social Welfare. (2) Writing workshop on students' papers in progress, with an eye toward scholarly publication. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. 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. Special Study and Research in Social Welfare. (2 to 8) Tutorial, to be arranged. Individual programming for selected students to permit pursuit of a subject in greater depth. S/U or letter grading.

596B. Special Study and Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. S/U grading.

597A. Preparation for M.S.W. Comprehensive Examination. (2 to 8) Tutorial, to be arranged. S/U grading.

597B. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. S/U grading.

599. Ph.D. Dissertation Research in Social Welfare. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. S/U grading.

John C. Heritage, Ph.D.
Jack Katz, Ph.D.
Gail Kligman, Ph.D.
Ivan H. Light, Ph.D.
Michael Mann, Ph.D.
Robert D. Mare, Ph.D.
William Mason, Ph.D.
Ruth M. Milkman, Ph.D.
Melvin L. Oliver, Ph.D.
Melvin Pollner, Ph.D.
Jeffrey Prager, Ph.D.
William G. Roy, Ph.D.
Emanuel A. Schegloff, Ph.D.
Judith A. Seltzer, Ph.D.
Ivan Szelenyi, Ph.D.
Warren D. TenHouten, Ph.D.
Donald J. Treiman, Ph.D.
Roger Waldinger, Ph.D.
Maurice Zeitlin, Ph.D.
Lynne G. Zucker, Ph.D.

Professors Emeriti

Burton R. Clark, Ph.D.
Harold Garfinkel, Ph.D.
C. Wayne Gordon, Ph.D.
John E. Horton, Ph.D.
Harry H.L. Kitano, Ph.D. (*UCLA Alumni and Friends of Japanese Ancestry Professor Emeritus of Japanese American Studies*)
Gene N. Levine, Ph.D.
Valerie K. Oppenheimer, Ph.D.
Jerome Rabow, Ph.D.
Georges Sabagh, Ph.D.
Melvin Seeman, Ph.D.
Edwin S. Shneidman, Ph.D.
Gerald H. Shure, Ph.D.
Samuel J. Surace, Ph.D.
Ralph H. Turner, Ph.D.

Associate Professors

Steven E. Clayman, Ph.D.
M. Nicolette Hart, Ph.D.
Peter E. Kollock, Ph.D.
Barbara Ballis Lal, Ph.D., *in Residence*
David E. López, Ph.D.
David D. McFarland, Ph.D.
Vilma Ortiz, Ph.D.
Gi-Wook Shin, Ph.D.
Edward E. Telles, Ph.D.
Min Zhou, Ph.D.

Assistant Professors

Cameron D Campbell, Ph.D.
Rebecca J. Emigh, Ph.D.
John H. Evans, Ph.D.
Laura L. Miller, Ph.D.

Adjunct Assistant Professors

Zsuzsa Berend, Ph.D.
Kathleen Johnston Roberts, Ph.D.
Neil Steers, Ph.D.

Scope and Objectives

Variety is the special characteristic both of the field of sociology and of the UCLA Department of Sociology, which was judged among the 10 best in the nation in a survey conducted by the Conference Board of the Associated Research Councils.

Sociology has a particular appeal to those students whose interests are broad and unspecialized. At both the undergraduate and graduate levels, students study history, politics, statistics and mathematics, race relations, demography, psychology, language, and many other topics. A sociology student becomes a member of an intellectual community in which all these interests are represented.

The primary purpose of the major in Sociology is to enhance students' capacity for critical

SOCIOLOGY

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Roger Waldinger, Ph.D., *Chair*

Professors

Jeffrey C. Alexander, Ph.D.
Walter R. Allen, Ph.D.
Rodolfo Alvarez, Ph.D.
Ronald M. Andersen, Ph.D.
Francis R. Anderson, Ph.D., *Acting*
Perry Anderson, B.A., *Acting*
Kenneth D. Bailey, Ph.D.
Lawrence Bobo, Ph.D.
Phillip Bonacich, Ph.D.
Rogers W. Brubaker, Ph.D.
Duane W. Champagne, Ph.D.
Lucie C. Cheng, Ph.D.
Robert M. Emerson, Ph.D.
Michael S. Goldstein, Ph.D.
Laura E. Gómez, M.A., J.D., Ph.D., *Acting*
Oscar Grusky, Ph.D.
David Halle, Ph.D.

analysis and understanding of social phenomena. It is intended, at the same time, to serve as preparation for careers in high school or junior college teaching, social work, architecture and urban planning, law, public health, and government service, among others. It also provides training for advanced graduate work in sociology and social psychology.

The Ph.D. in Sociology usually leads to a career in research and/or teaching. Although most sociologists are employed by universities, there are increasing career opportunities in government and other nonuniversity research centers.

Undergraduate Study

Sociology B.A.

Preparation for the Major

Required: One course from Sociology 1, 2, 3, 4, M5, 31; one course from Mathematics 2, 3A, 31A; Sociology M18 (or Statistics 10, Psychology 100A, or Economics M40).

All courses required for the major in Sociology, including lower division and allied field courses, must be taken for a letter grade. A 2.0 grade-point average is required for the preparation and for the major.

The Major

Required: Ten upper division sociology courses (40 units), including Sociology 101, 102, and one course from 104, 104H, 105, 106, 113. These courses, devoted to the systematic exploration of sociological methods and theories, should be completed as early as possible and before taking other upper division courses. Students must also take seven additional upper division sociology courses.

To complete the major, four upper division allied field courses (16 units) in other departments are required (the allied fields are anthropology, communication studies, economics, geography, history, political science, and psychology), as is one course from English Composition 100, 110W, 129A through 129D, 131A through 131D (may be taken on a P/NP grading basis).

Only eight units of Sociology 199 are allowed. At least six of the sociology courses must be taken while in residence in the College of Letters and Science at UCLA.

Courses 104, 210A, and 210B are recommended for students who intend to pursue graduate work in sociology.

Honors Program

The honors program in sociology provides opportunity for outstanding students to undertake an independent year-long research project under the guidance of a faculty member.

As preparation for the honors major, students must complete Mathematics 2, 3A, or 31A, and an honors section of Sociology 1 and M18.

Prior to taking other upper division sociology courses, students must complete an honors section of Sociology 101 and 102 (Honors Collegium 61 may be substituted for course 102).

Also required are three undergraduate seminars from the Sociology 197 series; any two additional upper division sociology courses; courses 104H and 199HA-199HB-199HC (honors thesis seminars); four upper division allied field courses (16 units) in other departments (the allied fields are anthropology, communication studies, economics, geography, history, political science, and psychology); and one course from English Composition 100, 110W, 129A through 129D, 131A through 131D (may be taken on a P/NP grading basis).

Students must have a 3.5 overall grade-point average, have completed the sociology preparation requirements and, in most cases, have completed the required theory course. Applications are available from the Undergraduate Counselor's Office, 2201 Hershey Hall. Students should apply in the last term of their junior year.

Computing Specialization

Majors in Sociology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A, 10B, 10C, and (3) completing Sociology C112, 113. Students graduate with a bachelor's degree in sociology and a specialization in Computing.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

Admission

The graduate program of the Department of Sociology takes as its primary aim the training of scholars who will conduct original research contributing to the advancement of sociological knowledge. For this reason, the department ordinarily only accepts students who are seeking the Ph.D. degree. The M.A. degree in Sociology is earned as part of the process of completing the requirements for the Ph.D.

In addition to the minimum University requirements (an acceptable bachelor's degree and a B average in all upper division and graduate work), the Sociology Department requires (1) three letters of recommendation, preferably from professors of sociology who are familiar with the applicant's written work and research experiences; (2) transcripts from all colleges

where applicants have studied (the department's evaluation considers not only the record in sociology, but all undergraduate work, including coursework in English composition, logic, linguistics, and mathematics); (3) a statement of purpose, not to exceed three typewritten double-spaced pages, outlining reasons for pursuing graduate work, interests within sociology, career objectives, and any personal experiences bearing on these; (4) copies of one or two term papers or research reports written by the applicant; (5) an official statement of scores on the Graduate Record Examination (GRE); and (6) for applicants whose native language is not English, the Test of English as a Foreign Language (TOEFL).

Although background preparation in sociology is highly desirable, it is not mandatory for admission to the department. Applicants need not be uniformly high on all indicators of potential. The admissions committee, which generally consists of at least five faculty members and two advisory graduate student members, uses a number of indicators of particular skills rather than relying heavily on just one or two. For example, in assessing the level of verbal skills, the committee considers several items, including samples of written work and grades in courses that ordinarily require extensive verbal skills, as well as verbal GRE scores.

In addition to relatively formal criteria (such as analytic proficiency and articulateness), the department pays particular attention to applicants who seem likely to contribute considerable intellectual, social, or cultural diversity to its student body. Women and minorities are therefore encouraged to apply.

The deadline for receipt of applications is December 1. Application forms and more detailed information are available on request from the graduate affairs assistant in the department.

Areas of Study

See Major Fields or Subdisciplines in the Doctoral Degree section.

Course Requirements

In addition to the departmental requirements, some field examinations have their own course requirements for students who plan to take that field examination.

Before the Master's Paper Review

All students are required to take nine courses (36 units).

(1) Sociology 202A-202B. The courses, an examination of the interrelations of theory, method, and substance in exemplary sociological works, must be taken in the first year.

(2) A two-quarter graduate-level methodology sequence of which there are several alternatives such as the survey methods course or the demographic methods course. The methodology series is presently numbered Sociology 208A-208B, 211 through 216B, 217B-217C, 218A-218B, C244A-C244B. Students are required to take one methods sequence before the master's paper review and one methods

sequence after the review. In choosing a methodology sequence, students should note that some of the Ph.D. area programs and subprograms require particular methodology sequences. If students have equivalent methodological training elsewhere, they should file a petition (along with pertinent evidence and an adviser's recommendation) with the executive committee for exemption from the methodology requirement.

(3) Five 200-level courses in sociology, excluding Sociology 202A-202B, 211A through 216B, 217B-217C, 218A-218B, C244A-C244B, 289A-289B-289C, 290A-290B-290C, 292A-292B-292C, 293A-293B-293C, and 295A-295B-295C.

Students who want to take a course outside the department because they feel it would be beneficial to their master's paper or area of interest may petition to take one course outside of sociology. The petition must be approved by the chair or graduate director.

Comprehensive Examination Plan

No later than in the sixth quarter of residence students must submit an acceptable master's paper for approval by the general faculty. The paper must demonstrate general competence in sociological theory, methodology, and selected substantive areas.

As early in the graduate career as possible, students select two faculty members who consent to serve as their master's committee. Faculty serving should represent a broad range of professional interests. Formation of the master's committee may not be postponed beyond the beginning of the fourth quarter of residence in graduate work. For more specific guidelines, deadlines, and procedures regarding the master's review, contact the graduate affairs assistant.

In consultation with and on the advice of the committee, students develop a paper, usually initially written for a course, demonstrating intellectual attainment. For example, the paper may show that the student (1) has an accurate grasp of the intellectual traditions of sociology, (2) can bring evidence to bear on theoretical problems, (3) can describe how some aspect of the social order works, and (4) can adequately handle research and methodological issues. The main concern is with the student's capacity to do Ph.D.-level work.

When the master's committee feels these requirements have been met, they nominate the student for faculty review by submitting the paper to the Graduate Curriculum and Advisement Committee. That committee appoints a two-person evaluation panel which reports its assessment to the Graduate Curriculum and Advisement Committee as a whole. They consider the panel's reports as well as those of the master's committee and present an evaluation and recommendation to the full faculty. The Graduate Curriculum and Advisement Committee may recommend any of the following options:

(1) The paper is passed. The M.A. is granted and the student is permitted to proceed to the Ph.D.

(2) The paper is passed conditionally. The M.A. is granted and the student is permitted to proceed to the Ph.D. on completion of specified revisions of the paper.

(3) A terminal M.A. degree is granted.

(4) The paper is not acceptable. The student may resubmit at a later time or be asked to withdraw.

The Graduate Curriculum and Advisement Committee's recommendation and the analysis on which it is based is made available to the student, the master's committee, and the faculty no later than one week prior to the faculty review. The faculty at its review may ratify the recommendation of the Graduate Curriculum and Advisement Committee or alter it, including the option of making recommendation to the dean of the Graduate Division to terminate graduate status.

Thesis Plan

None.

Doctoral Degree

Admission

For general admission information for the program leading to the Ph.D. degree in Sociology, see Admission under Master's Degree.

In the quarter following acceptance of the master's paper, usually at the beginning of the third year, students must submit a proposal to the Graduate Curriculum and Advisement Committee specifying two of the field examinations listed below and a time table for completing these examinations.

Students who enter graduate studies at UCLA with a Master of Arts degree in Sociology from another institution normally come up for a master's paper review in the first quarter of residence at UCLA, and under no circumstances later than the third quarter of residence. In this review, the department determines whether or not the student may proceed directly to preparation for the field examinations, if additional courses need to be taken for breadth purposes, if the submitted paper needs additional work or if an additional paper needs to be done, and if the methodology sequence requirement has been adequately satisfied. In addition to a paper, which can be an M.A. thesis written at another university, students should submit for the master's paper review a transcript from the university at which the M.A. degree was earned so that this department can determine whether the requirements ordinarily constraining students in the first years of this program have been met.

Major Fields or Subdisciplines

Class, Politics and Society. The class structure, broadly defined, is the center of contemporary capitalism. The class, politics, and society field focuses on the nature of the class structure,

how it affects the character of work and the work process, the nature of the modern corporation, and the relation of the class structure to politics and political power. The field pays attention to the issue of salience of class versus other identities such as gender, age, race, and nationalism, and examines the contemporary globalization tendencies of capitalism.

Comparative Ethnicity and Nationalism. The comparative ethnicity and nationalism field focuses on the comparative study of race, ethnicity, and nationalism. It addresses the rationale, or lack of rationale, for distinguishing analytically between nation and race; differences across time, place, and context in the conceptualization of ethnicity, nation, and race; the distinctiveness in comparative perspective of the organization and understanding of ethnicity, nation, and race in America; the manner in which the modern state, in different contexts, has shaped the organization and expression of claims based on ethnicity, nation and race; the opposition (or pseudo-opposition) between primordialist and contextualist or constructivist theories of ethnicity, nation, and race; and the contribution, and limitations, of rational choice and other microanalytical approaches to the understanding of ethnicity, nation, and race.

Conversation Analysis. Conversation analysis is a field of inquiry that addresses talk and other forms of conduct in interaction studies through the detailed examination of naturally occurring instances or specimens of its occurrences. Talk-in-interaction is taken to be that primordial site of sociality in which much of what composes the life of a society and its institutions is realized. Although conversation has been the most intensively and extensively examined domain of talk-in-interaction, the field encompasses a broad range of settings and specialized genres of talk or speech-exchange systems, especially talk in work settings.

Economic Sociology. The economic sociology field provides an overview of the major debates in economic sociology, at both the macro and micro level. Topics include precapitalist economies and the development of capitalism: modernization, dependency, development, and the world system; global economy; economic institutions of advanced economies; labor, capital, property, and entrepreneurship; and class, stratification, and inequality.

Ethnographic Methodology. Sociology in the U.S. was largely created through a series of ethnographic studies. Over the last 25 years, ethnographic research has been the focus of some of the most probing self-examination in social science as a whole, featuring debates over reflexivity, human subjects' consent in narrow and broad senses of the issue, the importance of context for understanding individual acts and items of culture, social constructionism and relativism, and bias (gender, cultural, etc.) in research procedures and the conceptualization of data.

Ethnomethodology. Ethnomethodology is a field of sociology which studies the common sense resources, procedures, and practices through which members of a culture produce and recognize mutually intelligible objects, events, and courses of action. Studies in the field are directed to the investigation of social processes underlying the construction of social phenomena ranging from factual knowledge, social organization, and attributes such as race and gender, through the acquisition of skills and management of memory.

Mathematical Sociology. The questions that mathematical sociologists work on span sociology. Graph theory and linear algebra are useful in the analysis of social structure. Markov models, difference equations, and differential equations have been used to describe change. Game theory is helpful in the analysis of conflict and interdependence. Computer simulations are often useful additions to mathematical analysis.

People-Processing Institutions. Complex modern societies rely on bureaucratic institutions for both social control and service provision purposes. What is distinctive of a number of such institutions is that they change the official status of some population or clientele who come within the jurisdiction. The people-processing institutions field examines interactional and institutional processes common to such institutions, which range from criminal and juvenile courts to schools and welfare agencies and from psychiatric clinics and emergency rooms to health maintenance organizations (HMOs).

Political Sociology. The political sociology field addresses four major topics: (1) the formation and transformation of states and political regimes; (2) collective action, social movements, and revolution; (3) ideology, consciousness, and attitudes; and (4) political organization and behavior.

Race and Ethnicity. The race and ethnicity field focuses on the nature and persistence of ethnic and racial categories and groupings in contemporary societies, and on how these structures relate to social stratification systems and political and economic dynamics. The field includes a variety of perspectives and concerns, including race relations, racism, ethnic stratification, immigration, ethnic economies, and ethnic politics. While race and ethnicity in the U.S. today are the central substantive concerns, the field is explicitly comparative-historical, viewing contemporary ethnic and racial structures in the context of the spread of European colonialism and imperialism.

Self and Society. The self and society field originates in the seminal insights of social psychology that the most personal experiences – the very sense of self and personal identity – are constituted through social relations. The field focuses on the interactional, discursive, and embodied processes through which selves are created, enacted, transformed, or dissolved. Classical and contemporary perspec-

tives and issues such as the role of emotions and embodiment are studied.

Social Demography. The social demography field examines key issues and debates related to the biological, economic, social, and environmental causes and consequences of trends and patterns in demographic behaviors such as fertility, marriage, divorce, migration, social stratification, health, and mortality. Particular attention is paid to the rapidly growing literature on racial and socioeconomic differentials in demographic behavior, aging, the causes and consequences of population growth, and family and household structure and composition.

Social Stratification and Social Mobility. The major issues studied in the social stratification and social mobility field are stratification determinants of who gets greater and lesser amounts of scarce resources, in particular, the extent to which those resources are passed on from generation to generation within families and the extent to which those answers depend on the organization of families, schools, labor markets, and other institutions.

Sociology Of Gender. The sociology of gender field is concerned with gender inequality and gender differences and the social processes producing and reproducing them. It includes both macrosociological and microsociological perspectives on these processes. It also encompasses the growing scholarship on the intersection between race, class, and gender.

Urban and Suburban Sociology. The urban and suburban sociology field comprises the major topics in urban and suburban sociology. It addresses two main issues: (1) historical and comparative perspectives of urbanization and (2) urbanization and suburbanization in the U.S.

Course Requirements

After the Master's Paper Review

All students are required to take two courses (eight units) of an additional methodology sequence (Sociology 208A-208B, 211A through 216B, 217B-217C, 218A-218B, C244A-C244B), which must be completed before the award of the Ph.D. degree.

Class, Politics and Society. Required: Sociology 232. Recommended: Sociology 211A-211B, 228A-228B, 233, 252, 274.

Comparative Ethnicity and Nationalism. Recommended: Sociology 230, 231, 235.

Conversation Analysis. Recommended: Sociology C244A-C244B, 258, 266.

Economic Sociology. Recommended: Sociology 237, 254, 259, and special topics courses in economic sociology selected from courses 285A through 285Z.

Ethnographic Methodology. Required: Sociology 217A, 217B-217C, and one substantive graduate course that uses ethnographic studies.

Ethnomethodology. Recommended: Sociology 222, 271.

Mathematical Sociology. Required: Sociology C243, 281. Recommended: Sociology 208A-208B, 239A-239B, 240.

People-Processing Institutions. Required: Sociology C229B, C258. Recommended: Sociology C229A.

Political Sociology. Recommended: Sociology 228A-228B, 233, 237, 269, 272.

Race and Ethnicity. Required: Sociology 235, 261. Recommended: Sociology 230, 231, 236.

Self and Society. Required: Sociology 220 and one course from 222, 223, 224A, 224B, 264.

Social Demography. Required: Sociology 213A-213B, 226A-226B.

Social Stratification and Social Mobility. Required: Sociology 210A-210B, 239A-239B. Recommended: Sociology 263.

Sociology of Gender. Required: Any two courses from Sociology 238, 241, 252.

Urban and Suburban Sociology. Recommended: Sociology 231, 236, 297B.

Courses in the 500 series (Sociology 595, 596, 597, 599) are normally taken in preparation for the master's paper review, the field examinations, and dissertation research. While these courses may be taken to maintain enrollment, they do not count toward the course requirements.

Written and Oral Qualifying Examinations

Two specialized field examinations are administered and evaluated according to guidelines specified by the area programs. Consult the department for details regarding field examinations.

If the performance on the field examinations is satisfactory and the foreign language requirement has been fulfilled, students may nominate a doctoral committee and proceed to take the University Oral Qualifying Examination. The examination may range over general sociology, students' specific fields, and students' dissertation plans. It is given by the doctoral committee no later than six months after the completion of the written examination. A two-page abstract of the dissertation proposal must be submitted to the graduate affairs assistant for distribution to the entire faculty of the Sociology Department within two weeks of the oral examination.

In addition to the two-page abstract, a full-length dissertation proposal is required at the time of the preliminary oral examination. A dissertation proposal approved by the committee must be filed with the department reasonably soon after the preliminary orals. In the event of a major revision in the topic or methodology of the dissertation, a revised prospectus approved by the committee is required and is filed in the same manner as the original prospectus. Minor changes in the methodology and hypotheses which normally takes place as students carry out the dissertation research do not call for a revised prospectus.

When both the written and oral qualifying examinations have been successfully completed, students are advanced to candidacy by the Graduate Division.

Sociology

Lower Division Courses

1. Introductory Sociology. (4) Lecture, four hours. Survey of characteristics of social life, processes of social interaction, and tools of sociological investigation. P/NP or letter grading.

2. Changing Society and Making History. (4) Lecture, three hours; discussion, one hour. Leading question is how do politics, economics, and culture interact in changing society and making history? Answers provided by introductory level of study of contending substantive theories and contrasting methods of inquiry contained both in classic and exemplary contemporary works.

3. Sociology of Everyday Life. (4) Lecture, three hours; discussion, one hour. Examination of ways in which taken-for-granted aspects of everyday life and relationships are shaped by interactional, cultural, and historical processes. Cultivation of capacity to critically observe tacit practices through which everyday life is constructed.

4. Jobs and Careers: Sociological Approach. (4) Lecture, three hours; discussion, one hour. Application of social science knowledge to common vocational problems. Description and analysis of major trends in employment, job search and hiring, career mobility patterns, forecasting, and entrepreneurship. Analysis of current thrust to worker ownership.

M5. Social Organization of Black Communities. (4) (Same as Afro-American Studies M5.) Lecture, three hours; discussion, one hour. 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.

M18. Interpretation of Quantitative Data. (4) (Formerly numbered 18.) (Same as Statistics M21C.) Lecture, three hours; discussion, one hour. Enforced requisites: course 1 (may be taken concurrently) and (Mathematics 2 or 3A). Satisfies statistics requirement for Sociology major. Reading graphs and tables; statistical description using indices of central tendency, dispersion, and association; simple linear regression. Probability; binomial, normal, t, and chi-square distributions and hypothesis testing based on them. Examples from recent issues of *American Sociological Review* or other leading sociological journals. P/NP or letter grading.

24. Conversation and Society. (4) Lecture, three hours. Examination of social norms that organize conversational interaction in everyday life. Consideration of relationship between conversation and other institutions in society. P/NP or letter grading.

31. Dilemmas of Third World Development. (4) Lecture, three hours; discussion, one hour. Introduction to understanding dilemmas of Third World social development and prospects for progress in the future.

88A-88Z. Lower Division Seminars. (4) Seminar, three hours. Limited to 15 freshmen/sophomores. Variable topics of current sociological interest. Consult *Schedule of Classes* or "Department Announcements" for topics and instructors.

Upper Division Courses

101. Development of Sociological Theory. (4) Comparative survey of basic concepts and theories in sociology from 1850 to 1920; codification of analytic schemes; critical analysis of trends in theory construction.

102. Contemporary Sociological Theory. (4) Requisite: course 101. Critical examination of significant theoretical formulations from 1920 to the present; analysis of relation between theoretical development and current research emphasis.

103. Marxist Sociology. (4) Fundamentals of Marxist theory and method and their historical development. Attention to continuing debates within Marxism and to differences between Marxism and other schools of sociological thought. May not be applied toward theory requirement for the major.

104. Introduction to Sociological Research Methods. (4) Not open to students with credit for course 104H. Systematic treatment and semiquantitative skills of use in sociological research (e.g., classification, questionnaire and schedule design, content analysis, critical analysis of studies, conceptual analysis of case materials). Fieldwork may be required.

104H. Introduction to Sociological Research Methods (Honors). (4) Lecture, one hour; discussion, three hours. In-depth introduction to process of producing scholarly sociological research for students who intend to write an undergraduate honors thesis.

105. Research Methods in Policy Analysis and Evaluation. (4) Requisite: course 144. Recommended: course 104. Approaches for identifying and analyzing social problems and for assessment of policies and interventions for their control and management.

106. Field Research Methods. (6) Lecture, two hours; discussion, two hours; fieldwork, 12 hours. Designed for juniors/seniors. Fieldwork and extensive field notes required. Theory and practice of field research, with particular emphasis on interrelations between fieldwork role and substantive findings.

107. Urban Poverty and Public Policy in the U.S. (Field Component). (4) Requisite: course 144. Corequisite: one course from Geography 150 or 159A through 159E. Supplements and enriches students' academic understanding of urban poverty and the underclass by personal exposure and direct observation in a field setting. Students required to develop a plan of service in a local social service agency and observe policy formulation and implementation. P/NP or letter grading.

109A-109B. Data Analysis for Social Scientists. (4-4) Lecture, three hours; laboratory, one hour. Introduction to applied statistics and data collection for undergraduate students, especially sociology honors students. P/NP or letter grading.

C112. Introduction to Mathematical Sociology. (4) (Formerly numbered 112.) Lecture, three hours; laboratory, two hours. Requisites: course M18, Mathematics 2, 3A (course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus). 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). Concurrently scheduled with course C243. Letter grading.

113. Statistical and Computer Methods for Social Research. (4) Lecture, three hours; laboratory, one hour. Requisite: course M18. Continuation of course M18, covering more advanced statistical techniques such as multiple regression, analysis of variance, or factor analysis. Content varies. Students learn how to use the computer and write papers analyzing prepared data sets.

116. Social Demography. (4) 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.

117. Sociology of Family Demographic and Economic Behavior. (4) Examination of demographic behavior associated with social organization of the family and its relationship to society's economic system. American and European historical studies of family socioeconomic and demographic characteristics and behavior in first half of course; U.S. experience since the 1930s in second half.

CM124A-CM124B. Conversational Structures I, II. (4-4) (Same as Communication Studies M144A-M144B.) Lecture, three hours; discussion, one hour. May be concurrently scheduled with courses C244A-C244B. P/NP or letter grading. **CM124A.** Introduction to some structures which are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **CM124B.** Requisite: course CM124A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

CM125. Talk and Social Institutions. (4) (Same as Communication Studies M125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in a 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) 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.

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 the emotions; the self and emotions; social construction of emotions.

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.

132. Social Psychology: Sociological Approaches. (4) 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.

133. Collective Behavior. (4) Requisites: courses 1, M18. 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.

134. Culture and Personality. (4) Requisites: courses 1, M18. 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.

135. Group Processes. (4) Systematic study of formation, structure, and functioning of groups; analysis of group processes and group products from a variety of theoretical viewpoints; implications of various research techniques.

136. Process and Socialization in the Family. (4) Requisites: courses 1, M18. Designed for juniors/seniors. Examination of processes of interaction, decision making, role differentiation, conflict, integration, and socialization within the family and their interrelations with society.

137. Psychoanalytic Sociology. (4) Recommended preparation: one course in theory (course 101 or 102) and in social psychology. Requisites: courses 1, M18. Fieldwork may be required. Designed to review models of integration between psychoanalysis and sociology. Application of this analytical perspective to selected substantive areas and social processes, including but not limited to group development, delinquency, deviance, socialization, identity and self formation, role taking and role making.

M138. Death, Suicide, and Trauma. (4) (Same as Psychology M163.) Lecture, three hours. Designed for juniors/seniors. Definition and taxonomy of death; new permissiveness and taboos related to death; romanticization of death; role of the individual in his own demise; modes of death; development of ideas of death through life span; ways in which ideas of death influence conduct of lives; impact of dying on social structure surrounding the individual; preventive, interventive, and postventive practices in relation to death and suicide; developmental perspective on witnessing traumatic death, including posttraumatic and grief reactions; partial death; megadeath; lethality; psychological autopsy; death of institutions and cultures. P/NP grading recommended (letter grading required if course to be applied toward Psychology or Sociology major).

143. Human Health and Society. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. 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.

144. Urban Poverty and Public Policy in the U.S. (4) Historical overview of urban poverty and social welfare programs; ongoing debates about causes and consequences of poverty.

145. Sociology of Deviant Behavior. (4) Examination of leading sociological approaches to study of deviation and general survey of major types of deviation in American society.

C146. Sociology of Disputes and Troubles. (4) (Formerly numbered 146.) Lecture, three hours; discussion, one hour. Development and transformation of everyday disputes and interpersonal troubles; dispute processing as informal social control in public places, neighborhoods, workplaces, and household settings in contemporary society. Concurrently scheduled with course C229A. 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.

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.

148. Sociology of Mental Illness. (4) Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of "mental illness."

C149. People Processing Institutions. (4) Discussion, three hours. Theory and research analyzing operation and decision-making processes of a variety of people processing institutions, including police, courts, schools, psychiatry, human service agencies, and medicine. Concurrently scheduled with course C229B. Letter grading.

M150. Sociology of Aging. (4) (Formerly numbered 150.) (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 the aged; caregiving relations and institutions; professions concerned with the aged and aging.

151. Comparative Immigration. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. 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; outside study, eight hours. Requisite: 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.

M153. Chinese Immigration. (4) (Same as Asian American Studies M154.) Lecture, two 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 the social environment. P/NP or letter grading.

154. Race and Ethnicity: International Perspectives. (4) Lecture, three hours; discussion, one hour. Not open to freshmen. Role of race and ethnicity in political, economic, and social lives of nations other than the U.S.

M155. Latinos in the U.S. (4) (Same as Chicana and Chicano Studies M155.) Lecture, three hours; discussion, one hour. Requisite: course 1. 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 the larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

156. Ethnic and Status Groups. (4) Characteristics of "visible" ethnic groups (e.g., Japanese, Mexican, and black); their organization, acculturation, and differentiation. Development, operation, and effects of selective immigration and population mobility. Status of chief minorities in continental U.S., with comparative materials from Jamaica, Hawaii, and other areas.

157. Social Stratification. (4) 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.

158. Urban Sociology. (4) Lecture, three hours. Description and analysis of urbanization and urbanism in the U.S. and the world.

159. Comparative Studies of Jewish Communities in the U.S. and Abroad. (4) Lecture, three hours; discussion, one hour. History, distribution, structure, and functioning of major Jewish communities, with particular emphasis on North America and Israel. Interrelationships and sources of conflict between Jews and Gentiles in Western countries. More generally, economic and social integration of Diaspora Jewish communities. Fieldwork may be required. P/NP or letter grading.

160. Intergroup Conflict and Prejudice. (4) Study of causes and consequences of group conflict, with emphasis on majority/minority relations, prejudice, and discrimination. Special attention to alternative sociological and psychological theories of prejudice; effects of minority status on the individual; and possibilities for attitude and behavior change.

M161. Comparative American Indian Societies. (4) (Formerly numbered 161.) (Same as American Indian Studies M161.) Lecture, three hours. Requisite: course 1 or American Indian Studies 10. 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.

M162. Sociology of Gender. (4) (Same as Women's Studies M162.) Lecture, three hours; discussion, one hour. Requisite: course 1 or Women's 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.

M163. Gender and Work. (4) (Same as Women's Studies M163.) Lecture, three hours. Requisite: course 1 or Women's 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.

M164. Politics of Reproduction. (4) (Same as Women's Studies M164.) Lecture, three hours; discussion, one hour. Title refers to intersection between politics and life cycle. Topics include social construction of gender and population, reproductive issues, politicization of mothers, motherhood, and mothering, surrogacy, and new reproductive technologies.

M166. Women in Socialist and Post-Socialist States. (4) (Same as Women's Studies M166.) Lecture, three hours; discussion, one hour. Exploration of diverse aspects of women's lives in socialist and post-socialist states. Although transition from socialism occurs differently, gender differences are everywhere central to democratization and marketization. Discussion of ways in which state policies affect women.

M167. Contested Sexualities. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M167 and Women's 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. Organizations and Society. (4) Sociological analysis of organizations and their social environment. Introduction to basic theories, concepts, methods, and research on behavior of organizations in society.

169. Law and Society. (4) 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.

170. Medical Sociology. (4) Requisite: 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.

171. Occupations and Professions. (4) Description and analysis of representative occupations and professions, with emphasis on the contemporary U.S.

172. Entrepreneurship. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. 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.

173. Economy and Society. (4) Sociology of economic life, with emphasis on principal economic institutions of the U.S.

M174. Sociology of the Family. (4) (Formerly numbered 174.) (Same as Women's Studies M174.) Lecture, four hours. Theory and research dealing with the modern family, its structure, and functions, including historical changes, variant family patterns, family as an institution, and influence of contemporary society on the family. P/NP or letter grading.

M175. Sociology of Education. (4) (Same as Education M108.) Requisite: course 1. Study of social processes and interaction patterns in educational organizations; relationship of such organizations to aspects of society, social class, and power; social relations within school, college, and university; formal and informal groups, subcultures in educational systems; roles of teachers, students, and administrators. Fieldwork may be required.

M176. Sociology of Mass Communication. (4) (Same as Communication Studies M147.) Requisite: course 1. 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.

M177. The Military and Society. (4) (Formerly numbered 177.) (Same as Women's Studies M177.) Lecture, three hours; discussion, one hour. Examination of the military as an organization and profession: personnel issues such as family, class, race, gender, and sexual orientation and postmodern military issues such as civil/military relations, media coverage, peacekeeping operations, and the future of war. P/NP or letter grading.

M180. Introduction to Development Studies: Political Economy of Development. (4) (Same as International Development Studies M100B and Political Science M197G.) Seminar, three hours. Analysis of determinants of underdevelopment, with focus on impact of colonialism, foreign investment, and trade, and on political economy.

182. Political Sociology. (4) Contributions of sociology to study of politics, including analysis of political aspects of social systems, social context of action, and social bases of power.

183. Comparative and Historical Sociology. (4) 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 a variety of theoretical perspectives.

184. Social Change. (4) Study of patterns of social change, resistance to change, and change-producing agencies and processes.

185. American Society. (4) Analysis of major institutions in the U.S. in historical and international perspective, with emphasis on topics such as industrialization, work, the state, politics, community, the family, religion, and American culture. Theories of social change, conflict, and order applied to the case of the U.S.

186. Latin American Societies. (4) Descriptive survey of major Latin American societies, emphasizing their historical backgrounds and their emergent characteristics, with special attention to relations between rural and urban life.

187. Population and Society in the Middle East. (4) Designed for juniors/seniors. Survey of Middle Eastern societies; their historic and environmental bases; contemporary demographic and cultural situation.

188. Comparative East Asian Societies before World War II. (4) Lecture, two hours; discussion, one hour. Designed for juniors/seniors. Introductory and comparative survey of traditional societies of East Asia, including China, Japan, Korea, and Vietnam, with focus on dynamic interactions between culture, state, and society in process of change.

189. Japanese Society. (4) Lecture, two and one-half hours; discussion, two hours. Requisite: course 1. Analysis of social-structural characteristics and functioning of contemporary Japanese society, with focus on (1) forms of social interaction and social structure, (2) work, family, and the life course, and (3) education and opportunity. Emphasis on structural perspectives, more than cultural perspectives.

190. Capitalism, Socialism, and Alternative Social Systems. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Theories of capitalism and socialism, history of social experiments with socialism and other noncapitalist systems, and assessment of the record of these experiments. P/NP or letter grading.

191. Society and Politics in Korea. (4) Lecture, three hours; discussion, one hour. Examination of society and politics in 20th-century Korea from a comparative/historical perspective; Korean case used to discuss major sociological and theoretical issues in social change and development (political and economic). P/NP or letter grading.

192. State and Society in China. (4) Lecture, three hours. Designed for juniors/seniors. Thematic overview of post-1949 society and politics in China, with emphasis on long-term evolution of China's state and society from 1949 to the present.

193. Asia-Pacific Social Transformation since World War II. (4) Lecture, three hours. Designed for juniors/seniors. Introductory and comparative survey of post-World War II development in Asia-Pacific region, with focus on ascent of Japan, newly industrialized capitalist countries, and emergence of socialist states.

M194. Senior Seminar: Language, Interaction, and Culture. (4) (Same as Anthropology M194 and Applied Linguistics and TESL M194.) Seminar, four hours. Limited to seniors in Language, Interaction, and Culture minor. Capstone course. Students carry out and present empirical research project that integrates methodologies and perspectives of at least two of the disciplinary areas (anthropology, applied linguistics, sociology) covered in course. Letter grading.

195A-195Z. Special Topics in Sociology. (4 each) Limited to juniors/seniors. Study of selected current 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.

M196A-M196B. Contemporary Issues in Urban Poverty Research. (4-4) (Formerly numbered 196A-196B.) (Same as Anthropology M196A-M196B.) Requisites: Honors Collegium 7A, 7B. Two-term research seminar designed to engage students in ongoing faculty research projects focusing on models of urban poverty and underclass behaviors. P/NP or letter grading.

197A-197Z. Undergraduate Seminars. (4 each) Limited to junior/senior Sociology majors.

199. Special Studies. (2 to 8) Preparation: 3.0 grade-point average in major. Requisites: courses 1, M18. Limited to senior Sociology majors and graduate students. Course of independent studies designed for students who (1) desire a more advanced or specialized treatment of an area covered in regular course list and who present that course as a requisite or (2) desire work in an area of sociological analysis currently not covered by an upper division course. Only eight units are allowed. See undergraduate counselor for course contract.

199HA-199HB-199HC. Special Studies for Honors. (4-4-4) Requisite: course 104H. Limited to sociology honors program students. **199HA.** Design of research project to serve as student's honors thesis. Research proposal, detailed bibliography, and regular meetings with sponsoring faculty member required. **199HB.** Continuation of work initiated in course 199HA. Series of progress reports are prepared in consultation with instructor. **199HC.** Completion of written report or honors thesis.

199I. Independent Studies for Internships. (2 to 4) Independent studies course to be supervised jointly by Field Studies Office and faculty adviser. Further supervision to be provided by business for which student is doing internship. May not be applied toward major requirements. Normally only four units of internship are allowed. P/NP grading.

Graduate Courses

201A-201B-201C. Proseminars: Sociology. (2-2-2) Seminar, two hours every other week. Required of first-year sociology graduate students. Introduction to range of theoretical and research interests represented by department faculty members. S/U grading.

202A-202B. Theory and Research in Sociology. (4-4) Lecture, two hours; discussion, two hours. Required of first-year sociology graduate students. Examination of interrelations of theory, method, and substance in exemplary sociological works, with analytical and skills-centered orientation. Letter grading.

203A. Social Survey Practicum. (4) Lecture, one hour; discussion, one hour; laboratory, two hours. Designed for graduate students. Training through practice in basic techniques of survey research.

203B. Social Survey Research Seminar. (4) Seminar, one hour; discussion, one hour; laboratory, two hours. Designed for graduate students. Development of individual survey research projects under faculty supervision.

204. Topics in Sociological Theorizing. (4) (Formerly numbered 255A-255B.) Seminar, four hours. Examination of selected issues and problems in classical or contemporary sociological theory. S/U or letter grading.

208A-208B. Social Network Methods. (4) Lecture, three hours; laboratory, one hour. Requisites: courses 209A-209B or 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. In Progress grading.

209A-209B. Data Analysis for Social Scientists. (4) Lecture, three hours; laboratory, one hour. Introduction to applied statistics and data collection for graduate social sciences students. In Progress grading.

209C. Mathematics for Social Statistics. (4) Lecture, three hours; computer exercises. Designed for graduate students. Discussion of elementary mathematical techniques needed for more advanced statistics courses in various social sciences, psychology, and education. Calculus of sets, sets of numbers, sequences of numbers, notion of a function, polynomials, differentiation, elementary matrices, and vectors.

210A-210B. Intermediate Statistical Methods I, II. (4-4) Lecture, three hours; discussion, two hours. Requisite: course M18. Required for M.A. degree by four area programs. 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, four hours. 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. Letter grading.

211A-211B. Comparative and Historical Methods. (4-4) In Progress grading. **211A.** Strategies of Research and Conceptualization. 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. **211B.** Research Techniques. 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.

212A-212B. Survey Data Analysis. (4-4) (Not the same as courses 212A-212B prior to Fall Quarter 1998.) Lecture, three hours. Requisites: courses 210A-210B. Analysis and interpretation of primarily nonexperimental quantitative data, focusing 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 simple tabular analysis, log-linear analysis, ordinary least squares regression, robust regression, binomial and multinomial logistic regression, and scale construction. Logic of analysis and problems of statistical inference, including diagnostic procedures and methods for handling complex sample survey designs. In Progress and letter grading.

213A-213B. Techniques of Demographic and Ecological Analysis. (4-4) Requisite: course 210A. Procedures and techniques for collection, evaluation, and analysis of demographic and ecological data; models of population and ecological structure and change; applications to study of social structure and social change.

214A-214B. Naturalistic Methods for Recorded Data. (4-4) Special features of audio and video recordings as sources of data; problems of description and analysis posed by working with recorded data; practical exploration of techniques of data collection and transcription with both audio and video data; analysis of single cases and analytically defined collections; use of computer to organize research with recorded data. In Progress grading.

215A-215B. Experimental Sociology. (4-4) Requisite: course 210A. Basic fundamentals of experimental method, particularly as it is used in social psychology. In Progress grading.

216A-216B. Survey Research Design. (4-4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 210A. History of the survey method; facet metatheory and concept formation; questionnaire and item design; scales, indices typologies; data collection — planning and management; network, snowball, and experience sampling; multistage probability sampling, stratification and clustering. Students participate in survey research project. Letter grading.

217A. Analyzing Ethnographies. (4) Seminar, three hours. Analysis of ethnographic monographs.

217B-217C. Ethnographic Fieldwork. (4-4) Seminar, three hours. Recommended prerequisite: 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.

218A-218B. Ethnomethodological Methods. (4-4) Examination of techniques used in ethnomethodological research, practice in critical evaluation of research, and directed experience in conduct of an extended investigation employing ethnomethodological procedures. In Progress grading.

219A-219B. Advanced Statistical Methods I, II. (4-4) Lecture, three hours; discussion, two hours. Requisites: courses 210A-210B. Not required. Advanced multivariate statistical methods: discrete variables and events, logit and log-linear regression, event-history analysis, general linear model, exploratory and confirmatory factor analysis, linear causal models, latent variables, reciprocal causation, classification and clustering, time-series analysis.

220. Self and Society. (4) (Not the same as course 220 prior to Fall Quarter 1998.) 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.

221. Social Ecology. (4) Requisites: courses M18, 116. Designed for graduate students. Examination of various approaches to both microecology and macroecology, including classical and neoclassical ecology, social area analysis, sociocultural ecology, city-size distributions, effects of population density on animals and humans, proxemics, territoriality, and effects of physical environment on humans.

222. Foundations of Ethnomethodological, Phenomenological, and Analytic Sociologies. (4) Lecture, three hours. Designed for graduate students. Basic issues, methods, and topics of ethnomethodological, phenomenological, conversation-analytic, and related varieties of inquiry. Central themes such as the 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.

223. Phenomenological and Interactionist Perspectives on Selected Topics. (4) Lecture, three hours. Comparison of phenomenological and symbolic and perspectives by examining a 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 the two approaches. When relevant, attention to logical and historical relations of phenomenology and interactionism of pragmatist, existentialist, and ordinary language philosophies.

224A-224B. Problems in Social Psychology. (4) Requisite: course 210A. Basic course for graduate students intending to specialize in social psychology.

224A. Major theoretical contributions to the field. **224B.** Current work being done in department in several and.

225A-225B. Demographic Perspectives on Relationship of Family and Economic Systems. (4-4) Requisites: courses 210A-210B. Examination of interrelationship of family and economic systems in societies at different levels of economic development, focusing particularly on the U.S. experience. Central to course: (1) analysis of how demographic factors affect economic and family systems; (2) how these systems, and changes in them, affect demographic variables; and (3) how this two-way process influences relationship of family and economic systems over time. **225A.** Lectures and readings. **225B.** Individual research projects involving term paper and classroom reports of results.

226A-226B. Introduction to Theory and Major Empirical Research in Social Demography. (4-4) 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.

227. Sociology of Knowledge. (4) 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.

228A-228B. Critical Issues in Macrosociology. (4-4) Lecture, two hours; discussion, one hour. Designed for graduate students. Conceptual introduction to the area of macrosociology in which exemplary works are read, studied for substance and methods, and critiqued in seminar and in written papers. Usually team taught by faculty of varying orientations. In Progress grading.

C229A. Sociology of Disputes and Troubles. (4) (Formerly numbered 229A.) Lecture, three hours; discussion, two hours. Development and transformation of everyday disputes and interpersonal troubles; dispute processing as informal social control in public places, neighborhoods, workplaces, and household settings in contemporary society. Concurrently scheduled with course C146. Letter grading.

C229B. People Processing Institutions. (4) (Formerly numbered 229B.) Lecture, three hours; discussion, two hours. Course C229A is not requisite to C229B. Theory and research analyzing operation and decision-making processes of a variety of people processing institutions, including police, courts, schools, psychiatry, human service agencies, and medicine. Concurrently scheduled with course C149. Letter grading.

230. Nations and Nationalism. (4) Lecture, three hours. Preparation for independent work in the area of nations and nationalism through close reading of key theoretical and empirical works in this or related areas. S/U or letter grading.

231. Race and Ethnicity: International Perspectives. (4) Lecture, one hour; discussion, two hours. Designed for graduate students. Role of race and ethnicity in political, economic, and social lives of nations other than the U.S., with emphasis on theoretical and methodological issues in comparative research.

232. Class, Politics, and Society. (4) (Not the same as course 232 prior to Fall Quarter 1998.) 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 the field of political sociology, oriented around critical themes in major theoretical traditions and contemporary exemplars. Special attention to competing perspectives on power, theory of the state, and relationship of class structure to politics.

234. Sociology of Community Organization. (4) Designed for graduate students. Survey of recent and classical research and literature dealing with predominantly political institutions, problem of order, and organization of communal life in the village and metropolis.

235. Theories of Ethnicity. (4) Lecture, one hour; discussion, two hours. Designed for graduate students. Examination of variety of theoretical approaches in understanding race and ethnicity in contemporary societies, with emphasis on recent debates among class analysis, pluralist, primordialist, and rational choice perspectives.

236. Immigration. (4) Lecture, three hours. Emphasis on recent immigration to the U.S. in light of historical experience. Examination of patterns of adaptation and ethnic change, with particular attention to new theoretical approaches within multidisciplinary framework. S/U or letter grading.

237. Seminar: Theory and Research in Comparative Social Analysis. (2) 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 the Third World, and implications for theory construction and social research. S/U grading.

238. Feminist Theory. (4) 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 "antifeminist" feminists. Discussion of directions for future feminist sociology.

239A-239B. Quantitative Research on Social Stratification and Social Mobility. (4-4) Lecture, three hours. Requisites: courses 210A-210B. Introduction to English language research literature on quantitative social stratification and social mobility in the U.S. and abroad. In Progress grading.

240. Mathematics of Population. (4) Preparation: prior knowledge of matrices, calculus, and probability theory. Discrete and continuous deterministic and probabilistic models of growth and composition of a one-sexed population classified by age, plus selected topics on more complicated population models.

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 a feminist-informed sociology necessitate a fresh approach?

M242. Analysis of Data with Qualitative and Limited Dependent Variables. (4) (Formerly numbered 242.) (Same as Statistics M211.) Lecture, three hours. Requisites: courses 210A-210B or Statistics M100A and 100B-100C. Models for binary, polytomous, and ordered outcomes; censored and truncated dependent variables; sample selection bias and qualitative response models; count outcomes; multi-level models; log-linear models. S/U or letter grading.

C243. Introduction to Mathematical Sociology. (4) (Not the same as course 243 prior to Fall Quarter 1998.) Lecture, three hours; discussion, one hour; laboratory, two hours. Requisites: courses 210A-210B. 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). Concurrently scheduled with course C112. Graduate students have additional readings, meet as a group one additional hour each week, and learn to use mathematical software such as MATHEMATICA. Letter grading.

C244A-C244B. Conversational Structures I, II. (4-4) Lecture, three hours; discussion, one hour. May be concurrently scheduled with courses CM124A-CM124B. Graduate students have additional assignments and/or meet as a group one additional hour each week. S/U or letter grading. **C244A.** Introduction to some structures which are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **C244B.** Requisite: course C244A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

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 a new cultural sociology. Theoretical focus, with consideration of case studies.

246. Cultural Studies: Hermeneutic, Semiotic, and Poststructural Traditions. (4) Lecture, one hour; discussion, two hours. Examination of cultural analysis as it has evolved outside the discipline of sociology, on premise that these extra-sociological approaches provide critical resources in advancing the field of cultural sociology today. Theoretical and comparative emphasis, with consideration of case studies.

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 the emotions; creativity and expressed affect; thought, sensations, and the emotions; specific emotions; cultural differences in emotional expression; measurement of emotions.

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.

M249A. Health Professions. (4) (Same as Community Health Sciences M274.) Lecture, three hours. Requisite: Community Health Sciences 210. Sociological examination of concepts "health" and "illness" and role of various health professionals, especially physicians. Attention to meaning of professionalization and professional/client relationships within a range of organizational settings. S/U or letter grading.

M249B. Health and Illness Behavior. (4) (Same as Community Health Sciences M275.) Lecture, four hours. Requisites: Community Health Sciences 210, Epidemiology 100. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick-role behavior. S/U or letter grading.

250. Methodological Problems. (4) Lecture, four hours. S/U or letter grading.

251. Topics in the Problem of Social Order. (4) Lecture, four hours. S/U or letter grading.

252. Selected Topics in Sociology of Gender. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit.

253. Quantitative Methods in Sociology. (4) Lecture, four hours. S/U or 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 the concepts, current exemplars of research that utilize these concepts, and critical reflection on research traditions.

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.

C258. Talk and Social Institutions. (4) (Formerly numbered 258.) Lecture, four hours; discussion, one hour. Practices of communication and social interaction in a 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.

259. Social Structure and Economic Change: Historical and Comparative Perspectives. (4) Lecture, four hours. S/U or letter grading.

260. Economy and Society. Discussion, two hours. (4) Designed for graduate students. Review and critique of major analytical traditions in economy and society.

261. Ethnic Minorities. (4) Lecture, four hours. S/U or letter grading.

M262. Selected Problems in Urban Sociology. (4) (Same as Afro-American Studies M200C.) Seminar.

263. Social Stratification. (4) Lecture, four hours. S/U or letter grading.

264. Personal Identity in Historical Perspective. (4) Lecture, three hours. Designed for graduate students. Examination of distinctive features of personal identity in contemporary society through use of historical materials on various aspects of private life. Topics include home, food, clothing and appearance, personal odor, and cleanliness in everyday life.

265. Problems in Organization Theory. (4) Lecture, four hours. S/U or letter grading.

266. Selected Problems in Analysis of Conversation. (4) Requisites: courses C244A-C244B. Variable topics/formats course. Consult instructor for topics and formats to be offered in a specific term. May be repeated for credit with topic change. S/U or letter grading.

267. Selected Problems in Communication. (4) Lecture, four hours. 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.

269. Collective Behavior and Social Movements. (4) Lecture, three hours. Characteristics of crowds, mobs, publics, social movements, and revolutions; their relation to social unrest and their role in developing and changing social organization. Impact of collective behavior and social movements on social and political changes. S/U or letter grading.

270. Selected Problems in Socialization. (4) Lecture, four hours. S/U or letter grading.

271. Ethnomethodology. (4) Lecture, four hours. S/U or letter grading.

272. Topics in Political Sociology. (4) Lecture, four hours. S/U or letter grading.

273. Attitudes and Social Structure. (4) Lecture, four hours. S/U or letter grading.

274. Social Change and Development in Korea. (4) Seminar, three hours. Requisite: course 191. In-depth understanding of social change and development in 20th-century Korea. Discussion, in comparative/historical perspective, of major theoretical and empirical issues related to social, political, and economic Korean transformation.

M275. Contemporary Issues of the American Indian. (4) (Same as American Indian Studies M200C and Anthropology M269.) Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in the 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.

276. Selected Topics in Sociology of East Asia. (4) Designed for graduate students. Selected problems in China, or in China and Japan comparatively. Possible topics include (1) China's Great Proletarian Cultural Revolution, (2) internal contradictions in Chinese society: male/female relations, city and countryside, minority nationalities, class struggle under socialism, etc., (3) China and Japan: two models of development.

277. Japanese Society: Selected Topics. (4) Lecture, two and one-half hours. Designed for graduate students. Social structural characteristics and functioning of contemporary Japanese society, with focus on comparison and evaluations of functional (or rational) and cultural explanations of selected social phenomena. Topics include forms of social interaction, work organization, family, education, and equality.

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.

279. Seminar: Applied Social Research. (4) Seminar, two hours; discussion, one hour. Opportunities for applied research, distinctive features of applied work, and procedures commonly employed in various areas of research. Examination of representative work in specific areas of applied research.

280. Seminar: Evaluation Research. (4) Designed for graduate students. Technical and political aspects of implementing evaluation research studies. Role of evaluation research in social policy development, as well as procedures for undertaking process and impact evaluations. S/U or letter grading.

281. Selected Problems in Mathematical Sociology. (4) Exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction.

282. Organizations and the Professions. (4) Lecture, four hours. S/U or letter grading.

283. Applied Sociology. (4) Discussion, two hours. Designed for graduate students. Examination of roots and intellectual traditions underlying contemporary interest and work in applied sociology. Discussion of range of methodological perspectives used in applied research, utility of social research in various substantive domains and conflicts and controversies related to ideological activities, competence and performance requirements, and identification with and participation in the discipline.

284. Topics in Mental Health and Illness. (4) Requisite: course 148. Designed for graduate students.

285A-285Z. 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.

M286. Applied Event History Analysis. (4) (Formerly numbered 286.) (Same as Statistics M213.) Lecture, three hours. Requisites: courses 209A-209B and 209C, or 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.

287. Topics in Chinese Society. (4) Discussion, 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.

288A-288B-288C. Mental Health Services for Persons with AIDS. (4-4-4) Designed for graduate students. Analysis of current research on mental health service systems for persons with AIDS. S/U grading.

291. Moral Solidarity in Communities. (4) Comparative analysis of social solidarity and collapse of social solidarity in voluntary and traditional communities. Contrasts more and less solidarity types, with special reference to utopian communities and developmental processes.

292A-292B-292C. Research Development. (4-4-4) Lecture, four hours. S/U or letter grading.

M296A-M296B. Social Theory and Comparative History. (4-4) (Same as History M203A-M203B and Political Science M291A-M291B.) Colloquium, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following the program of the Center for Social Theory and Comparative History. Each course may be taken independently for credit.

M296C. Theories in Cultural History. (4) (Same as History M203C.) Discussion, three hours. Introduction to social, linguistic, semiotic, or other new interpretive theories and practices developed in other fields and applied to historical material.

297B. Urban and Suburban Sociology. (4) (Not the same as course 297B prior to Fall Quarter 1998.) Lecture, three hours. History and present condition of cities and suburbs in America. Today's urban/suburban neighborhoods contrasted with premodern cities. Examination of process of suburbanization as it began in the early 19th century and as it still continues; house and architectural styles and changing patterns of family and social life associated with them; patterns of racial, ethnic, income, and social class distribution in city and suburb; origin and nature of today's urban ghettos; politics of cities and suburbs. Focus on urban/suburban megalopolises associated with New York City, Los Angeles, Chicago, and Boston. GIS mapping. Letter grading.

298A-298B-298C. Workshops in Culture and Society. (2-2-2) Discussion, 90 minutes every other week. Interdisciplinary workshops 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. In Progress and S/U or letter grading.

299A-299B-299C. Seminars: Latin American Sociology. (2-2-2) Seminar, one hour; discussion, one hour. Regular forum for presentation, reading, and discussion of research on sociology of Latin America, including presentations by invited lecturers in Mellon Seminar in Latin American Sociology series. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

M402. Practices of Evaluation in Health Services: Theory and Methodology. (4) (Same as Health Services M422.) Lecture, four hours. Requisites: Health Services 200A-200B. Introduction to health services evaluation. Examination and performance of specific evaluation procedures. Conducting of health services investigations, reporting results and methodologies. Letter grading.

495A-495B. Supervised Teaching of Sociology. (2-2) 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) 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) Directed research for and writing of M.A. degree paper under guidance of student's M.A. 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 Ph.D. qualifying examinations. S/U grading.

599. Research in Sociology for Ph.D. Candidates. (4 to 12) Tutorial, to be arranged. S/U grading.

SPANISH AND PORTUGUESE

College of Letters and Science

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Professors

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Carroll B. Johnson, Ph.D. (*Spanish*)
J. Randal Johnson, Ph.D. (*Portuguese*)
Efrain Kristal, Ph.D. (*Spanish*)
Gerardo Luzuriaga, Ph.D. (*Spanish*)
José Monleón, Ph.D. (*Spanish*)
C. Brian Morris, Litt.D. (*Spanish*)
Susan J. Plann, Ph.D. (*Spanish*)
A. Carlos Quicoli, Ph.D. (*Portuguese, Romance Linguistics*)
Enrique Rodríguez-Cepeda, Ph.D. (*Spanish*)

Professors Emeriti

Rubén A. Benítez, Ph.D.
John A. Crow, Ph.D.

E. Mayone Dias, Ph.D.
Joaquín Gimeno, Ph.D.
Claude L. Hulet, Ph.D.
C.P. Otero, Ph.D.
José Pascual-Buxó, Ph.D.
Stanley L. Robe, Ph.D.
Paul C. Smith, Ph.D.
Marion A. Zeitlin, Ph.D.

Associate Professors

Adriana J. Bergero, Ph.D. (*Spanish*)
Héctor V. Calderón, Ph.D. (*Spanish*)
Verónica Cortínez, Ph.D. (*Spanish*)
John C. Dagenais, Ph.D. (*Spanish*)
Guillermo Hernández, Ph.D. (*Spanish*)
Claudia Parodi-Lewin, Ph.D. (*Spanish*)
A. John Skirius, Ph.D. (*Spanish*)
Jesús Torrecilla, Ph.D. (*Spanish*)

Assistant Professor

Elizabeth A. Marchant, Ph.D. (*Portuguese*)

Lecturer S.O.E.

José M. Cruz-Salvadores, M.A. (*Spanish*)

Lecturer

George L. Voyt, J.D., *Emeritus*

Scope and Objectives

The Department of Spanish and Portuguese is dedicated to the study and teaching of the languages, literatures, and cultures of the Hispanic heritage in all areas of the world, particularly on the continents of Europe and America. It maintains a strong commitment to the value of original research and professional instruction at all levels of its activities.

Whether studying for the B.A., M.A., or Ph.D. degree, students are given careful guidance in the choice of courses and in the preparation of a study program. The richness of Hispanic culture is amply represented in the extensive range of courses in language, linguistics, and literature. Although the literatures of Spain, Portugal, Brazil, and Spanish America predominate, courses are also offered in Chicano literature. The breadth of courses offered by the department allows undergraduate students to pursue many possible interests and enables graduate students to concentrate in depth in several areas of specialization.

The department's courses are primarily designed to serve the four B.A. programs: B.A. in Spanish (Plan A), B.A. in Spanish and Linguistics (Plan B), B.A. in Portuguese, and B.A. in Spanish and Portuguese, as well as to prepare students for its three graduate programs: M.A. in Spanish, M.A. in Portuguese, and Ph.D. in Hispanic Languages and Literatures. The courses are also functionally supportive of such interdepartmental programs as the California State Instructional Credential in Spanish, B.A. and M.A. programs in Latin American Studies, M.A. program in Folklore and Mythology, and M.A. and Ph.D. programs in Comparative Literature and Romance Linguistics and Literature.

Undergraduate Study

Undergraduate Courses

Spanish 1 through 3 use Garner, Rusch, and Domínguez' *Claro que sí*. The method is induc-

tive. Selected examples are given to enable students to inductively grasp the rules and develop their own grammar. This enables students to use language effectively and creatively. The courses are taught entirely in Spanish — students simultaneously learn to understand, speak, read, and write Spanish.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Spanish and Portuguese grammar and/or composition.

Spanish B.A./Spanish and Linguistics B.A.

Students with one or more years of high school Spanish who plan to enroll in Spanish 1 through 25 must take the departmental placement examination. Consult the *Schedule of Classes* or the department office for test dates and location.

Preparation for the Majors

Required: Spanish 25 or 25A or equivalent as determined by the placement test; courses M35, M42, M44, or equivalent as determined by the undergraduate adviser. These courses must be passed with an average grade of C or better prior to beginning upper division work in either major.

The Majors

Plan A: Spanish Language and Hispanic Literature

Required: (1) Nine core courses, including Spanish 100A-100B, 119A, 119B, 120A through 120D, and 127 and (2) five upper division Spanish elective courses, selected in consultation with an adviser, in which several areas of study are possible (e.g., language and linguistics as preparation for teaching Spanish at the secondary level; literature of Spain; literature of Latin America; Chicano literature; or any combination which might also include literature and film, or women in Spanish and Latin American literature).

Plan B: Spanish and Linguistics

Required: Completion of six terms of study in one language other than Spanish and English or three terms in each of two other languages, in addition to the preparation for the major courses. Portuguese is recommended.

The major consists of 15 upper division courses, including Spanish 100A-100B, 105, 115, M118A-M118B, Linguistics 103, 110, 120A, 120B, 165A or 165B, and four upper division Spanish electives.

Honors Program

The honors program is open to Spanish majors who have completed the required nine upper division core courses with a 3.5 grade-point average. Eligibility is verified by the departmental counselor.

Two honors projects and an honors thesis are required. To graduate with departmental honors, students must first complete an honors project in each of two of their upper division

Spanish elective courses. The honors project is a 12- to 15-page term paper on a special topic, selected in consultation with the instructor, to be completed in addition to the normal course requirements. On the basis of the coursework and special interests, students then consult a faculty member in that field and formulate a research project which they pursue under the faculty member's guidance through Spanish 170. Students research and write an honors thesis (not to be confused with an honors project) of approximately 25 pages on the selected topic. Approval of the honors thesis is the final requirement for departmental honors.

Portuguese B.A.

Preparation for the Major

Required: Portuguese 3, M35, M42 or M44, 46, or equivalent.

The Major

Portuguese Language and Literature

Required: Thirteen upper division courses, including Portuguese 100A, 100B, 105, 120A-120B or 130A-130B, and eight elective courses in Portuguese, or six electives in Portuguese plus two courses from areas that complement the program approved by the undergraduate adviser in Portuguese.

Portuguese and Linguistics Concentration

Required: Completion of six terms of study in one other foreign language or three terms in each of two other foreign languages, in addition to the preparation for the major courses. Spanish is recommended.

The concentration consists of 13 upper division courses, including Portuguese 100A, 100B, 105, M118A-M118B, Linguistics 100, 103, 110, 120A, 120B, and three electives, two of which must be in Luso-Brazilian literature.

Double Majors

Through judicious use of electives, students may find it possible to secure the B.A. degree with two complete majors (e.g., Portuguese/Spanish, Portuguese/History, Portuguese/Sociology, etc.). Interested students should consult the undergraduate adviser in Portuguese as early as possible in their B.A. program.

Study in a Portuguese-Speaking Country

Students are encouraged to spend up to one year in a Portuguese-speaking country to study in a university or conduct research. Appropriate credit may be granted in accordance with the individual program, arranged in consultation with the undergraduate faculty adviser in Portuguese. Proposals must be submitted in advance in writing and must be approved by the department.

Spanish and Portuguese B.A.

Preparation for the Major

Required: Spanish 25, Portuguese 25, M35, M42 or M44, 46, or equivalent.

The Major

Required: Six upper division courses in language and linguistics, including Spanish 100A-100B, Portuguese 100A, 100B, M118A or M118B, and either Spanish 105 or Portuguese 105; nine upper division courses in literature selected from one of the following groups: *group A* (peninsular literature to 1700) — Spanish 123, 124, 127, Portuguese C124, C125, C126, and three other literature courses, one of which must be in Spanish and one in Portuguese; *group B* (peninsular literature from 1700 to the present) — Spanish 128, 130, 133, Portuguese C127, C128, C129, and three other literature courses, one of which must be in Spanish and one in Portuguese; *group C* (Spanish-American and Brazilian literature to 1900) — Spanish 137, 139, 140, Portuguese C131, C132, C133, and three other literature courses, one of which must be in Spanish and one in Portuguese; *group D* (Spanish-American and Brazilian literature from 1900 to the present) — Spanish 142, 143, Portuguese C134, C135, and five other literature courses, two of which must be in Spanish and two in Portuguese.

Portuguese Minor

To enter the Portuguese minor, students must have an overall grade-point average of 2.0 or better and must complete Portuguese 3 or 102B.

Required Lower Division Course (four units): Portuguese 46.

Required Upper Division Courses (24 units): Portuguese 105 and five Portuguese courses selected from 100A through 199 (except 102A-102B). Only one four-unit Portuguese 199 course may be selected.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Spanish Minor

To enter the Spanish minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish.

Required Lower Division Courses (eight units): Spanish 25 or 25A, and M42 or M44.

Required Upper Division Courses (26 units): Five courses (22 units) in literature selected from Spanish 119A through 197 (two of the five must be from 120A through 120D). Only one four-unit Spanish 199 course may be selected.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Spanish Linguistics Minor

To enter the Spanish Linguistics minor, students must have an overall grade-point aver-

age of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish.

Required Lower Division Courses (eight units): Spanish 25 or 25A, and M35.

Required Upper Division Courses (24 units): Spanish 100A-100B, three courses from 107, 115, M118A, M118B, and one other upper division Spanish course.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

Spanish

Admission

The department considers only applicants whose objective is the Ph.D. Admission to the program leading to the Master of Arts degree in Spanish is based on a careful review of the applicant's academic record by the graduate admissions committee. Minimum requirements are the B.A. in Spanish from UCLA or another recognized university and a satisfactory score on the Graduate Record Examination (GRE) General Test. If the graduate admissions committee deems that some area of the applicant's preparation in language or literature needs to be strengthened, it may require that one or more complementary courses be taken.

Areas of Study

The department offers two areas of concentration for the M.A. degree in Spanish: literature and linguistics.

Course Requirements

Ten courses, seven of which must be at the graduate level, are required for the MA. Spanish 495 may count as one of the 10 courses but may not replace one of the graduate courses. Up to two graduate courses may be taken in another department with the approval of the graduate adviser. Spanish 596 may be taken only once; courses 597 and 598 do not count toward the degree.

Students choose a concentration from either literature or linguistics.

Literature. Students who choose the literature concentration must take Spanish M201A-M201B and one graduate course in Spanish or

Portuguese linguistics. The remaining seven elective courses are selected in consultation with the graduate adviser, who takes into account the student's interests as well as the necessary preparation for the comprehensive examination.

Linguistics. Students who choose the linguistics concentration are required to take either Spanish M201A or M201B and nine elective courses to be selected in consultation with the graduate adviser, who takes into account the student's interests as well as the necessary preparation for the comprehensive examination.

Comprehensive Examination Plan

Both concentrations offer six examination areas from which a student will choose four:

Literature. (1) Spanish literature (medieval-Golden Age); (2) Spanish literature (18th to 20th centuries); (3) Spanish-American literature (Colonial and 19th century); (4) Spanish-American literature (20th Century/Chicano); (5) Luso-Brazilian literature; (6) linguistics.

Linguistics. (1) Spanish syntax, (2) Portuguese syntax; (3) Spanish phonetics and morphology; (4) Spanish diachronic and synchronic language variation; (5) Spanish/Spanish-American literature; (6) Luso-Brazilian literature.

Faculty members provide reading lists for their respective areas and prepare and grade examinations based on the lists. Reading lists are made public each Spring Quarter for the next academic year. Each examination area is intended either to offer the students a general overview or it can reflect the central issues in the area.

Two examinations may be chosen in the same area. For example, a student who chooses the literature concentration may take two different examinations in area one (medieval to Golden Age), if the examinations are with two different faculty members. Examinations will be administered in all areas twice a year (during the fourth week of Fall and Spring Quarters).

Once the student chooses the concentration and examination areas, the professors representing those areas become the student's de facto committee. Students are urged to discuss the reading lists and the expectations with each professor.

The M.A. comprehensive examination consists of four two-hour examinations.

The M.A. program in Spanish is the first phase of the Ph.D. degree program in Hispanic Languages and Literatures. When students have completed all requirements for the M.A. degree, the student's examination committee meets to evaluate the student by considering the following: (1) one writing sample in Spanish; (2) results of the comprehensive examination; (3) coursework.

A recommendation is made by the student's committee at a general department meeting. The department decides whether (1) the student has earned a terminal M.A. degree (that is, the student may not proceed to the doctoral

program) or (2) the student has earned the M.A. degree and may proceed to the second phase of the Ph.D.

Students holding an M.A. degree from another university must take the comprehensive examination and present a writing sample to their committee. Up to eight graduate courses may be petitioned to count toward the Ph.D. degree.

Thesis Plan

In lieu of taking the comprehensive examination, students in either concentration may seek permission to present a thesis for the M.A. degree. Students must first complete five graduate courses, one of which must be a seminar. In order to endorse the petition, the graduate adviser and the guidance committee need to find evidence of exceptional ability and promise in term papers and coursework.

Portuguese

Admission

The department considers only applicants whose objective is the Ph.D. Admission to the program leading to the Master of Arts degree in Portuguese is based on a careful review of the applicant's academic record by the graduate admissions committee. Minimum requirements are the UCLA B.A. in Portuguese or its equivalent and a satisfactory score in the Graduate Record Examination (GRE) General Test; three letters of recommendation may also be sought. If the graduate admissions committee deems that some area of the applicant's preparation in language or literature needs to be strengthened, it may require that one or more complementary courses be taken.

Areas of Study

The department offers two areas of concentration for an M.A. degree in Portuguese: literature and linguistics.

Course Requirements

Ten courses, seven of which must be at the graduate level, are required for the MA. Spanish 495 may count as one of the 10 courses but may not replace one of the graduate courses. Up to two graduate courses may be taken in another department with the approval of the graduate adviser.

Literature. Students who choose the literature concentration must take Portuguese M201A-M201B and one graduate course in Spanish or Portuguese linguistics. The remaining seven elective courses are selected in consultation with the graduate adviser, who takes into account the student's interests as well as the necessary preparation for the comprehensive examination.

Linguistics. Students who choose the linguistics concentration are required to take either Portuguese M201A or M201B and nine elective courses to be selected in consultation with the adviser, who takes into account the student's interests as well as the necessary preparation for the comprehensive examination.

Comprehensive Examination Plan

Both concentrations offer six examinations, from which students must choose four:

Literature. (1) Brazilian literature (colonial and 19th century); (2) Brazilian literature (20th century); (3) Portuguese literature; (4) Spanish literature; (5) Spanish American literature (6) Portuguese linguistics.

Linguistics. (1) Spanish syntax; (2) Portuguese syntax; (3) Portuguese phonetics and morphology; (4) Portuguese diachronic and synchronic language variation; (5) Spanish/Spanish American literature; (6) Luso-Brazilian literature.

Faculty members provide reading lists for their respective areas and prepare and grade examinations based on the lists. Reading lists are made public each Spring Quarter for the next academic year. Each examination area is intended either to offer the students a general overview or it can reflect the central issues in the area.

Two examinations may be chosen in the same area. For example, a student who chooses the literature concentration may take two different examinations in area one (colonial and 19th century) if the examinations are with two different faculty members. Examinations are administered in all areas twice a year (during the fourth week of Fall and Spring Quarters).

Once the student chooses the concentration and examination areas, the professors representing those areas become the student's *de facto* committee. Students are urged to discuss the reading lists and the expectations with each professor.

The M.A. comprehensive examination consists of four two-hour examinations.

The M.A. program in Portuguese is the first phase of the Ph.D. degree program in Hispanic Languages and Literatures. When students have completed all requirements for the M.A. degree, the examination committee meets to evaluate the student by considering the following: (1) one writing sample in Portuguese; (2) results of the comprehensive examination; (3) coursework.

A recommendation is made by the student's committee at a general department meeting. The department decides whether (1) the student has earned a terminal M.A. degree (that is, the student may not proceed to the doctoral program) or (2) the student has earned the M.A. degree and may proceed to the second phase of the Ph.D.

Students holding an M.A. degree from another institution must take the comprehensive examination and present a writing sample to their committee. Up to eight courses may be petitioned to count toward the Ph.D. degree.

Thesis Plan

In lieu of taking the comprehensive examination, students may seek permission to present a thesis for the M.A. degree. Students must

first complete five graduate courses, one of which must be a seminar. In order to endorse the petition, the graduate adviser and the guidance committee need to find evidence of exceptional ability and promise in term papers and coursework.

Doctoral Degree

Admission

The UCLA M.A. in Spanish or in Portuguese, or equivalent, is required for admission to the program leading to the Ph.D. degree in Hispanic Languages and Literatures. Three letters of recommendation, which address the applicant's capacity for research-oriented doctoral studies and possible entry into the profession, are also required from professors familiar with the applicant's work as a graduate student. The Graduate Record Examination (GRE) General Test is also required.

Applicants holding the M.A. in Spanish or in Portuguese from UCLA must have the recommendation of the department to proceed toward the Ph.D. degree and are so notified on receipt of the M.A. degree.

Major Fields or Subdisciplines

Dissertation topics may be selected from any field in Spanish and Portuguese language and literature. Possible fields include: Spanish linguistics; Portuguese linguistics; diachronic Hispanic linguistics and philology; medieval Spanish literature; Renaissance and Golden Age Spanish literature, 18th- and 19th-century Spanish literature; 20th-century Spanish literature; colonial Spanish American literature; 19th-century Spanish-American literature; 20th-century Spanish-American literature; Chicano literature; early Portuguese literature; modern Portuguese literature; early Brazilian literature; modern Brazilian literature; Spanish and Luso-Brazilian folklore.

Course Requirements

After the B.A., a minimum of 18 graduate courses is required. The two-quarter sequence, Spanish or Portuguese M201A-M201B, may be required if students have not previously taken it or similar courses elsewhere. Up to one third of the total courses may be taken in other departments with the approval of the dissertation adviser. Seminars may be taken for credit no more than twice, with the approval of the appropriate guidance committee, if the content of the courses is substantially different.

Written and Oral Qualifying Examinations

The qualifying examinations consist of (1) presentation of a 40-60 page paper related to the specific dissertation area, (2) presentation of a 20- to 30-page paper in the general area of the dissertation; this paper may be comparative or theoretical, (3) a two-hour University Oral Qualifying Examination at which the above research papers and a dissertation prospectus are discussed.

The examinations are normally taken no later than nine quarters after receiving the B.A. and six quarters after receiving the M.A. Only students who pass the qualifying examination are advanced to candidacy for the Ph.D.

Spanish

Lower Division Courses

1. Elementary Spanish. (4) Discussion, five hours; laboratory, one hour.

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) Discussion, five hours; laboratory, one hour. Enforced requisite: course 1.

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) Discussion, five hours; laboratory, one hour. Enforced requisite: course 2.

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) Discussion, five hours; laboratory, one hour. Enforced requisite: course 3.

5. Intermediate Spanish. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 4.

6. Intermediate Spanish. (4) Discussion, five hours. Enforced requisite: course 5. Review and analysis of the more sophisticated and complex syntactic structures of Spanish, verb morphology, and lexical discrimination. Students who have completed course 5 with a grade of A- or better may enroll directly in course 25.

6A. Intermediate Spanish for Spanish Speakers. (4) Preparation: proficiency as determined by placement test. Concentration on formal aspects of the language (i.e., spelling, punctuation, accentuation, composition, reading, and traditional grammar) in lieu of course 6.

8A-8B. Spanish Conversation. (2-2) Discussion, three hours. Course 8A is open to students with credit for course 4. Students who have completed course 3 with a grade of B or better may be admitted.

9A-9B. Advanced Conversation. (2-2) Discussion, three hours. Enforced requisite: course 8B.

25. Advanced Spanish and Composition. (4) Lecture, three hours. Enforced requisite: course 5. Emphasis on writing grammatically correct, lexically sophisticated, and rhetorically competent expository prose. Course 25 or 25A is requisite to all upper division courses in Spanish.

25A. Composition for Spanish Speakers. (4) Lecture, three hours. Enforced requisite: course 5. Practice in reading and writing of Spanish for students with oral proficiency in Spanish (in lieu of course 25).

M35. Spanish, Portuguese, and Nature of Language. (4) (Same as Portuguese M35.) Lecture, three hours. 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.

M42. Civilization of Spain and Portugal. (4) (Same as Portuguese M42.) Lecture, three hours; discussion, one hour. Required of majors. Conducted in English. Highlights of civilization of Spain and Portugal, with emphasis on the artistic, economic, social, and historical development as background for upper division courses.

M44. Civilization of Spanish America and Brazil. (4) (Same as Portuguese M44.) Required of majors. Conducted in English. Highlights of civilization of Spanish America and Brazil, with emphasis on the artistic, economic, social, and historical development as background for upper division courses.

60A-60B-60C. Hispanic Literatures in Translation. (4-4-4) Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations in English. **60A.** Spanish Literature; **60B.** Spanish-American Literature; **60C.** *Don Quijote*.

61A-61B-61C. Hispanic Literatures in Spanish. (4-4-4) Lecture, three hours. Not open for credit to students with credit for corresponding course in 60 series. Class readings and analysis of selected works. Classroom discussion, papers, and examinations in Spanish. **61A.** Spanish Literature; **61B.** Spanish-American Literature; **61C.** *Don Quijote*.

62A-62B-62C. Hispanic Literatures and Film. (4-4-4) Lecture, three hours; film screenings, two to three hours. Analysis of main aesthetic, cultural, and philosophical questions in the Hispanic world as articulated in literature and film, addressing not only principal currents affecting Hispanic artistic expression but also diverse strategies employed by two distinct modes of representation. **62A.** Spain; **62B.** Spanish America; **62C.** The Chicano Experience.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Knowledge of Spanish not essential. Variable topics courses designed to explore various themes and issues pertinent to Hispanic literature and culture:

88A. Reaching 2001 (Fantasy of Reality and Reality of Fantasy). Seminar, three hours. Introduction to some specific literary strategies employed by writers of the Hispanic world and analysis of formal characteristics that define categories such as surrealism, magical realism, the fantastic, and realism.

Upper Division Courses

100A-100B. Introduction to Study of Spanish Grammar. (4-4) Lecture, three hours. Requisite: course M35. **100A.** Phonology and Morphology. Analysis of phonemic and morphological systems of Spanish. **100B.** Syntax. Study of syntactical systems of Spanish.

105. Spanish Composition. (4) Lecture, three hours. Requisite: course 25. Practice in writing Spanish with appropriate vocabulary, syntactical structures, and stylistic patterns.

107. The Spanish of Southern California. (4) Lecture, three hours. Requisites: courses M35, 100A-100B. Analysis of pronunciation, word formation, syntax, and lexicon of the Spanish of Southern California, with attention to regional features, social and age levels of speech, and interference from English.

115. Applied Linguistics. (4) Lecture, three hours. Requisites: courses M35, 100B. Survey of major linguistic problems faced by teachers of Spanish.

M118A-M118B. History of Portuguese and Spanish. (4-4) (Same as Portuguese M118A-M118B.) Lecture, three hours. Requisites: courses M35, 100A. Major features of development of Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. **M118A.** Phonology; **M118B.** Morphology and Syntax.

119A. Introduction to Study of Literature: Prose. (4) Lecture, three hours. Requisite: course 25. Introduction to study of literary devices, figures of speech, and distinctive stylistic features in prose literature of Spain and Spanish America, particularly in the novel and essay.

119B. Introduction to Study of Literature: Poetry and Drama. (4) (Formerly numbered 119B, 119C.) Lecture, three hours. Requisite: course 25. Introduction to study of literary devices, figures of speech, versification, and distinctive stylistic features in the poetry and drama of Spain and Spanish America.

120A-120D. Literature in the Hispanic World. (5-5-5-5) Lecture, four hours; discussion, one hour. Required of Spanish majors; must be taken in sequence. Historical/cultural survey of Hispanic literature from its beginning in medieval Iberia to contemporary writing in Spain, Latin America, and the U.S. Relationship between fundamental unity and astonishing geographic and cultural diversity. Particular attention to relation between literature and multicultural societies in which it is produced, as well as to individual texts which define or create new artistic possibilities:

120A. Hispanic Literature to 1700. Requisite: course 25. Multilingual Iberia: first literary texts in Hispanic dialects. Medieval Castilian literature. America: literature of discovery and conquest. Renaissance literature in Spain and America. Spanish Golden Age. Baroque literature in Spain and America.

120B. Hispanic Literature, 1700 to 1898. Requisite: course 120A. The Enlightenment, Spanish nationalism, and Spanish-American nation building. Romanticism in Spain and America. Journalism and *costumbrismo* in Spain and America. Historical narrative and sentimental novel in Spain and America. Regionalism in Spain. National diversity in America: *indigenismo*, gaucho literature, Mexican *corrido*, Afro-Americanism.

120C. Hispanic Literature since 1898. Requisites: courses 120A-120B. Unity and divergence. *Modernismo* and Spanish Civil War in Spain and America. Representations of America. Spanish surrealism. American vanguardism. *Franquismo* and after. Mexico and Mexican Revolution. New American narratives, testimony, feminism.

120D. Hispanic Literature in the U.S. Requisites: courses 120A-120B-120C. Spanish presence in the Southwest. Ethnic diversity: Spaniards, *criollos*, *mestizos*. Mexican War and Mexican American literature. Literature of the Chicano movement: recovering *mestizo* heritage, feminist consciousness.

122. Medieval Literature: El Camino de Santiago. (4) Lecture, three hours. Introductory course in medieval Spanish literatures following route of imaginary pilgrimage through northern Spain in the year 1300, from French border near Roncesvalles to shrine of St. James in Santiago de Compostela. Reading works of literature (and viewing slides, listening to music, etc.) associated with each stop along the way. Letter grading.

123. Medieval Literature: Poetry. (4) Lecture, three hours. Recommended preparation: course 120A. Study of main genres through representative works.

124. Golden Age: Poetry and Drama. (4) Lecture, three hours. Recommended preparation: course 120A. Study, through representative works, of the Golden Age poetry and drama.

125. Golden Age: Prose. (4) Lecture, three hours. Recommended preparation: course 120A. Study of 16th and 17th-century prose writing in Spain, with particular emphasis on *Lazarillo de Tormes* and the picaresque tradition.

127. Golden Age: Don Quijote. (4) Lecture, three hours. Recommended preparation: course 120A. Development of the novel in the Golden Age, with particular reference to *Don Quijote*.

128. The Enlightenment and Romanticism in Spain. (4) Lecture, three hours. Recommended preparation: course 120B. Study, through representative works, of main manifestations of thought and literature from 1700 to 1850.

130. Post-Romanticism, Realism, and Naturalism in Spain. (4) Lecture, three hours. Recommended preparation: course 120B. Development of main trends of Spanish literature from 1850 to 1898.

132. 20th-Century Spanish Prose. (4) Lecture, three hours. Recommended preparation: course 120C. Study of several representative works of Spanish prose literature since 1898.

133. 20th-Century Spanish Poetry and Drama. (4) Lecture, three hours. Recommended preparation: course 120C. Study of several representative works of Spanish poetry and drama since 1898.

137. Literature of Colonial Spanish America. (4) Lecture, three hours. Recommended preparation: course 120A. Study of most important genres and authors from the Conquest to 1810.

139. Romanticism and Realism in Spanish-American Literature. (4) Lecture, three hours. Recommended preparation: course 120B. Study, through representative literary works, of most important currents of thought and literary trends from 1810 to 1880.

140. Modernismo. (4) Lecture, three hours. Recommended preparation: course 120B. Study, through representative works, of principal characteristics of *modernismo* in Spanish-American literature.

142. 20th-Century Spanish-American Literature: Fiction and the Essay. (4) Lecture, three hours. Recommended preparation: course 120C. Study, through representative novels, short stories, and essays, of Spanish-American prose literature since 1910.

143. 20th-Century Spanish-American Literature: Poetry and Drama. (4) Lecture, three hours. Recommended preparation: course 120C. Study of principal poets, dramatists, and dramatic movements in Spanish-American literature since 1910.

144. Mexican Literature. (4) Lecture, three hours. Recommended preparation: course 120C. Study of major movements and authors of Mexican literature.

M145A-M145B. Introduction to Chicano Literature. (4-4) (Same as Chicana and Chicano Studies M145A-M145B.) Lecture, three hours. Requisite: course 25 or 25A. Introduction to texts representative of the Chicano literary heritage. Sampling of genres, as well as historical and geographical settings and points of view characteristic of work written by Chicanos during the 20th century. Most required reading is in Spanish. Bilingual and English works are included and discussed. Reading and analysis of a number of important scholarly and critical statements pertaining to characteristics and development of the Chicano literary corpus. **M145A.** Literature to 1960; **M145B.** Literature after 1960.

M146. Chicano Narrative. (4) (Same as Chicana and Chicano Studies M146.) Lecture, three hours. Introduction to major narrative genres in Chicana/Chicano literary tradition — *Corrido*, *Semblanza*, chronicle, autobiography, novel, romance, and satire. Emphasis on way in which narrative forms are formed by and address specific social/historical problems.

M149. Folk Literature of the Hispanic World. (4) (Same as Folklore M149.) Lecture, three hours. Study of history and present dissemination of principal forms of folk literature throughout the Hispanic countries.

151A-151B. Women in Hispanic Literature. (4-4) Discussion, three hours. Recommended preparation: courses 120A-120B-120C. Study of works by and about women, with emphasis on portrayal of women, women's roles, and myths of womanhood within the Hispanic socio-ideological context. **151A.** Spain; **151B.** Spanish America.

M161. Film and Literature of the Spanish-Speaking World. (4) (Same as Comparative Literature M174.) Lecture, three hours. Exploration of perceptions of reality offered by different authors from Spain, Latin America, and the Chicano community. P/NP or letter grading.

170. Senior Honors Tutorial. (4) (Formerly numbered 170A, 170B, 170C.) Preparation: completion of required nine upper division major core courses with 3.5 grade-point average. Directed individual research and writing of honors thesis.

197. Undergraduate Seminar. (4) Seminar, three hours. Limited to 15 junior/senior Spanish majors. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term:

M197A. Introduction to Caribbean Literature. (4) (Same as Latin American Studies M197A.) Lecture, two hours; discussion, two hours. Interdisciplinary introduction to literature of French, Spanish, and English Caribbean.

197A. Studies in Hispanic Culture and Civilization. (4) Lecture, three hours. Required of students preparing for a California State Instructional Credential in Spanish. Advanced course that studies diverse aspects of Hispanic culture, civilization, and history. Classroom discussions, papers, and examinations in Spanish.

199. Special Studies. (2 to 4) Eight units may be applied toward the major requirements.

Graduate Courses

M200. Research Resources. (4) (Same as Portuguese M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (4-4) (Same as Portuguese M201A-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-204B. Generative Syntax and Semantics. (4-4) 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.

M205A-M205B. Development of Portuguese and Spanish Languages. (4-4) (Same as Portuguese M205A-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-241B. Contemporary Spanish-American Short Story. (4-4) Lecture, three hours. Study of important short story writers from modernism to the present.

243A-243B. Contemporary Spanish-American Poetry. (4-4) Lecture, three hours. Intensive study of important poets of Spanish America from modernism to the present.

244A-244B. Contemporary Spanish-American Novel. (4-4) 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) Lecture, three hours. Study of major movements and authors of Mexican American literature.

M249. Folk Literature of the Spanish and Portuguese Worlds. (4) (Same as Folklore M249 and Portuguese M249.) Lecture, three hours. Intensive study of folk literature of the Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (4-4) (Same as Portuguese M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish. Each course may be repeated once with topic change and consent of appropriate guidance committee.

256A-256B. Studies in Spanish Linguistics. (4-4) Lecture, two hours. Study of problems in analysis and description of the contemporary Spanish language. Each course may be repeated once with topic change and consent of appropriate guidance committee.

257. Studies in Dialectology. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

262A-262B. Studies in Medieval Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

264A-264B. Studies in Golden Age Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

265. Cervantes. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

270A-270B. Studies in 18th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

271A-271B. Studies in 19th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

272A-272B. Studies in 20th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

277A-277B. Studies in Colonial Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

278A-278B. Studies in 19th-Century Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

280A-280B. Studies in Contemporary Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

281. Studies in Chicano Literature. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

M286A-M286B. Studies in Hispanic Folk Literature. (4-4) (Same as Folklore M286A-M286B.) Lecture, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

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. May be repeated once with topic change and consent of appropriate guidance committee.

310. Teaching Spanish in Elementary School. (4) Lecture, three hours.

370. Teaching Spanish in Secondary School. (4) Lecture, three hours.

373. Teaching Composition. (2) Designed for graduate students. Seminar on teaching writing in Spanish language courses. Introduction to composition theory. Instruction and practice in integrating writing into curriculum, setting goals and standards, designing and sequencing course materials, evaluating and commenting on papers. May not be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching Spanish at College Level. (4) 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 8) Study or research in areas or subjects not offered as regular courses. No more than four units may be applied toward M.A. course requirements.

597. Preparation for Graduate Examinations. (4 to 12) Preparation: official acceptance of candidacy by department. Individual preparation for M.A. comprehensive examination or Ph.D. 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 M.A. Thesis. (4 to 12) Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (4 to 8) Limited to students who have passed Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

Portuguese

Lower Division Courses

1. Elementary Portuguese. (4) Discussion, five hours; laboratory, one hour.

2. Elementary Portuguese. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 1.

3. Intermediate Portuguese. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 2.

8A-8B. Portuguese Conversation. (2-2) Discussion, three hours. Enforced requisite: course 3 (B or better).

25. Advanced Portuguese. (4) Enforced requisite: course 3.

M35. Spanish, Portuguese, and Nature of Language. (4) (Same as Spanish M35.) Lecture, three hours. 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.

40A-40B. Portuguese, Brazilian, and African Literature in Translation. (4-4) Lecture, three hours. Reading and discussion of selected works in translation. Papers and examinations in English. **40A.** Portuguese and Portuguese-African Literature; **40B.** Brazilian Literature.

M42. Civilization of Spain and Portugal. (4) (Same as Spanish M42.) Lecture, three hours; discussion, one hour. Required of majors. Conducted in English. Highlights of civilization of Spain and Portugal, with emphasis on the artistic, economic, social, and historical development as background for upper division courses.

M44. Civilization of Spanish America and Brazil. (4) (Same as Spanish M44.) Required of majors. Conducted in English. Highlights of civilization of Spanish America and Brazil, with emphasis on the artistic, economic, social, and historical development as background for upper division courses.

46. Brazilian Culture and Civilization. (4) Lecture, three hours. Conducted in English. Topical analysis of cultural history of Brazil, with emphasis on physical environment, principal historical, social, and economic development, and artistic manifestations. P/NP or letter grading.

Upper Division Courses

100A. Phonology and Morphology. (4) Lecture, three hours. Requisite: course 25. Analysis of phonetic, phonemic, and morphological systems of Portuguese.

100B. Syntax. (4) Lecture, three hours. Requisite: course 25. Review of patterns of the Portuguese language.

102A-102B. Intensive Portuguese. (4-4) Preparation: foreign language experience (other than Portuguese). Development of speaking and reading skills equivalent to those covered in three terms of the traditional pattern and to meet special needs of advanced undergraduate and graduate students.

103. Language and Popular Culture. (4) (Formerly numbered 101A.) Lecture, three hours. Requisite: course 102B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity.

105. Advanced Composition and Style. (4) Requisite: course 25. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns.

M118A-M118B. History of Portuguese and Spanish. (4-4) (Same as Spanish M118A-M118B.) Lecture, three hours. Requisites: courses M35, 100A. Major features of development of Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. **M118A.** Phonology; **M118B.** Morphology and Syntax.

120A-120B. Introduction to Portuguese Literature. (4-4) Lecture, three hours. Requisite: course 25. Introduction to principal periods, currents, and authors of Portuguese literature.

C124. Early Portuguese Literature. (4) Lecture, three hours. Requisite: course 25. Study of main genres of medieval Portuguese and Galician literature through representative works. Concurrently scheduled with course C224. P/NP or letter grading.

C125. Camões and the Portuguese Renaissance. (4) Lecture, three hours. Requisite: course 25. Study of main genres of Renaissance Portuguese literature, with particular emphasis on the works of Luis de Camões. Concurrently scheduled with course C225. P/NP or letter grading.

C126. Baroque and Neoclassical Portuguese Literature. (4) Lecture, three hours. Requisite: course 25. Study of main genres of baroque and neoclassical Portuguese literature through representative works. May be concurrently scheduled with course C226.

C127. 19th-Century Portuguese Literature. (4) Lecture, three hours. Requisite: course 25. Study of principal features through representative works. May be repeated for credit with topic change. Concurrently scheduled with course C227. P/NP or letter grading.

C128. Post-Romanticism and Naturalism in Portuguese Literature. (4) Lecture, three hours. Requisite: course 25. Study of principal features through representative works. May be concurrently scheduled with course C228.

C129. 20th-Century Portuguese Literature. (4) Lecture, three hours. Requisite: course 25. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C229. P/NP or letter grading.

130A-130B. Brazilian Literature and Identity: Introduction. (4-4) Lecture, three hours. Requisite: course 25. Introduction to principal periods, currents, and authors of Brazilian literature.

C131. Colonial Brazilian Literature and Culture. (4) Lecture, three hours. Requisite: course 25. Study of most important authors to 1830. May be repeated for credit with topic change. Concurrently scheduled with course C231. P/NP or letter grading.

C132. 19th-Century Brazilian Literature and Culture. (4) Lecture, three hours. Requisite: course 25. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C232. P/NP or letter grading.

C133. Machado de Assis. (4) Lecture, three hours. Requisite: course 25. Study of selected works by Joaquim Maria Machado de Assis. Concurrently scheduled with course C233. P/NP or letter grading.

C134. Brazilian Modernism. (4) Lecture, three hours. Requisite: course 25. Study of principal characteristics of Brazilian modernism through representative works. Concurrently scheduled with course C234. P/NP or letter grading.

C135. 20th-Century Brazilian Literature. (4) Lecture, three hours. Requisite: course 25. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C235. P/NP or letter grading.

141. Brazilian Film and Literature. (4) Lecture, three hours. Conducted in English. Topical analysis of main literary and historical themes of Brazilian culture, through films and literary texts. P/NP or letter grading.

197. Undergraduate Seminar. (4) Seminar, three hours. Requisite: course 25. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term.

199. Special Studies. (2 to 4) Eight units may be applied toward the major requirements.

Graduate Courses

M200. Research Resources. (4) (Same as Spanish M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (4-4) (Same as Spanish M201A-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-204B. Generative Grammar. (4-4) 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.

M205A-M205B. Development of Portuguese and Spanish Languages. (4-4) (Same as Spanish M205A-M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

C224. Early Portuguese Literature. (4) Lecture, three hours. Study of main genres of medieval Portuguese and Galician literature through representative works. Concurrently scheduled with course C124. S/U or letter grading.

C225. Camões and the Portuguese Renaissance. (4) Lecture, three hours. Study of main genres of Renaissance Portuguese literature, with particular emphasis on works of Luis de Camões. Concurrently scheduled with course C125. S/U or letter grading.

C226. Baroque and Neoclassical Portuguese Literature. (4) Lecture, three hours. Study of main genres of baroque and neoclassical Portuguese literature through representative works. May be concurrently scheduled with course C126.

C227. 19th-Century Portuguese Literature. (4) Lecture, three hours. Study of principal features through representative works. May be repeated for credit with topic change. Concurrently scheduled with course C127. S/U or letter grading.

C228. Post-Romanticism and Naturalism in Portuguese Literature. (4) Lecture, three hours. Study of principal features through representative works. May be concurrently scheduled with course C128.

C229. 20th-Century Portuguese Literature. (4) Lecture, three hours. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C129. S/U or letter grading.

C231. Colonial Brazilian Literature and Culture. (4) Lecture, three hours. Study of most important authors to 1830. May be repeated for credit with topic change. Concurrently scheduled with course C131. S/U or letter grading.

C232. 19th-Century Brazilian Literature and Culture. (4) Lecture, three hours. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C132. S/U or letter grading.

C233. Machado de Assis. (4) Lecture, three hours. Study of selected works by Joaquim Maria Machado de Assis. Concurrently scheduled with course C133. S/U or letter grading.

C234. Brazilian Modernism. (4) Lecture, three hours. Study of principal characteristics of Brazilian modernism through representative works. Concurrently scheduled with course C134. S/U or letter grading.

C235. 20th-Century Brazilian Literature. (4) Lecture, three hours. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C135. S/U or letter grading.

M249. Folk Literature of the Spanish and Portuguese Worlds. (4) (Same as Folklore M249 and Spanish M249.) Lecture, three hours. Intensive study of folk literature of the Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (4-4) (Same as Spanish M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish. Each course may be repeated once with topic change and consent of appropriate guidance committee.

252. Studies in Early Portuguese Literature. (4) Discussion, two hours.

253. Studies in Modern Portuguese Literature. (4) Discussion, two hours.

254. Studies in Early Brazilian Literature. (4) Discussion, two hours.

255. Studies in Modern Brazilian Literature. (4) Discussion, two hours.

256A-256B. Studies in Portuguese Linguistics. (4-4) Lecture, two hours. Study of problems in analysis and description of the contemporary Portuguese language.

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.

370. Teaching Portuguese in Secondary School. (4) Designed for future teachers in this field.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (4 to 8) Study or research in areas or subjects not offered as regular courses. No more than eight units may be applied toward M.A. course requirements.

597. Preparation for Graduate Examinations. (4 to 12) Preparation: official acceptance of candidacy by department. Individual preparation for M.A. comprehensive examination or Ph.D. 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 M.A. Thesis. (4 to 12) Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (4 to 8) Limited to students who have passed Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

SPEECH

College of Letters and Science

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Neil M. Malamuth, Ph.D., *Chair*

Professor

Neil M. Malamuth, Ph.D. (*Communication Studies*)

Professor Emeritus

Ralph Richardson, Ph.D.

Associate Professor

Paul I. Rosenthal, Ph.D. (*Communication Studies*)

Senior Lecturers

Marde S. Gregory, M.A.

Thomas E. Miller, M.A.

Lecturers

Dee Bridgewater, Ph.D.

John Kochian, M.A.

Sonya H. Packer, M.A.

Scope and Objectives

There is no major in speech; however, several undergraduate courses are offered for interested students.

Speech

Lower Division Courses

A. Oral Communication for Nonnative Speakers. (No credit) Lecture, four hours. Speech A displaces four units on student's Study List but yields no credit toward a degree. Emphasis on public and private speaking skills in American English necessary for social, academic, and professional growth in this country. Provides experiences necessary to remove barriers to communication created by inappropriate oral language usage. Offered in summer only. P/NP grading.

1. Principles of Oral Communication. (4) Preparation: satisfaction of Subject A requirement. Theory and practice of informal public speaking, including selection of content, organization of ideas, language, and delivery; practice in extemporaneous and manuscript speaking; training in critical analysis through reading and listening to contemporary speeches.

1A. English Language Program in Effective Speaking. (4) Lecture, eight hours and 20 minutes. Combination of courses A and 1 to help nonnative speakers of English increase fluency and vocabulary while also improving presentation skills. Language usage, reasoning, style, and delivery. Conversation and pronunciation practice. Offered in summer only. P/NP or letter grading.

2. Public Speaking and Discussion. (4) Enforced requisite: course 1. Continuation of course 1, with special emphasis on group discussions, panels, symposia, debates, and formal public speaking. Critical analysis of speeches in both contemporary and historical settings.

Upper Division Courses

107. Principles of Argumentation. (4) Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. Critical analysis of selected argumentative speeches.

190A-190B. Forensics. (2-2) May be repeated once for credit.

191. Analysis and Briefing. (2) Intensive study of selected political or social issues; preparation of bibliography; analysis and evaluation of issues and arguments. May be repeated once for credit.

197. Proseminar: Rhetoric. (4) Designed for seniors. Variable topics course involving intensive study of discourse associated with a single major issue or personality.

199. Special Studies. (2 to 4) Limited to seniors.

STATISTICS

College of Letters and Science

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Jan de Leeuw, Ph.D., *Chair*

Professors

Peter M. Bentler, Ph.D.

Richard A. Berk, Ph.D.

Jan de Leeuw, Ph.D.

Jianqing Fan, Ph.D.

Ker-Chau Li, Ph.D.

Dwight Read, Ph.D.

Wing Hung Wong, Ph.D.

Professors Emeriti

Thomas S. Ferguson, Ph.D.

Robert I. Jennrich, Ph.D.

James B. MacQueen, Ph.D.

Judea Pearl, Ph.D.

Sidney C. Port, Ph.D.

N. Donald Ylvisaker, Ph.D.

Assistant Professor

Frederic R. Schoenberg, Ph.D.

Yingnian Wu, Ph.D.

Lecturer

Mahtash Esfandiari, Ph.D.

Adjunct Assistant Professors

Darlene R. Goldstein, Ph.D.

Robert L. Gould, Ph.D.

Vivian Lew, Ph.D.

Zhenwei Zhou, Ph.D.

Scope and Objectives

The Department of Statistics was formally established in April 1998. One of the department goals is to coordinate both the undergraduate and graduate teaching of statistics at UCLA. Statistics is important for all sciences because a great deal of advanced work in each scientific discipline involves statistical analysis and interpretation of data. In addition, many laws, proposals, and programs in society require statistics for the purpose of evaluating collected quantitative data.

Undergraduate Study

Undergraduate Courses

Students planning to pursue advanced degrees in statistics should enroll in the Statistics M100A, 100B-100C sequence. The 110A-110B sequence is less comprehensive than the 100 series. In particular, probability topics do not receive the same level of coverage. Courses 110A-110B are offered each term. The remaining upper division courses are usually offered once or twice each year. The tentative class schedule for the forthcoming academic year is posted in the department office in February.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and

is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degree

The Department of Statistics offers the Master of Science (M.S.) degree in Statistics.

Admission

Prospective graduate students in statistics need not have an undergraduate statistics major but should have at least 12 quarter courses (or eight semester courses) in substantial upper division quantitative work, preferably in mathematics and statistics. Applicants must have a cumulative grade-point average of at least 3.2 in the upper division courses.

Applicants must take the Graduate Record Examination (GRE) General Test and a Subject Test, preferably in Mathematics, and must submit at least three letters of recommendation from persons who can attest to their quantitative skills.

Areas of Study

The strengths of current and prospective faculty members dictate the specific fields of emphasis in the department: computational and computer-intensive statistics, applied multivariate analysis, social statistics, and program evaluation.

Comprehensive Examination Plan

Students must pass the applied and theoretical statistics qualifying examinations at the M.S. level within seven quarters of full-time study. The examinations are offered during the Fall Quarter and toward the end of the Spring Quarter and are three-hour tests. Students may retake them any number of times until the examinations have been passed.

Thesis Plan

None.

Doctoral Degree

Admission

Prospective graduate students in statistics need not have an undergraduate statistics major but should have completed at least 12 quarter courses (or eight semester courses) in substantial upper division quantitative work, preferably in mathematics and statistics. For direct admission to the program leading to the Ph.D. degree in Statistics, a grade-point average of at least 3.5 must be presented. Applicants who have already obtained a master's degree must have maintained an average of better than 3.5 in graduate study.

Applicants must take the Graduate Record Examination (GRE) General Test and a Subject Test, preferably in Mathematics, and must sub-

mit at least three letters of recommendation from persons who can attest to their quantitative skills.

Major Fields or Subdisciplines

The strengths of current and prospective faculty members dictate the specific fields of emphasis in the department: computational and computer-intensive statistics, applied multivariate analysis, social statistics, and program evaluation.

Course Requirements

Students are required to pass (with grades of A or B) at least 18 approved graduate courses, of which at least six are outside the department. These courses are to be in professional or scientific fields closely related to research in statistics.

Written and Oral Qualifying Examinations

There are four qualifying examinations: one in theoretical statistics, one in applied statistics, one in data analysis, and one in probability. Students are required to pass three of the four exams at the Ph.D. level. The three passed must include applied and theoretical statistics. Students should pass qualifying examinations early in their graduate studies, preferably early in the second year. Students should consult an adviser in the area in which they plan to do research for advice on which qualifying examinations should be taken. After passing the written qualifying examinations, students set up a doctoral committee to administer the University Oral Qualifying Examination for advancement to candidacy.

Statistics

Lower Division Courses

10. Elementary Statistics. (4) (Formerly numbered 50.) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Descriptive statistics, elementary probability, random variables, binomial and normal distributions. Large and small sample inference concerning means. P/NP or letter grading.

M11. Introduction to Statistical Methods for Business and Economics. (4) (Formerly numbered M51B.) (Same as Economics M40.) Lecture, three hours; discussion, one hour. Not open to students with credit for course 10, M100A, 100B, Mathematics M170A, 170B, or 171. Elements of statistical analysis. Presentation and interpretation of data; descriptive statistics; theory of probability and basic sampling distributions; statistical inference, including principles of estimation and tests of hypotheses; introduction to regression and correlation. P/NP or letter grading.

M12. Introduction to Statistical Methods. (4) (Formerly numbered M51C.) (Same as Geography M40.) Lecture, three hours; laboratory, 90 minutes; outside study, seven and one-half hours. Satisfies statistics requirement for Geography major. Presentation and interpretation of data, descriptive statistics and measures of spatial patterns, introduction to statistical inference and measures of association. P/NP or letter grading.

M21A. Introduction to Quantitative Methods. (4) (Formerly numbered M51A.) (Same as Anthropology M80.) Lecture, three hours; discussion, one hour. Data analysis as a way to reason with quantitative information. Topics include description (frequency distribution tables, histograms), population specification (mean and standard deviation, normal distribution), samples and estimation procedures (central limit theorem), and hypothesis testing (t-test, chi-square test). P/NP or letter grading.

M21C. Interpretation of Quantitative Data. (4) (Formerly numbered M51F.) (Same as Sociology M18.) Lecture, three hours; discussion, one hour. Enforced requisites: (Mathematics 2 or 3A) and Sociology 1 (may be taken concurrently). Satisfies statistics requirement for Sociology major. Reading graphs and tables; statistical description using indices of central tendency, dispersion, and association; simple linear regression. Probability; binomial, normal, t, and chi-square distributions and hypothesis testing based on them. Examples from recent issues of American Sociological Review or other leading sociological journals. P/NP or letter grading.

Upper Division Courses

M100A. Probability Theory. (4) (Formerly numbered M152A.) (Same as Mathematics M170A.) Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 32B, 33B. Not open to students with credit for course 110A, Mathematics M170A, or Electrical Engineering 131A. Probability distributions, random variables and vectors, expectation, normal approximations. P/NP or letter grading.

100B-100C. Statistics. (4-4) (Formerly numbered 152B-152C.) Lecture, three hours; discussion, one hour. Not open to students with credit for courses 110A-110B. P/NP or letter grading. **100B.** Requisite: course M100A. Survey sampling, estimation, testing, data summary, one- and two-sample problems. **100C.** Requisite: course 100B. Analysis of variance, categorical data, linear regression, decision theory and Bayesian inference.

110A-110B. Statistics. (4-4) (Formerly numbered 154A-154B.) Lecture, three hours; discussion, one hour. Not open to students with credit for courses M100A and 100B. P/NP or letter grading. **110A.** Requisites: Mathematics 32B, 33B. Not open to students with credit for course M100A, Mathematics M170A, or Electrical Engineering 131A. Probability, distributions, expectation, estimation, central limit theorem, confidence intervals, testing. **110B.** Requisite: course 110A. One- and two-sample problems, goodness of fit and contingency tables, correlation and regression, analysis of variance, nonparametrics.

M120A-M120B. Regression Analysis. (4-4) (Formerly numbered M153A-M153B.) (Same as Biomathematics M153A-M153B and Biostatistics M153A-M153B.) Lecture, three hours; discussion, one hour. Requisites: course 100B, Mathematics 115A. Linear and nonlinear regression analysis using package programs. Emphasis on relation between statistical theory, numerical results, and analysis of data. P/NP or letter grading. **M120A.** BMDP, SAS, and SPSS regression programs; general linear model theory; linear regression analysis; transforming and weighting; regression diagnostics; model building. **M120B.** Analysis of variance and covariance; nonlinear regression programs, analysis, and applications; maximum likelihood analysis; robust regression.

130. Statistical Analysis System (SAS). (4) Lecture, three hours; discussion, one hour. How to enter and analyze data with Statistical Analysis System (SAS). Discussion of the many statistical techniques available in SAS and ways to extend basic system by SAS programming. P/NP or letter grading.

199I. Independent Studies for Internships. (2 to 4) Tutorial, to be arranged. Independent studies course to be supervised jointly by the Field Studies Office and faculty supervisor. Further supervision to be provided by business for which student is doing internship. P/NP grading.

Graduate Courses

200A-200B. Statistical Theory. (4-4) (Formerly numbered Mathematics 276A-276B.) Lecture, three hours. Requisite: course 100C. Letter grading. **200A.** Sufficiency, exponential families, least squares, maximum likelihood estimation, Fisher information, Cramér/Rao inequality, confidence intervals. **200B.** Asymptotic properties of tests and estimates, consistency and efficiency, likelihood ratio tests, chi-squared tests.

201. Nonparametric and Robust Statistics. (4) (Formerly numbered Mathematics 278B.) Lecture, three hours. Requisite: course 200B. Development of nonparametric and robust procedures for hypothesis testing, estimation in one- and two-sample problems, linear and nonlinear regression, multiple classification, density estimation. Letter grading.

202. Decision Theory. (4) (Formerly numbered Mathematics 278C.) Lecture, three hours. Requisites: course 200B, Mathematics 131A. Bayes, admissible, and minimax decision rules. Invariant tests and estimates, best unbiased tests, locally best tests. Application to general linear model. Letter grading.

203. Sequential Analysis. (4) (Formerly numbered Mathematics 278D.) Lecture, three hours. Requisites: course 200B, Mathematics 131A. Bayes sequential decision problems, stopping rule problems, optimality of sequential probability ratio test, Wald identity, asymptotic theory, and other topics. Letter grading.

204. Nonparametric Function Estimation and Modeling. (4) (Formerly numbered Mathematics 278I.) Lecture, three hours. Requisite: course 200A. 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.

210A-210B. Applied Statistics. (4-4) (Formerly numbered Mathematics 277.) Lecture, three hours. Requisites: courses M120A-M120B. Outline of principles of applied statistics, followed by survey of specific data analyses from physical, life, and social sciences. Methods include regression, analysis of variance and covariance, survival analysis, categorical data analysis, and simple time-series analysis. Illustration of transformations, plotting, model selection and evaluation, and estimation and decision procedures. Letter grading.

M211. Analysis of Data with Qualitative and Limited Dependent Variables. (4) (Formerly numbered Mathematics M278G.) (Same as Sociology M242.) Lecture, three hours. Requisites: courses M100A and 100B-100C, or Sociology 210A-210B. Models for binary, polytomous, and ordered outcomes; censored and truncated dependent variables; sample selection bias and qualitative response models; count outcomes; multilevel models; log-linear models. S/U or letter grading.

212. Evaluation and Survey Analysis. (4) (Formerly numbered Mathematics 278E.) Lecture, three hours. Requisite: course M120B. Primary focus on methods of program evaluation. Randomized experiments, observational studies, and topics such as matching, stratification, covariance adjustments, and sensitivity analyses. Letter grading.

M213. Applied Event History Analysis. (4) (Formerly numbered Mathematics M278H.) (Same as Sociology M286.) Lecture, three hours. Requisites: Sociology 209A-209B and 209C, or 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.

M215A-M215B. Linear Statistical Models. (4-4) (Formerly numbered Mathematics M279A-M279B.) (Same as Biostatistics M250A-M250B.) Lecture, three hours; discussion, one hour. Preparation: one upper division three-term theoretical statistics course. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, Gauss/Markov theorem, fixed and random component models, balanced and unbalanced designs. Letter grading.

M220A-M220B. Applied Probability. (4-4) (Same as Mathematics M282A-M282B.) Lecture, three hours. Requisite: course M100A or Mathematics M170A. S/U or letter grading. **M220A.** Conditioning, Markov chains, Poisson process, Brownian motion, stationary processes, applications. **M220B.** Simulation, renewal theory, martingale, and selected topics from queuing, reliability, speech recognition, computational biology, mathematical finance, epidemiology.

221. Time-Series Analysis. (4) Lecture, three hours. Requisites: courses M100A, 100B-100C. Exploration of methods for analyzing numerical time-series data. Basic topics in temporal and frequency analysis, followed by more recent topics. Examples in various fields including economics, signal processing, and atmospheric sciences. Letter grading.

M230. Statistical Computing. (4) (Formerly numbered Mathematics M280.) (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.

240. Multivariate Analysis. (4) (Formerly numbered Mathematics 278A.) Lecture, three hours. Requisite: course 200B. Distributions in several dimensions, partial and multiple correlation. Normal distribution theory, Wishart distribution, Hotelling T^2 . Principal components, canonical correlation, discriminant analysis. Introduction to linear structural relations and factor analysis. Letter grading.

285. Current Topics in Statistics. (4) (Formerly numbered Mathematics 285L.) Seminar, three hours. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U or letter grading.

296. Participating Seminar: Statistics. (1 to 2) (Formerly numbered Mathematics 296L.) Seminar and discussion by staff and students. S/U grading.

370. Teaching of Statistics. (4) Lecture, four hours. Exhaustive review of literature in teaching of statistics followed by analysis of what is missing in this area. Discussion of prevalent education, cognitive psychology, and evaluation theories and strategies that help to improve teaching of statistics. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Tutorial, to be arranged. Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

495. Teaching College Statistics. (2) Seminar, two hours; intensive training at beginning of Fall Quarter. Required of all potential departmental teaching assistants and new Ph.D. students. Practical and theoretical issues in teaching of statistics. 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.

599. Ph.D. Dissertation Research. (2 to 12) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Study and research for Ph.D. dissertation. May be repeated for credit. S/U grading.

STUDY OF RELIGION

See Religion, Study of

SURGERY

School of Medicine

UCLA
72-131 Center for the Health Sciences
Box 951749
Los Angeles, CA 90095-1749

(310) 825-7017
<http://www.surgery.medsch.ucla.edu/>

Chairs

E. Carmack Holmes, M.D. (*William P. Longmire, Jr., Professor of Surgery*), *Executive Chair*
James B. Atkinson, M.D., *Vice Chair for Clinical Affairs*
Achilles Demetrios, M.D., *Vice Chair, Cedars-Sinai*
Edward H. Livingston, M.D., *Vice Chair, Wadsworth VA*
Howard A. Reber, M.D., *Vice Chair, Sepulveda VA*
Bruce E. Stabile, M.D., *Vice Chair, Harbor-UCLA*
Jesse E. Thompson, Jr., M.D., *Vice Chair, Olive View-UCLA*

Scope and Objectives

The Department of Surgery instructs medical students during all four years of medical school. Students are expected to obtain broad knowledge of diseases treated by surgical means and to understand the pathology of these conditions, the therapy that may be applied, and the anticipated results of treatment. They are also encouraged to learn about the impact of surgical illness on the patient and the patient's family and environment.

Third-year students participate in one 12-week core clerkship in clinical surgery and are assigned to rotations at a combination of UCLA, Harbor-UCLA, West Los Angeles VA, and Olive View-UCLA Medical Centers. Each facility has a special orientation depending on the patient population and the individual staff, in addition to the initial surgery clerkship orientation. During the fourth year students may elect to take additional clinical rotations with increasing responsibilities. Additional in-depth elective courses are offered in collaboration with other departments.

For further details on the Department of Surgery and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

Surgery

Upper Division Course

199. Special Studies. (2 to 8) Tutorial, to be arranged. Individual projects carried out under direction of a faculty member. Special studies in surgery, with appropriate objectives, readings, laboratory work, or other assignments designed for proper training of students. P/NP or letter grading.

TEACHER EDUCATION

See Diversified Liberal Arts and Education

THEATER

School of Theater, Film, and Television

UCLA
103 East Melnitz Building
Box 951622
Los Angeles, CA 90095-1622
(310) 825-5761
<http://www.theater.ucla.edu/>

William D. Ward, M.F.A., *Chair*

Professors

Alan M. Armstrong, M.F.A.
Gilbert Cates, M.A.
Gary A. Gardner, Ph.D.
Michael J. Hackett, Ph.D.
Patricia M. Harter, Ph.D.
Robert Israel, M.F.A.
Neil Jampolis, B.F.A.
Michael S. McLain, Ph.D.
Dunya Ramicova, M.F.A.
Beverly J. Robinson, Ph.D.
Rich Rose, M.F.A.
Carol F. Sorgenfrei, Ph.D.
Mel Shapiro, M.F.A.
José Luis Valenzuela, B.A.
Edit Villarreal, M.F.A.
William D. Ward, M.F.A.

Professors Emeriti

Walden P. Boyle, Ph.D.
John R. Cauble, M.A.
Donald B. Crabs, M.A.
Henry Goodman, Ph.D.
Robert H. Hethmon, Ph.D.
John H. Jones, M.A.
Joanne T. McMaster, M.F.A.
Sylvia E. Moss, B.A.
Carl R. Mueller, Ph.D.
Norman F. Welsh, B.A.
William T. Wheatley, Ph.D.

Associate Professors

Hanay Geiogamah, B.F.A.
Margaret L. Wilbur, M.F.A.

Lecturers

John Brandt, A.A.
Daniel A. Ionazzi, M.B.A.
Tom Orth

Adjunct Associate Professors

Anna Krajewska-Wieczorek, Ph.D.
Roberta Levitow, B.A.

Adjunct Assistant Professor

Jacques Heim
Tim Miller

Visiting Professors

Helen Burns
Grover Dale,
Leon Katz, Ph.D.
Michael Langham
Donald Rosenberg

Visiting Associate Professors

Ellen Geer
Salome Jens
Joe Olivieri

Visiting Assistant Professors

Sandra Caruso, M.A.
Nancy Dussault
Kent Gash
Nicholas Gunn
William MacDuff
Ed Monaghan
Judith Moreland, M.F.A.
Ndubisi Nwafor, Ph.D.
Jean Louis Rodrigue
David Schweizer
April Shawhan
Paul Wagar
Jonathan Wang
Peter Wittrock

Scope and Objectives

UCLA's theater program offers comprehensive training for the profession, as well as serious study of theater's 2,000-year history and rich literature. Drawing on this vibrant heritage, the curriculum promotes an awareness of theater as a global phenomenon embodying the contributions of diverse cultures and explores theater as a forum for reflecting the human experience as revealed through the dynamics of theater production. With this in mind, students engage in the presentation of dramatic work in a community where creativity and critical thought combine in the exploration of the artistic and intellectual challenges inherent in the making of theater.

Manifesting talent and promise as well as representing a wide range of backgrounds and interests, prospective students are selected by the faculty through auditions and interviews in cities throughout the U.S.

At the undergraduate level, students receive education in acting, design, or the comprehensive study of theater, all within the rigorous liberal arts framework of the B.A. degree. At the graduate level, students in the M.F.A. program develop as artists and are given preprofessional training in the skills of theater, while Ph.D. students engage in critical investigations of the art form. In conjunction with their theater studies, students also have the opportunity to pursue elective courses in the area of film and television.

Undergraduate Study

Theater B.A.

The Bachelor of Arts degree provides a liberal education and preprofessional training in a comprehensive program that combines the study of the arts, humanities, and sciences with exploration of the principal areas of theater practice — acting, design, directing, the history and criticism of theater and drama, mu-

sical theater, and playwriting. The program is designed to ensure that students graduate with a sound humanistic and experiential base for further pursuits in education and in life beyond the University.

This comprehensive program in Theater provides a liberal education by combining critical study of theater with experiential practice in one or more of its component parts. Students explore acting, design, directing, playwriting, and production to build a foundation for future creative work. Specialized and advanced training is available to prepare students for a variety of careers, further training, or graduate study. At the upper division level, students choose from an array of advanced elective courses in acting, design and production, directing, musical theater, playwriting, and theater history and drama, leading to a culminating research or creative experience in the senior project.

The acting sequence electives include fundamental and advanced courses in all aspects of performance training that prepare students for careers in performance. There is some performance in projects, but emphasis is on class and studio work. Upper division advanced courses explore verse, scene study, comedy, cabaret, movement, and combat.

The design and production sequence electives introduce design principles and investigate the design of scenery, lighting, costumes, and sound for theater, film, and television in lower division courses. Four design and production areas of study are available at the upper division level — scenic design, costume design, lighting design, and sound design. Students select from an array of design skills courses to develop proficiency in essential areas of rendering, drafting, painting, computer-aided design, and technology. Courses in art, history, and philosophy build an understanding of the social history of visual ideas. A sequence of courses in each area of study examines design principles and practice specific to each field.

The directing sequence electives explore the basic theories of play direction, as well as text analysis and craft fundamentals. Advanced courses emphasize psychological aspects of director-actor communication and development of specific directorial and production styles.

The Ray Bolger musical theater program sequence electives are aimed at providing pre-professional training in a specific area of theater practice. Courses are designed to train selected students in acting, singing, and dance for the musical theater stage as well as providing knowledge of music theater history. The dance courses (Theater 1A-1B-1C) are open to all freshman Theater majors and must be taken as requisites to be considered for the music theater program. Auditions for the program are held during Spring Quarter of the freshman year. Junior transfer students are also eligible for consideration for an audition. The number of juniors admitted varies each year and is based on sophomore attrition. Ad-

ditional courses provide hands-on training with various artists and a range of performing experiences from workshops to full production.

The history and criticism of theater and drama sequence electives include the study of fundamental cultural, social, ethical, and political issues in the context of artistic expression enriched by historical perspective. The curriculum promotes an awareness of the theater as a global phenomenon embodying the contributions of diverse cultures and explores the verbal and visual elements of its language as revealed through the dynamics of theater production.

The playwriting sequence electives include specialized and advanced courses that prepare students to write one-act and full-length plays, books and lyrics for music theater, and scripts for the one-person show.

Admission

All applicants must meet the admission standards of UCLA and the departmental screening process. Applications are accepted only in November for admission to the following Fall Quarter. There are no mid-year admissions. On receipt of the application the department notifies students of the screening process, which includes submission of a written essay on a topic selected annually by faculty members, letters of recommendation, and an interview and/or audition. Information on the scheduling of the audition/interview is sent to each applicant with the departmental request for supplemental materials. Every applicant must complete the interview portion of the application process. The audition is optional for all students except those wishing to qualify for admission on the basis of their ability in performance. Applicants may submit materials for consideration in one or more of the following areas: acting, design and production, directing, history and criticism, musical theater, and playwriting.

All entering students are admitted to the Theater major and may audition and/or interview for elective courses in acting, design and production, directing, history and criticism of theater and drama, musical theater, or playwriting.

Preparation for the Major

Required: Theater 11, 12, 13, 14A-14B-14C, 15, 50 (must be taken for four units total).

The Major

Required: A total of 58 upper division units, including Theater 101A-101B-101C, 106, 150 (must be taken for four units total), 180, and 34 upper division elective units selected from courses 100 through 199 not otherwise specified as requirements.

The Ray Bolger musical theater program sequence electives are Theater 104C, 114A-114B-114C, 115A-115B-115C, 116A-116B-116C, 134A-134B-134C, 135A-135B-135C, and 137A-137B-137C.

Through certain of these required courses, students are responsible for completing specific

production assignments related to production activity of the theater curriculum.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Theater offers a Master of Arts (M.A.) degree in Theater and a Master of Fine Arts (M.F.A.) degree in Theater.

Master of Arts

Admission

The M.A. degree is awarded only in conjunction with study in the Ph.D. degree program to students who have successfully completed one year of graduate work and all requirements for the M.A. degree and who do not wish to continue in the doctoral program.

Students are admitted in the Fall Quarter only. Admission is competitive, and only a limited number of applicants are accepted each year in each program. The department does not have an application in addition to the UCLA *Application for Graduate Admissions*, and no screening examination prior to admission is required. For further information, contact the Student Services Office in the department.

Applicants are advised that all records submitted in support of an application, including creative work (original or otherwise), are not returnable nor is the department responsible for such material.

In addition to satisfying minimum University requirements for graduate admission, applicants must have completed an undergraduate major in any area comparable to that offered at UCLA and must provide the department with at least three letters of reference and a statement of purpose.

Requirements include the results of the Graduate Record Examination (GRE), a sample of scholarly or critical writing, a statement of purpose, and other information such as résumé, portfolio, script, production book, and interview that may be required to establish the quality of applicants' work in the specialization. Consult the Student Services Office.

Areas of Study

The program leads to a general graduate degree, though there are opportunities, through electives and thesis or research paper topic, to stress a particular interest such as acting, design, directing, dramatic writing, or theater history and criticism.

Course Requirements

Students are required to complete a minimum of 10.5 courses (42 units), five of which must be at the graduate level, in at least one year of intensive study and research leading to the successful completion of either the thesis or comprehensive examination plan.

The required courses are Theater 245A and C272 (a two-unit course to be taken three times). After consultation with an adviser, students select seven other courses, including one graduate course in theater history (Theater 205A, 205B, or 205C), one graduate course in theater production theory (Theater 241, 290A, or 290B), and five other courses which emphasize production practice or historical study. Students accepted for joint M.A. and Ph.D. programs are required to take Theater 205A-205B-205C.

Only eight units from the 596 series may be applied toward the total course requirement, and only four of these units may be applied toward the minimum graduate course requirement. No 598 courses may be applied toward the total course requirement.

Comprehensive Examination Plan

Students must complete an examination consisting of a 50-page research paper which may be associated with four units of Theater 596A, a one-hour oral defense of the paper, and a two-part, six-hour written examination covering theater history and production practice. The examination normally occurs during the final quarter of residency, at which time students should have advanced to candidacy.

Thesis Plan

Before beginning work on the thesis, students must obtain approval of a subject dealing with the history, aesthetics, criticism, or techniques of the theater and a general plan of investigation from the Ph.D. critical studies committee. A thesis committee is then formed when students are within one quarter of completing the coursework, at which time they are eligible to advance to candidacy. The adviser and the committee must have a prospectus of the thesis and a petition to advance to candidacy. Both are used as the basis for approval.

If the thesis fails to pass the committee, students may present a rewritten version for approval. The number of times a thesis may be presented depends on assessments made by the committee.

Master of Fine Arts

Admission

Students are admitted to the M.F.A. program in the Fall Quarter only. Admission is competitive, and only a limited number of applicants are accepted each year in each program. The department does not have an application in addition to the UCLA *Application for Graduate Admissions*, and no screening examination prior to admission is required. For further information, contact the Student Services Office in the department.

Applicants are advised that all records submitted in support of an application, including creative work (original or otherwise), are not returnable nor is the department responsible for such material.

In addition to satisfying minimum University requirements for graduate admission, applicants must have completed an undergraduate major in any area comparable to that offered at UCLA and must provide the department with at least three letters of reference and a statement of purpose.

Evidence of creative ability and professional intent is required. When submitting the application, applicants must indicate the M.F.A. degree objective and satisfy the specific admission requirements of one of the following areas of specialization within the M.F.A. program.

Acting. Submit a complete résumé and audition for the acting committee or its representative.

Design and Production (scenic, costume, lighting, and sound design, or production management/technology). Submit a résumé and evidence of ability appropriate to the area of emphasis as demonstrated by sketches, renderings, photographs, production books, plots, technical papers, reviews, or other appropriate exhibits. An interview and presentation of the portfolio is required.

Directing. Submit a résumé and evidence of production work, which may include copies of prompt books, photographs, reviews, and critical commentaries, and an essay outlining a directorial approach to a selected play. If the review committee requests an interview, applicants are notified of city location and dates at which time a full portfolio may be presented. Interviews are conducted at various locations around the country in February.

Playwriting. Submit a résumé and two examples of creative writing which may include dramatic writing or narrative fiction such as full-length plays, one-act plays, and screenplays. At least one stage play must be included. An interview may be required by the department.

Producer's Program. Submit a résumé, examples of related coursework, and a statement outlining areas of specific interest and intent. An interview may be required by the department.

In addition, all applicants must submit three letters of recommendation. The Graduate Record Examination (GRE) is not required. Consult the Student Services Office.

Areas of Study

The areas of specialization for the M.F.A. program are as specified above under the Admission section.

Course Requirements

Acting. A total of 23.5 courses (94 units) is required for the degree; of these, 20.5 courses (82 units) must be graduate-level (200 and 400 series) courses. Only 12 units of 596 courses

may be applied toward the total number of units for the degree and the minimum graduate course requirement.

Design and Production (scenic, costume, lighting, and sound design, or production management/technology). A total of 26 courses (104 units) is required for the degree; of these, 23.5 courses (94 units) must be graduate-level (200 and 400 series) courses. A maximum of 10 units of undergraduate courses and a maximum of 12 units of 596 courses may be applied toward the total number of units for the degree.

Directing. A total of 26.5 courses (106 units) is required for the degree; of these, 23.5 (94 units) must be graduate-level (200 and 400 series) courses. A maximum of 12 units of undergraduate courses and a maximum of 12 units of 596 courses may be applied toward the total number of units for the degree.

Students are required to enroll in a minimum of 12 units per quarter. Required courses are scheduled to permit completion within a three-year period.

Specific course requirements for each program are available in the Student Services Office.

Comprehensive Examination Plan

The plan is satisfied by fulfilling a series of creative projects appropriate to students' specializations. On completion of the final creative project or in the last quarter of residence, whichever is last, students must file for advancement to candidacy. The committee then reviews and evaluates students' records. Student participation in the final review is at the discretion of the committee.

If students fail the review and evaluation of their creative work by the examining committee, they may, with the approval of the department chair, be reexamined.

Thesis Plan

None.

Doctoral Degree

Admission

Applicants to the program leading to the Ph.D. program in Theater must submit evidence of potential as a practicing scholar as indicated by (1) breadth and depth of advanced coursework in history, theory, and criticism, (2) the imagination and quality of scholarly writing and academic achievements, (3) grade-point average, Graduate Record Examination (GRE) scores, awards, scholarships, and fellowships. Additionally, candidates should demonstrate awareness and experience in one of the major fields of theater.

Applicants may be admitted with an M.F.A., M.A., or B.A. degree. The dossier for admission must contain a statement of purpose indicating areas of interest appropriate to the doctoral degree, as well as a thesis or other writing samples.

Further information is available from the Student Services Office.

Major Fields or Subdisciplines

Ph.D. students in theater are expected to be knowledgeable regarding theater history and theory, critical methods, theatrical production, and dramatic literature.

Course Requirements

During the first six quarters (two academic years), students must complete a minimum of 12 graduate courses (200 or 500 level) and two professional courses (Theater 495A and 495B). Theater 216A-216B-216C are required. The remaining nine courses are elective graduate courses, seminars, or tutorials. Of these electives, no more than four may be taken outside the department and no more than two may be tutorials. In addition, the distribution of electives must include at least one each in the areas of Western or non-Western theater study. These electives must augment the required courses so as to constitute a definable area of study associated with the dissertation topic. The dissertation is a historical, critical, analytical, or experimental study of a theater topic. A screening examination is administered during the first week of the Fall Quarter based on a reading list supplied at the time of application. Results of this examination may require the completion of background courses.

Written and Oral Qualifying Examinations

At the end of the student's second quarter in residence, a preliminary oral examination is administered by a representative committee of the faculty. The committee specifies the area of review, tests background preparation and progress to date, and determines general fitness to continue in the doctoral program.

After completing all language and course requirements, approval of a dissertation prospectus, and appointment of a dissertation committee, students are required to pass a written qualifying examination administered during four successive days. Information regarding the examination is available from the Ph.D. committee. With approval of the committee, students may be reexamined on any failed portions of the examination when it is next regularly scheduled, or within the year following the quarter in which it was first taken.

After the written examination is passed, a doctoral committee is formed to administer the University Oral Qualifying Examination. Students are advanced to candidacy only on successful completion of this examination.

Theater

Lower Division Courses

1A-1B-1C. Introduction to Dance for Music Theater. (1-1-1) Studio, four hours. Designed for Theater majors. Introduction to basic music theater dance technique. Letter grading.

11. Contemporary Theater Issues. (4) Lecture, three hours. Investigation of theater in contemporary American culture and society. Topics illustrated by faculty 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 the performer in the theatrical event, 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. (4) Lecture, three hours. Provides a base for subsequent study in theater. Development of techniques of play reading and habits of scholarship useful to further study in each of the theater's subdisciplines, including acting, directing, design, playwrighting, and critical study. Letter grading.

14A-14B-14C. Introduction to Design. (4-4-4) Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of the 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. Requisite: course 11. Investigation of role of the director in theatrical production and theories of play direction, with emphasis on analysis and interpretation of dramatic work and its realization in production.

20. Acting Fundamentals. (4) Lecture/laboratory. Required of Theater majors. Introduction to interpretation of drama through art of the actor. Development of individual insights, skills, and disciplines in presentation of dramatic material to an audience.

28A-28F. Acting, Voice, and Movement Workshops I. (2 each) Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for a maximum of 12 units.

50. Theater Production and Performance. (2) Studio, six hours. Laboratory experience in various aspects of theater production, including scenery, costumes, lighting, stage management, or member of a crew. May be repeated for a maximum of eight units.

Upper Division Courses

101A-101B-101C. History of World Theater and Drama. (4-4-4) Lecture, three hours; discussion, one hour. Survey of history of influence of different cultures, traditions, and technologies on development of theater as a social institution. **101A.** Ritual and Religious Drama. Study of origins of theater and drama from oral tradition, myth, storytelling, Shamanism, collective ritual, Greek festival drama, and cloister drama of different cultures. **101B.** Rise of Secular Drama. Study of Renaissance secular theater and drama in Europe, Asia, Africa, and the New World. **101C.** Emergence of Realism and 20th-Century Responses. Study of realism and subsequent departures from realism in theater and drama.

102A. Theater of Japan. (4) Lecture, three hours. Exploration of major theater traditions of Japan from emergence of earliest theatrical activity to the present, including investigation of Noh, Bunraku, and Kabuki performance traditions.

102B. Theater of Southeast Asia. (4) Lecture, three hours. Examination of representative theatrical genre from various geographical areas in Southeast Asia to illustrate importance and contribution that theater plays in society.

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.

102E. Theater of Non-European World. (4) Lecture, three hours; discussion, one hour. Survey of theater forms of non-European world in which primary attention is concentrated on examination and analysis of traditional dance-drama and puppet theaters of East Asia, Southeast Asia, South Asia, the Middle East, and Africa. Analogous forms from European theater included for comparative purposes.

M103A. African American Theater History: Slavery to Mid-1800s. (4) (Same as Afro-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 the mid-1800s.

M103B. African American Theater History: Minstrel Stage to Rise of the American Musical. (4) (Same as Afro-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 the minstrel stage to the rise of the American musical.

M103C. Origins and Evolution of Chicano Theater. (4) (Same as Chicana and Chicano 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).

M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (4) (Same as Chicana and Chicano Studies M103D and World Arts and Cultures M103D.) Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions which led to emergence of Chicano theater.

M103E. African American Theater History: The Depression to the Present. (4) (Same as Afro-American Studies M103E.) 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 the Depression to the present.

103F. Native American Theater. (4) Study of American Indian theater as an evolving art form.

M103H. Contemporary Chicano Theater: Chicano Theater since 1980. (4) (Same as Chicana and Chicano Studies M103H and World Arts and Cultures M103H.) Requisite: course M103D. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art.

104A-104B-104C. History of American Theater. (4-4-4) Lecture, three hours. Study of history of influence of different cultures, traditions, and technologies on development of theater as a social institution in America. **104A.** Revolutionary War to the Civil War; **104B.** Civil War to WWII; **104C.** WWII to the Present.

105. Main Currents in Theater. (4) Lecture, three hours. Critical examination of leading theories of theater from 1887 to the present. Study and discussion of modern styles of production.

106. History of American Theater and Drama. (4) Lecture, three hours. Survey of key works of American dramatic literature and landmarks of American theater history.

107. Drama of Diversity. (4) Lecture, three hours. Investigation of diversity in American society as manifested in dramatic works and theatrical presentations.

108. Special Topics in History and Criticism. (4) Lecture, three hours. Investigation of selected topics of diversity in American society as manifested in dramatic works and theatrical presentations.

111A. Selected Topics on History of European Theater from Primitive Times to 1640. (4) Lecture, three hours. Investigation in depth of a selected area of study in theater history from the Greeks to 1640. May be repeated twice for credit.

111B. Selected Topics on History of European Theater from 1640 to 1900. (4) Lecture, three hours. Investigation in depth of a selected area of study in theater history from the Renaissance through 1900. May be repeated twice for credit.

111C. Selected Topics on History of European Theater from 1900 to the Present. (4) Lecture, three hours. Investigation in depth of a selected area of study in theater history from the baroque to the present. May be repeated twice for credit.

114A-114B-114C. Dance and Singing for Music Theater I. (1-1-1) Studio, five hours. Requisite: course 1A. Designed for Theater majors. Sophomore-level course providing foundation for music theater students' voice training, as well as dance and movement technique. Letter grading.

115A-115B-115C. Acting, Voice, and Movement I. (6-6-5) Studio, 14 to 17 hours. Study of beginning acting technique: improvisation, games, and sense memory with examination of action and objective exercises, outline of Stanislavsky system, and development of voice and movement skills.

116A-116B-116C. Acting, Voice, and Movement II. (6-6-5) Studio, 14 to 17 hours. Development of acting skills through scene study, use of self, and personalization. Examination of characterization exercises and their application to contemporary American scenes. Development of speech, voice, and movement skills.

118A. Creative Dramatics. (4) Lecture/laboratory. Studies of principles and procedures of improvisational approach to drama as done with children from nursery school to junior high.

118B. Advanced Creative Dramatics. (2 to 4) Lecture, four hours; other, to be arranged. Practical application of creative drama process. Exploration of interrelationships of the arts to traditional disciplines of learning. May be repeated once for credit.

118C. Interactive Theater. (4) Laboratory. Active, problem-solving process of theater exercises and games designed to examine racial stereotypes, sexual harassment, gender discrimination, and other issue that divide members of the campus community, as well as issues which divide the campus from the Los Angeles community. Selected to increase social and political awareness of problems and ideas fundamental to intellectual development, exercises and games nurture skills and attitudes useful in facilitating discussions between actors and audience participants. Use of techniques of sensory awareness, movement, pantomime, improvisation, and characterization.

119A. Theater for the Child Audience: Theory and Criticism. (4) Lecture/laboratory. Principles of production and performance for the child audience.

119B. Theater for the Child Audience: Performance. (4) Lecture, two hours; laboratory, four hours. Preparation: audition prior to first class meeting. Designed to provide opportunity for students to work together as an ensemble, creating through improvisation a theater presentation for a young audience. Emphasis on testing theoretical concepts through ensemble work, rehearsal, pretesting, and evaluation of an original production for possible presentation outside the classroom.

120A-120B. Acting for Camera. (2-2) Studio, six hours. Development of performance techniques for camera and interpretation of comedy and drama for television, film, and emerging technologies. Study and practice in single- and multiple-camera productions.

121. Acting Workshop. (2) Laboratory, to be arranged. Requisite: course 20. Courses 160, 163A, 163B, and 163C may be taken concurrently. Workshop which provides students with opportunity to rehearse, perform, and criticize scenes. May be repeated once for credit.

122. Makeup for the Stage. (2) Art of makeup and its relation to the production as a whole. History, aesthetics, materials, and procedures of makeup.

123. Intermediate Acting for the Stage. (4) Lecture/laboratory. Requisite: course 20. Study and practice of art of acting through perfecting of techniques and application of those techniques to acting problems.

124A. Advanced Voice. (2) Studio/laboratory, three to four hours. Requisites: courses 126A-126B-126C. Development of voice techniques for the stage, including work in relaxation, limbering, breathing, articulators, and resonators.

124B. Advanced Speech. (2) Studio/laboratory, three to four hours. Requisite: course 124A. Designed to acquaint students with International Phonetic Alphabet and its uses and to exercise students' skills in pronunciation, enunciation, and development of diction versatility.

125A. Advanced Movement. (2) Studio/laboratory, three hours. Physical awareness for the actor, concentrating on warming up the body, relaxation, control, stunts, and gymnastics.

125B. Advanced Movement and Combat. (2) Studio/laboratory, three to four hours. Requisite: course 125A. Advanced and contemporary approach to classical and modern movement for the stage actor.

126A-126B-126C. Acting, Voice, Movement III. (4-4-4) Studio, nine hours. Requisite: course 12. Study of characterization, including introduction to Shakespeare. Approach to verse, scansion, use of emollient in classic texts. Personalization within heightened reality. Further work in voice, speech, and movement.

127A-127B-127C. Advanced Acting. (2-2-2) Studio, six hours. Requisites: courses 126A-126B-126C. Comedy workshop, stand-up comedy, performance art pieces. Audition and cold reading workshop. Solving individual acting projects.

128A-128F. Acting, Voice, and Movement Workshops II. (2 each) Studio, four to six hours. Study of advanced acting technique, scene study, and development of voice and movement skills. May be repeated for a maximum of 12 units.

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 the 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 for a maximum of six units. Concurrently scheduled with course CM229.

130A. Fundamentals of Playwriting I. (4) Lecture, three hours; discussion, one hour. Required of Theater majors. Designed to stimulate students' creative faculties through preparation and completion of a one-act play. Students' critical faculties stimulated by play analysis and scene exercises in discussion section.

130B. Fundamentals of Playwriting II. (4) Lecture, three hours plus conference. Requisite: course 130A. Study in original material for the theater, its preparation and development. Designed to give further insight into critical and creating aspects of short and full-length plays and guidance in completion of one-act and full-length plays. May be repeated twice for credit.

130C. Writing for American Musical Theater. (4) Lecture/laboratory, three hours. Study of practice and techniques used in writing a libretto for musical theater: opening numbers, romance, subplots, and comedy. May be repeated once for credit.

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.

C133A-C133B-C133C. Script Development Workshops. (4-4-4) Laboratory, three hours. Guided preparation of a script for production, focusing on collaborative process between playwright and director, scene work, staged readings, casting, rehearsal, and production. Emphasis on communication, artistic growth, and professional process. Course C133A may be repeated once for credit. Concurrently scheduled with courses C433A-C433B-C433C.

134A-134B-134C. Dance and Singing for Music Theater III. (1-1-1) Studio, five hours. Requisites: courses 1A, 114A-114B-114C. Designed for Theater majors. Junior-level course providing intermediate-level instruction for music theater students' voice training, as well as dance and movement technique. Letter grading.

135A-135B-135C. Dance and Singing for Music Theater III. (1-1-1) Studio, five hours. Requisites: courses 1A, 114A-114B-114C, 134A-134B-134C. Designed for Theater majors. Senior-level course providing advanced instruction for music theater students' voice training, as well as dance and movement technique. Letter grading.

136. Advanced Acting for the Stage. (4) Lecture/laboratory. Requisite: course 123. Study and practice of art of acting through a 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.

137A-137B-137C. Continuum Study in Acting for the Stage. (4-4-4) Studio, six hours. Requisite: course 123. Technique of characterization and performance in advanced and complex acting styles. May be repeated once for credit.

138. Special Problems in Performance Techniques. (4) Lecture/laboratory. Study of complex problems in voice, movement, and acting. May be repeated twice for credit.

141A. Lighting Techniques for the Stage. (4) Lecture, three hours; laboratory, six hours. Requisite: course 10. Required of Theater majors. Intensive study of theater lighting, with emphasis on relationship of lighting instruments and control equipment to lighting design. Courses 141A, 140A, and 142A may be taken in any sequence, but not concurrently.

144. Theater Sound Techniques. (2) Lecture, two hours; laboratory, two hours. Requisites: courses 14A-14B-14C. Study of equipment and techniques utilized in recording and reproduction of sound for the theater.

145. Costume Design for the Theater. (4) Lecture/laboratory. Design of costumes for theatrical presentations. Study of use of silhouette, fabrics, color, and decoration as related to theatrical characterizations. May be repeated once for credit.

147A. Drafting. (4) Development of visual communication skills through drafting. Exploration of drafting for scenic and lighting designs. May be repeated once for credit.

147B. Rendering. (4) Introductory course in basic skills necessary for drawing and rendering for scenic, costume, and lighting design for theater, film, and television. May be repeated once for credit.

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.

150. Theater Production and Performance. (2) Studio, six hours. Requisite: course 50. Laboratory experience in various aspects of theater production, including performance in a project or production, stage management, member of a crew, or assignment as a designer or assistant on a production. May be repeated for a maximum of eight units.

151A-151B. Scenic Design. (4-4) Lecture/studio. Requisites: courses 14A-14B-14C. Introduction to principles of study and practice of the design of scenery for theater, film, and television. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of the design.

C151C. Production Design for Film and Television. (4) Lecture/studio. Study of role of art director. Production design for single- and multiple-camera production and set decoration. Concurrently scheduled with course C451C.

152A-152B. Lighting Design. (4-4) Lecture/studio. Requisites: courses 14A-14B-14C. Investigation of principles and techniques of lighting design for theater and television. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to the actor.

C152C. Lighting Design for Television. (4) Lecture/studio. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C452C.

153A-153B. Costume Design. (4-4) Lecture/studio. Requisites: courses 14A-14B-14C. **153A.** Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process and character analysis leading to visual presentation of the design. **153B.** Study of costume design for period productions, development of conceptual designs, and costume design for music theater.

C153C. Costume Design for Film and Television. (4) Lecture/studio. Requisites: courses 14A-14B-14C. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. Concurrently scheduled with course C453C.

154A-154B. Sound Design. (4-4) Lecture/studio. Requisites: courses 14A-14B-14C. **154A.** Study of recording, mixing, editing, and playback of sound effects, voice, and music in the theater. **154B.** Introduction to use of delay, equalization, and microphone placement for theater sound reinforcement. Study of creation of sound effects, control of MIDI data, and design techniques for musical theater.

C154C. Sound for Film and Television. (4) Lecture/studio. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C454C.

C155A-C155H. Graphic Representation of Design. (2 each) (Formerly numbered C155A-C155G.) Studio. Concurrently scheduled with courses C455A-C455H. Letter grading:

C155A. 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. Letter grading.

C155B. Watercolor Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of watercolor techniques as they relate to interpretation of scenic designs, including painting of brick, wood, stone, fabrics, and other surfaces. Letter grading.

C155C. Marker Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice of marker rendering techniques as a means of communication for scenic and costume designers. Letter grading.

C155D. Model Making. (2) Studio, four hours. Requisite: course 147A or 147B. Study of the 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 the model. Letter grading.

C155E. Life Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. Letter grading.

C155F. 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. Letter grading.

C155G. 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. 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 for a maximum of four units. Letter grading.

C156A. Introduction to Computer-Assisted Drafting. (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Introduction to computer drafting, drawing and editing techniques, drawing floor plans, and elevation drawings. Concurrently scheduled with course C456A.

C156B. Introduction to Computer-Assisted Design. (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Investigation of computer-assisted design techniques, including lighting designs, use of symbol libraries, and pictorial. Introduction to computer-assisted drafting. Concurrently scheduled with course C456B.

C156C. Introduction to Computer-Assisted Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer design for theater, film, and television. Investigation of three-dimensional computer drawing: wire-frame perspective drawing and photo-realistic computer rendering techniques. Concurrently scheduled with course C456C.

C157A-C157B-C157C. Costume Construction Techniques. (2-2-2) Studio, four hours. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve an authentic-appearing costume using contemporary methods. Concurrently scheduled with courses C457A-C457B-C457C.

C157A. Requisites: courses 14A-14B-14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C157B.** Requisite: course C157A. Introduction to costume drafting, construction of period undergarments. **C157C.** Requisites: courses C157A-C157B. Draping, patterning, and fitting techniques for period garments.

C158A. Scenic Design Technology. (4) Lecture/studio. 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.

C158B. Lighting Design Technology. (4) Lecture/studio. 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.

C158C. Sound Design Technology. (4) Lecture/studio. Requisites: courses 14A-14B-14C. Investigation of materials, systems, and techniques for realization of sound designs for theater, film, and television. Study of operation and performance of equipment for recording, mixing, and reproduction of theater sound. Concurrently scheduled with course C458C.

159. Design Portfolio Project. (4) Lecture/studio. Requisites: courses 14A-14B-14C. Preparation of complete designs and drawings for a production and assembly of a design portfolio and résumé. Projects prepared under guidance of a faculty adviser.

160. Fundamentals of Play Direction. (5) Lecture, two hours; laboratory, four hours. Required of theater majors. Course 121 may be taken concurrently. Basic theories of play direction and their application through preparation of scenes under rehearsal conditions.

163A-163B-163C. Directing for the Stage. (4-4-4) Lecture/studio. Requisite: course 15:

163A. Intensive development of primary directing skills and process, including text analysis and exploration of craft fundamentals as a basis for director/actor communication and effective staging. Students direct scenes from plays under laboratory conditions.

163B. 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.

163C. 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.

C163D. Directing Project for the Stage. (4) Lecture, four hours; studio, six hours. Requisites: courses 163A-163B-163C. Completion of course C163D satisfies course 180 requirement. Application of stage directing techniques in production of a short play. Students direct a one-act play. May be repeated once for credit. Concurrently scheduled with course C263D.

171A. Advanced Theater Laboratory. (1 to 4) Hours to be arranged. Creative participation as actor or stage manager in public presentation of departmental productions. May be taken for a maximum of four units.

171B. Advanced Theater Laboratory. (1 to 4) Hours to be arranged. Creative participation in realization of production elements related to public presentation of departmental productions. May be taken for a maximum of four units.

C172. Technical Theater Laboratory. (2) Hours to be arranged. Required of Theater majors. Laboratory in various aspects of theater production. Must be repeated for a maximum of eight units, but no assignment may be repeated more than once. Concurrently scheduled with courses C272 and C472.

173A. Design Assignment: Assistant Designer. (2) Studio, six hours. Requisites: courses 14A-14B-14C. Laboratory experience as an assistant designer, including participation in preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice.

173B. Production Design Assignment: Designer. (2) Studio, six hours. Requisites: courses 14A-14B-14C. Laboratory experience as a designer, including preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice.

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 a lengthy run.

174B. Project in Stage Management. (3) Studio, nine hours. Requisite: course 174A. Laboratory experience in the professional duties of assistant stage manager, including participation as an assistant stage manager in preproduction, rehearsal, and performance phases of a production. May be repeated once for credit.

174C. Project in Stage Management. (4) Studio, 12 hours. Requisite: course 174A. Laboratory experience in the professional duties of stage manager, including participation as a stage manager in preproduction, rehearsal, and performance phases of a production. Problems of unions, auditions, organization, scheduling, and responsibilities of a lengthy run. May be repeated once for credit.

175A-175D. Summer Theater Workshops. (4 or 8 each) Lecture. Participation in production and performance of full-length plays for general public. Offered in summer only. Letter grading. **175A-175B.** Practice in and observation of complete operation of a summer theater company. **175C-175D.** Specialization in technical theater.

177. Computer-Assisted Design Techniques. (4) Studio, six hours. Hands-on exploration of use of computers for design of scenery and lighting in theater, film, and television. May be taken for a maximum of eight units. Offered in summer only. Letter grading.

180. Senior Project. (4) Lecture/studio, three hours. Requisites: courses 101A-101B-101C. Preparation of a conceptual or creative project to provide a culminating experience in the production of a creative or research work.

C190A. Role of Producer in Professional Theater. (2) Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C294A.

C190B. Role of Management in Educational and Community Theater. (2) Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C294B.

191. The Touring Company. (2 to 12) Lecture, 20 hours; laboratory, 22 hours. Rehearsal and technical preparation of a theatrical work for touring and performance of that work on tour.

192. Motion Picture, Television, and Theater Internship. (2, 4, or 8) Field experience, eight, 16, or 24 hours; individual conferences, to be arranged. Limited to senior Theater majors. Internship at various studios or theaters accentuating creative contribution, organization, and work of professionals in their various specialties. May be taken for a maximum of eight units.

M193. Art Alive: Art and Performance in the Museum. (4) (Same as Honors Collegium M116.) Offered in collaboration with the Los Angeles County Museum of Art (LACMA). Interpretation of art in the collection through acting, dialogues, movement, and music. Research into history and art history and production of a creative performance piece required. P/NP or letter grading.

199. Special Studies in Theater Arts. (2 to 8) Hours to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. May be taken for a maximum of eight units.

Graduate Courses

202A. Seminar: Western Classical Theater. (4) Discussion, three hours. Designed for graduate students. Examination of theatrical production and dramatic form in the Greek and Roman periods. May be repeated twice for credit.

202B. Seminar: Medieval Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies of theatrical production and dramatic form in the Middle Ages. May be repeated twice for credit.

202C. Seminar: Renaissance and Baroque Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1485 to the early 18th century. May be repeated twice for credit.

202D. Seminar: Bourgeois and Romantic Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1700 to 1870. May be repeated twice for credit.

202E. Seminar: Modern Consciousness in Theater. (4) Discussion, three hours. Designed for graduate students. Study of prototypes of modern experience as encountered in work of Ibsen and Strindberg. May be repeated twice for credit.

202F. Seminar: Modern Realism. (4) Discussion, three hours. Designed for graduate students. Selected studies of theater's response to science and technology, politics, and revolution. May be repeated twice for credit.

202G. Seminar: Modern Theatricalism. (4) Discussion, three hours. Designed for graduate students. Selected studies in symbolism and avant-garde theater. Exploration of dream experience and private psyche, religious experience, and revitalization of myth and ritual. May be repeated twice for credit.

202M. Seminar: American Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies in development of theatrical production and dramatic writing in American theater. May be repeated twice for credit.

202P. Seminar: Traditions of African Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies of traditional theater forms such as those indigenous to Ghana, Nigeria, and other African nations and their diaspora (Haiti, Jamaica, and other areas of the Caribbean) through examination of character, structure, performance modes, and archetypes. May be repeated twice for credit.

202R. Seminar: East Asian Theater. (4) Discussion, three hours. Designed for graduate students. Selected topics in theater forms of East Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

202S. Seminar: South Asian Theater. (4) Discussion, three hours. Designed for graduate students. Selected topics in theater forms of South Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

202T. Seminar: Southeast Asian Theater. (4) Discussion, three hours. Designed for graduate students. Selected topics in theater forms of Southeast Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

203. Theater Ethics and Issues. (5) Seminar, four hours. Designed for graduate students. Investigation of a selected area of theater and drama study that explores significant issues and ethical considerations of the modern world. May be repeated four times for credit.

204. Theater Genres. (5) Seminar, four hours. Designed for graduate students. Investigation of history and literature of the theater as manifested in one or more of its major forms or genres. May be repeated four times for credit.

205A-205B-205C. Background of Theatrical Art. (4-4-4) Discussion, three hours. Designed for graduate students. Analysis of major plays, commentaries, and historical materials. S/U or letter grading. **205A.** Classical and Medieval Periods; **205B.** Renaissance, Baroque, and Rococo Periods; **205C.** Romantic, Naturalistic, and Symbolist Periods.

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 a thematic basis. May be repeated four times for credit.

207A-207B. Theater Aesthetics. (4-4) Designed for graduate students. Discussion of essential issues in aesthetics of theater and drama based on philosophy of art and theories of the theater. **207A.** Classical and Medieval Theories of Art and Theater; **207B.** Renaissance Theories of Art and Theater to the Present.

208A-208B. Dramaturgy I, II. (4-4) Lecture, three hours; laboratory, one hour. Designed for graduate students. Letter grading. **208A.** (Formerly numbered 208.) Theoretical and practical aspects of the dramatist's work in contemporary theater. **208B.** Requisite: course 208A. Continuation of study of theory and practice of dramaturgy.

208C. Practicum in Dramaturgy. (2 to 12) (Formerly numbered 495B.) Laboratory, to be arranged. Requisites: courses 208A-208B. Demonstration of competence in practice of dramaturgy through completion of approved dramaturgical assignment. May be repeated for a maximum of 12 units. Letter grading.

209. Theater Authors. (5) Designed for graduate students. Investigation of work of a theater artist from history of world theater, with special emphasis on relationship to time in which the work was generated. May be repeated four times for credit.

210. Topics in World Theater and Drama. (5) Designed for graduate students. Investigation of selected topics in world theater, drama, production, and architecture. May be repeated four times for credit.

216A-216B-216C. Theory and Criticism I, II, III. (6-6-6) Lecture, four hours; laboratory, one hour. Designed for graduate students. Studies in theory and criticism of theater, dramatic literature, and performance. Letter grading. **216A.** Through the 16th Century. **216B.** 16th through 19th Centuries. Requisite: course 216A. **216C.** 19th Century to the Present. Requisite: course 216B.

220. Graduate Forum. (1) Seminar, two hours bi-monthly or five times per term. 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.

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 the 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 for a maximum of six units. Concurrently scheduled with course CM129.

230A-230B-230C. Writing for the Contemporary Theater. (4 to 8 each) Lecture, three hours; studio, two hours. Designed for graduate students. **230A.** One-Act Play. Analysis of strategy and dramatic structure of selected contemporary short plays leading to the guided completion and critique of student-written one-act plays. **230B.** Full-Length Play. Analysis of strategy and dramatic structure of selected contemporary full-length plays leading to the guided completion and critique of a student-written full-length play. **230C.** Performance and Text. Exploration of structural strategies, political implications, and technical demands of selected contemporary American plays leading to the guided completion and critique of student work.

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.

241. Research in Technical Theater. (4) Designed for graduate students. Research in technical processes and equipment in theater.

242A-242B-242C. History of Style and Ornamentation. (4-4-4) Designed for graduate students. In-depth study of history of costume, architecture, interiors, furnishings, and their interrelationships from early Western culture through the late Gothic period. Emphasis on those periods most prolific in dramatic literature and on resources and research techniques for visual artists.

243A-243B-243C. Scenic Design. (4-4-4) 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 the design. May be repeated once for credit.

244A. Advanced Theater Laboratory. (2 or 4) Laboratory, to be arranged. Designed for graduate students. Creative participation as assistant director, stage manager, or performer in public presentation of departmental productions. May be taken for a maximum of four units.

244B. Advanced Theater Laboratory. (2 or 4) Laboratory, to be arranged. Designed for graduate students. Creative participation in realization of production elements related to public presentation of departmental productions. May be taken for a maximum of four units.

245A. Production Management. (4) Lecture, three hours. Study in production management for the theater. Examination of professional duties of production manager, including preproduction, rehearsal, and performance phases of a production. Problems of resource management, unions, organization, scheduling, and budgeting while maintaining a creative and collaborative environment.

245B. Production Management. (4) Lecture, three hours. Requisite: course 245A. Advanced study in production management for the theater, with focus on planning process of professional production manager in a seasonal and repertory environment. Problems of resource allocation, unions, organizational structure, scheduling, and budgeting to establish a creative and collaborative environment.

245C. Projects in Production Management. (4) Studio/laboratory. Requisite: course 245B. Laboratory experience in professional duties of production manager, including participation as a production manager in preproduction, rehearsal, and performance phases of a production. Problems of resource management, unions, organization, scheduling, and budgeting.

246A-246B-246C. History of Costume. (4-4-4) Lecture/studio. Designed for graduate students. Study of history of costume as a manifestation of cultural, social, economic, and political influences to provide a historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of a selected period, with study of influences of diverse cultures.

247. Collaborative Project in Design and Production. (3 to 4) Studio, four hours. Designed for graduate students. Collaborative project in design, including analysis, conceptual development, and preparation of scenic, lighting, costume, or sound designs. May be repeated once for credit.

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.

261. Directing II. (4) Lecture, four hours; studio, 30 hours. Designed for graduate students. Problems in direction of post-realist plays through medium of interpretation and laboratory scene work.

263. Production Project in Direction for the Stage. (2 to 6) Discussion, one hour; studio, 12 to 24 hours. Designed for graduate students. Direction of a dramatic work for public performance. Discussion and critique of work in progress. May be repeated for a total of no more than 12 units.

C263D. Directing Project for the Stage. (4) Lecture, four hours; studio, six hours. Requisites: courses 163A-163B-163C. Application of stage directing techniques in production of short play. Students direct a one-act play. May be repeated once for credit. Concurrently scheduled with course C163D.

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.

265. Modern Theories of Production. (4) Examination of modern theories of production from emergence of the director in the 19th century to the present. Investigation of different responses to problems of creating a vital theatrical event in context of ongoing evolution of theater as an art form. Examination of contribution of significant directors and movements; relation between theater and other forms of representation.

266. Theatrical Conceptualization. (4) 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.

C272. Production and Performance Laboratory. (2) Lecture, three hours; laboratory, to be arranged. Designed for graduate students. Credit for creative production assignments required of all M.A. students during first three terms in residence. May be repeated twice for credit. Concurrently scheduled with courses C172 and C472.

290A. Role of Management in Artistic Decision Making in the Theater. (4) Discussion, four hours. Descriptive study of criteria for decision making in artistic institutions, including role of the institution in society, economic environment of the arts, and artistic value systems of arts organizations. S/U or letter grading.

290B. Programming and Planning Policies in the Theater. (4) Analysis of social, artistic, and economic roles of the arts as reflected in programming policy. Examination of social goals pursued in establishing relationships between the arts and their environment.

C294A. Artistic Control of Theatrical Production by Professional Producer. (2) Designed for graduate students. Study of structure governing economic and artistic decision-making processes in professional theater of America and historical development of involvement of producer in artistic process. Concurrently scheduled with course C190A. Additional research and writing required of graduate students.

C294B. Organization and Operation of Community Theater. (2) Designed for graduate students. Study of artistic, social, and economic criteria in administration of educational and community theater, with research in history of current practices in operations, administration, and organization. Concurrently scheduled with course C190B.

298A-298B. Special Studies in Theater Arts. (2 to 4 each) Lecture/discussion. Designed for graduate students. Seminar study of problems in theater arts, organized on topic basis. May be repeated once for credit.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

420A-420B-420C. Advanced Acting I. (4 to 8-4-4) Studio, six to 18 hours:

420A. Development of an internal technique, beginning with an autodrama which is a dramatization of one's personal history. Scene work follows, with emphasis on off-stage preparations, improvisations capturing the circumstances, life of the character, and intentions of the scene.

420B. Scene work, usually from 20 to 30 minutes in length. Continuation of work on off-stage preparation, with further development of how the actor goes about doing research and fieldwork on the character being played.

420C. Development of an external technique through comedy and of skits, improvisation, physical humor, delivery of a line, rhythm, timing, and public cabaret. Fusion of the internal; use of action and objective with the external.

421A-421B-421C. Advanced Acting II. (4 or 8 each) Studio/laboratory, six to 18 hours. **421A.** Extending the idea of autobiography and using it as art. The actor as performance artist. Playing characters quite removed from oneself. Using language. Using Shakespeare and oneself to play him. **421B.** Continued character behavior study through language and movement. Further work on actions, objectives, and researching the role. **421C.** Comedy workshop. Exploration of craft of comedy and development of cabaret pieces.

422. Advanced Acting for Theater, Film, and Television. (8 to 12) Studio/laboratory. Intensive performance experience. May be repeated for a maximum of 24 units. S/U grading.

424A-424B-424C. Advanced Voice and Speech I. (2 or 4 each) Studio/laboratory, three to six hours. Development of voice and speech techniques for the stage, including those of relaxation, breathing, resonance, and development of speaking voice. Speech training uses International Phonetic Alphabet to train students in standard American speech. Text work in poetry and prose.

424D-424E-424F. Advanced Voice and Speech II. (2 or 4 each) Studio/laboratory, three to six hours. Advanced voice problems. Extension of first-year work, with increased demands on voice. Range, resonance, and breathing capacity extension. Articulation and phonetic alphabet. Text work in classical verse.

425A-425B-425C. Advanced Movement I. (2 or 4 each) Studio/laboratory, three to six hours. Discovery of body's unique language through exercises designed to explore and free the total instrument. Development of a flexible actor with range, expression, and confidence physically. Awakening of the imagination while exploring the worlds of ritual, animal, conceptual, and modern dance movements.

425D-425E-425F. Advanced Movement II. (2 or 4 each) Studio/laboratory, three to six hours. Presentation of a 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 a variety of acrobatic and dance disciplines, including ballet, ballroom, period dance, and circus techniques.

429. Performance Workshop. (2) Studio, four hours. Limited to graduate students not enrolled in M.F.A. acting program. Exercises in performance techniques, including autodrama and scene study. Development of performance skills through scene study, use of self, and personalization. Examination of characterization exercises and their application to scenes.

430A-430B-430C. Advanced Studies in Playwriting. (4 to 8 each) Lecture, three hours. Limited to M.F.A. playwriting program students. Guided completion of full-length scripts for the stage.

431. Special Topics in Playwriting. (4) Discussion, three hours. Designed for M.F.A. 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.

C433A-C433B-C433C. Script Development Workshops. (4-4-4) Laboratory, three hours. Designed for graduate students. Guided preparation of a script for production, focusing on collaborative process between playwright and director, scene work, staged readings, casting, rehearsal, and production. Emphasis on communication, artistic growth, and professional process. Course C433A may be repeated once for credit. Concurrently scheduled with courses C133A-C133B-C133C.

435AF-435AW-435AS. Problems in Advanced Writing for the Stage. (0-0-2) Limited to M.F.A. candidates. Review discussion and critique of playwriting projects. May be repeated for a maximum of six units. In Progress and S/U grading.

441A-441B-441C. Lighting Design. (4-4-4) Lecture/studio:

441A. Study and practice in lighting the actor, emphasizing textual and character analysis from lighting designer's perspective, conceptual development with the director, effect of light on dynamics of staging, use of color in light, and relationship of lighting designer to the actor. May be repeated once for credit.

441B. Study of use of light and color to define space, effect of light on scenery and costumes, lighting for arena/thrust theaters, multiscenic productions, lighting patterns, and moving scenery. May be repeated once for credit.

441C. 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.

441D. Scenic Projection and Media Techniques. (4) Lecture/laboratory. Designed for graduate students. Advanced study and practice in scenic projection and media techniques, with emphasis on analysis, design, and execution of theatrical projection and photographic technique for the stage.

442A-442B-442C. Costume Design. (4-4-4) Lecture/studio. 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 the design. Study of costume design for theatrical productions, ballet, opera, and musical theater. May be repeated once for credit.

443. Problems in Design. (2 or 4) Lecture/laboratory, four hours (additional hours as required). Study and practice in design techniques for theater. May be repeated for a maximum of 12 units.

444A-444B-444C. Sound Design. (4-4-4) Lecture/studio:

444A. Study of sound and acoustics as they relate to performance environments, techniques associated with recording, mixing, processing, automation, and reproduction of dialogue, effects, and music tracks for theater sound design. May be repeated once for credit.

444B. Advanced study and practice in preparation and recording of theater sound designs, with emphasis on analysis of script and score, conceptual development of the design, and multitrack recording techniques to realize the design. May be repeated once for credit.

444C. Study and practice in processing and mixing of live and recorded sound; mix-down of multitrack recordings; preparation of sound tracks and sound reinforcement in the theater. Study of creation of sound effects, control of MIDI data, and design techniques for music theater. May be repeated once for credit.

C451C. Production Design for Film and Television. (4) Lecture/studio. Study of role of art director. Production design for single- and multiple-camera production and set decoration. Concurrently scheduled with course C151C.

C452C. Lighting Design for Television. (4) Lecture/studio. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C152C.

C453C. Costume Design for Film and Television. (4) Lecture/studio. Requisites: courses 14A-14B-14C. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. Concurrently scheduled with course C153C.

C454C. Sound for Film and Television. (4) Lecture/studio. 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 a higher level of proficiency and skill.

C455A-C455H. Graphic Representation of Design. (2 each) (Formerly numbered C455A-C455G.) Studio. Concurrently scheduled with courses C155A-C155H. Letter grading:

C455A. 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 a higher level of proficiency and skill. Letter grading.

C455B. Watercolor Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of watercolor techniques as they relate to interpretation of scenic designs, including painting of brick, wood, stone, fabrics, and other surfaces. Graduate students expected to produce drawings demonstrating a higher level of proficiency and skill. Letter grading.

C455C. Marker Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice of marker rendering techniques as a means of communication for scenic and costume designers. Letter grading.

C455D. Model Making. (2) Studio, four hours. Requisite: course 147A or 147B. Study of the 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 the model. Graduate students expected to produce models demonstrating a higher level of proficiency and skill. Letter grading.

C455E. Life Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. Letter grading.

C455F. 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. Letter grading.

C455G. 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. 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 for a maximum of four units. Letter grading.

C456A. Introduction to Computer-Assisted Drafting. (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Introduction to computer drafting, drawing and editing techniques, drawing floor plans, and elevation drawings. Concurrently scheduled with course C156A.

C456B. Introduction to Computer-Assisted Design. (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer-assisted design for theater, film, and television. Investigation of computer-assisted design techniques, including lighting designs, use of symbol libraries, and pictorial. Introduction to computer-assisted drafting. Concurrently scheduled with course C156B.

C456C. Introduction to Computer-Assisted Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of computer design for theater, film, and television. Investigation of three-dimensional computer drawing: wire-frame perspective drawing and photo-realistic computer rendering techniques. Concurrently scheduled with course C156C.

C457A-C457B-C457C. Costume Construction Techniques. (2-2-2) Studio, four hours. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve an authentic-appearing costume using contemporary methods. Concurrently scheduled with courses C157A-C157B-C157C.

C457A. Requisites: courses 14A-14B-14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C457B.** Requisite: course C457A. Introduction to costume drafting, construction of period undergarments. **C457C.** Requisites: courses C457A-C457B. Draping, patterning, and fitting techniques for period garments.

C458A. Scenic Design Technology. (4) Lecture/studio. 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.

C458B. Lighting Design Technology. (4) Lecture/studio. 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.

C458C. Sound Design Technology. (4) Lecture/studio. Requisites: courses 14A-14B-14C. Investigation of materials, systems, and techniques for realization of sound designs for theater, film, and television. Study of operation and performance of equipment for recording, mixing, and reproduction of theater sound. Concurrently scheduled with course C158C.

459A-459B. Directing for Theater, Film, and Television. (4-4) 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.

460AF-460AW-460AS. Contemporary Issues in Direction. (1-1-1) 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 a maximum of four units.

460B-460C. Problems in Advanced Direction for the Stage. (4-4) Lecture, to be arranged. Limited to M.F.A. candidates. Discussion and critique of work in progress. **460B.** Preparation and presentation of a published play under rehearsal conditions. **460C.** Preparation and presentation of a full-length original play under rehearsal conditions.

462. Production Project in Direction for the Stage. (4 or 8) Lecture, to be arranged. Limited to M.F.A. candidates. Preparation and presentation of an original play under minimal production conditions. Discussion and critique of work in progress.

463. Production Project in Direction for the Stage (8 or 12 units). Lecture, to be arranged. Limited to M.F.A. candidates. Preparation and presentation of a play under fully produced theater conditions.

C472. Production and Performance Laboratory. (2 to 8) Laboratory, to be arranged. Limited to M.F.A. candidates. Credit for creative production projects required of all M.F.A. students. May be repeated three times for a maximum of 16 units. Concurrently scheduled with courses C172 and C272.

474. Projects in Theater Design. (2 or 4) Discussion, three hours; laboratory, 12 hours to be arranged. Designed for graduate students. Study and practice in preparation and performance of dramatic works for public performances as a contributing artistic member of a departmental production. Creative responsibilities include designer, technical supervisor, production manager, choreographer, or dramaturge. May be repeated for a maximum of 16 units.

495A-495B-495C. Practicum and Practice in Teaching Theater. (2-2-2) (Formerly numbered 495A, 496.) Seminar, to be arranged; discussion, two hours. Limited to Ph.D. students. Study and practice of teaching theater at university level. Orientation and preparation of graduate (Ph.D.) students who have responsibility to assist in teaching undergraduate courses in department. Discussion of problems common to the teaching experience. Letter grading.

498. Professional Internship in Theater, Film, and Television. (4, 8, or 12) Full- or part-time at a studio or on a professional project. Designed for advanced M.F.A. 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.

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 Individual Studies: Research. (2 to 12) Hours to be arranged. Designed for graduate students. May be repeated with consent of instructor.

596B. Directed Individual Studies: Writing. (2 to 12) Hours to be arranged. Designed for graduate students. May be repeated with consent of instructor.

596C. Directed Individual Studies: Directing. (2 to 12) Hours to be arranged. Designed for graduate students. May be repeated with consent of instructor.

596D. Directed Individual Studies: Design. (2 to 12) Hours to be arranged. Designed for graduate students. May be repeated with consent of instructor.

596E. Directed Individual Studies: Acting. (2 to 12) Hours to be arranged. Designed for graduate students. May be repeated with consent of instructor.

596F. Directed Individual Studies: Production. (2 to 12) Hours to be arranged. Designed for graduate students. May be repeated with consent of instructor.

597. Preparation for Ph.D. Qualifying Examinations in Theater Arts. (2 to 8) May be repeated for a maximum of 12 units.

598. M.A. Thesis in Theater Arts. (2 to 8) Preparation: advancement to M.A. candidacy. Research and writing for M.A. thesis. May be repeated for a maximum of 12 units.

599. Ph.D. Dissertation in Theater Arts. (2 to 8) Preparation: advancement to Ph.D. candidacy. Research and writing for Ph.D. dissertation. May be repeated for a maximum of 12 units.

Related Courses

Classics

143. Ancient Drama

Comparative Literature

1A, 1B, 1C. World Literature

English

10A, 10B, 10C. English Literature

90. Shakespeare

112. Children's Literature

135. Creative Writing: Drama

167. Drama, 1842 to 1945

Film and Television

126. Acting for Film and Television

177. Film and Television Acting Workshop

Italian

122. Italian Theater

Music History

135A-135B-135C. History of Opera.

World Arts and Cultures

141. Lighting Design for Dance Theater.

144. Costume and Scenic Design Concepts for Dance Theater

URBAN PLANNING

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Donald Shoup, Ph.D., *Chair*

Professors

Lucie C. Cheng, Ph.D.

J. Eugene Grigsby III, Ph.D.

Susanna B. Hecht, Ph.D.

Allan D. Heskin, Ph.D., LL.B.

Shirley Hune, Ph.D.

Jacqueline Leavitt, Ph.D.

Robin Liggett, Ph.D.

James E. Lubben, D.S.W.

Barbara J. Nelson, Ph.D.

Paul Ong, Ph.D.

Donald Shoup, Ph.D.

Edward W. Soja, Ph.D.

Michael Storper, Ph.D.

Professors Emeriti

Leland S. Burns, Ph.D.

John Friedmann, Ph.D.

Peter Marris, B.A.

Associate Professors

Dana Cuff, Ph.D.

Leobardo Estrada, Ph.D.

Anastasia Loukaitou-Sideris, Ph.D.

Assistant Professors

Evelyn Blumenberg, Ph.D.

Raul Hinojosa-Ojeda, Ph.D.
Michael Stoll, Ph.D.
Brian Taylor, Ph.D.
Abel Valenzuela, Jr., Ph.D.

Lecturers

Stephen Commins, Ph.D.
Carol Goldstein, B.A.
Gilda Haas, M.A.
Neal Richman, Ph.D.
Goetz Wolff, M.Phil.

Adjunct Professor

Karen Hill Scott, Ph.D.

Scope and Objectives

The professional urban planner works on the creation and management of the urban environment, including its physical, economic, and social elements. Housing, transportation, air and water quality, the preservation of historic communities, and the development of community-level economic and employment programs are some of the tasks undertaken by recent graduates of the UCLA Department of Urban Planning. Graduates have taken positions in local, state, and national governments, and increasingly with private companies whose products and services affect the urban environment. While most UCLA graduates find positions in the U.S., the program offers the opportunity to specialize in development planning abroad, including rural development, and many graduates have found positions in Latin America, Africa, and Asia.

The program offers a two-year Master of Arts degree and a Ph.D. degree. Concurrent degree programs allow students to combine study for an M.A. in Urban Planning with work toward an M.B.A. in the John E. Anderson Graduate School of Management, a J.D. in the School of Law, an M.Arch. I in the Department of Architecture and Urban Design, or an M.A. in Latin American Studies.

The department takes pride in its collegial atmosphere. It features a lively mix of students from diverse academic backgrounds, drawn from many foreign countries and from every avenue of American life. It includes many members of racial and ethnic minority groups, and more than half the students are women. A number of student organizations provide an interesting program of extracurricular activities.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of Urban Planning offers the Master of Arts (M.A.) degree in Urban Planning and participates in concurrent degree programs.

Master of Arts

Admission

The Department of Urban Planning admits students in the Fall Quarter only, and the application process should begin a year in advance of the quarter for which applicants are applying. Applicants who are admitted but do not enroll are not guaranteed admission at a later date.

Prospective applicants may obtain a detailed program statement and Graduate Division application by writing to the Department of Urban Planning, School of Public Policy and Social Research, UCLA, 3250 Public Policy Building, Box 951656, Los Angeles, CA 90095-1656.

A statement of purpose, letters of recommendation, grade-point averages, and relevant experience are all considered in the review process for admission. Applicants must submit transcripts from each college attended and should have a minimum grade-point average of 3.0 or B for their junior and senior years. Applicants are also encouraged to submit Graduate Record Examination (GRE) scores. The Test of English as a Foreign Language (TOEFL) is required for students whose native language is not English, unless at least two years of university-level coursework at an English-language institution have been completed. A score of 600 on the TOEFL is expected, and applicants with a score below 550 are not considered for admission. For master's applicants, work samples such as reports, research papers, and slides are optional. No more than two pieces of work should be submitted; samples written in a foreign language are not considered. Work samples are returned only on request. Applicants in the U.S. must enclose a self-addressed, stamped envelope.

J.D./M.A. Urban Planning

The School of Law and the Department of Urban Planning offer a concurrent plan of study providing an integrated curriculum for those planning to specialize in the legal aspects of urban problems. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in law offers insight into the institutional causes and possibilities for treatment of these problems. Students pursue studies in both areas and receive both the J.D. and M.A. degrees at the end of four years.

In order to be considered for the concurrent degree program, applicants must apply and be admitted to both the School of Law and the Department of Urban Planning.

For additional information, contact the graduate adviser in the Department of Urban Planning.

M.B.A./M.A. Urban Planning

The M.B.A./M.A. program is a three-year concurrent degree program jointly sponsored by the John E. Anderson Graduate School of Management and the Department of Urban Planning. The program is designed for individuals who seek careers which draw on general and specialized skills in urban planning and management. By providing knowledge of the workings of both the private and public sectors, the program enables individuals who have acquired these skills to move easily between careers in private industry and public service.

Students interested in the M.B.A./M.A. program should contact the M.B.A. Program Office, John E. Anderson Graduate School of Management, regarding admission requirements and application procedures.

Further details may be obtained from the graduate adviser in the Department of Urban Planning.

M.A. Latin American Studies/M.A. Urban Planning

The Latin American Studies Program and the Department of Urban Planning offer a two and one-half to three-year concurrent degree program leading to an M.A. degree in each program. Issues related to migration and settlement, comparative urbanization, human resources development and distribution, and rural economics are all of direct concern to planners and other policymakers working in Latin America. The program provides an integrated curriculum through which students can develop professional knowledge and skills while receiving advanced area studies and language training.

Applicants apply through the Department of Urban Planning. Graduate Record Examinations (GRE) scores are required.

Further details may be obtained from the graduate adviser in the Department of Urban Planning.

M.Arch. I/M.A. Urban Planning

The Architecture and Urban Design Department in the School of the Arts and Architecture and the Department of Urban Planning in the School of Public Policy and Social Research offer a concurrent plan of study providing an integrated curriculum for architects interested in specializing in social, economic, and environmental policy issues and for urban planners interested in integrating architecture and urban design into policy and planning practice. Education in planning offers an overview of theories and methods that permit identification and treatment of urban problems; education in architecture stresses physical, aesthetic, and technical issues in the design of buildings and building complexes. In the program, students pursue studies in both schools/departments and receives both the Master of Architecture degree (M.Arch. I) and the M.A. in Urban Planning at the end of four years.

Students interested in the concurrent degree program, must apply and be admitted to the M.Arch. I Program in the Department of Architecture and Urban Design, and the M.A. Program in the Department of Urban Planning.

For additional information, contact the graduate adviser in the Department of Urban Planning or the graduate adviser in the Department of Architecture and Urban Design.

Areas of Study

Students choose an area of concentration by the end of the first quarter in the program. Areas of concentration are fields in which planners characteristically become engaged, professionally or through research. They are not meant to be mutually exclusive.

Regional and International Development. The concentration concerns the interrelated aspects of area development in both developed and developing countries. The perspective on questions of area development is that of political economy and spatial analysis. Industrialization, urbanization, and rural development are major focal points of interest. Within this area, students are expected to choose an emphasis on either developing or advanced economies.

Social Policy and Analysis. The analysis of social services includes questions of production and distribution — how efficiently are services provided, who pays, and who benefits? These questions lead to more fundamental ones about the functions of planning and social policy. In the broadest sense, social policy comprises the whole context of social actions which together determine the distribution of goods, services, and opportunities between rich and poor, men and women, young and old, and people of different ethnic and social origins. Students may specialize in one of four areas: transportation, housing and real estate development, social services and social policy, or information decision systems.

Environmental Analysis and Policy. The natural environment is both the context within which all human activities take place and a social product of those activities. Environmental planning begins as an attempt to mitigate often unforeseen consequences of economic growth and expansion where these seem to threaten social well-being and continuing political consensus. Courses are designed to introduce students to the linkages between environmental problems and social processes.

Community Development and the Built Environment. This area of concentration represents a blending of urban planning and architecture. It deals with the social and economic forces affecting the three-dimensional built environment on an urban scale. Within this area, students can choose one of two specializations: community planning and development or physical development and public policy.

Additional Areas of Concentration. In special circumstances, students may devise their own area in consultation with appropriate faculty members. Final approval of the proposed addi-

tional area of concentration must be obtained from the department chair. Further details may be obtained from the graduate adviser.

Course Requirements

Students must complete a minimum of 72 units (18 courses). Students usually take 12 units per quarter, completing the program in two years.

A minimum of 13 courses must be graduate courses (all 200-series courses except for up to four courses or 16 units of 500-series courses) in urban planning or a related field. One 496 course (four units) may be applied toward the degree. Eight units of course 496 may be applied as electives.

Core Course Requirements. The core areas comprise knowledge common to all areas of planning, regardless of one's specific focus. Six core courses are required: Urban Planning 207, 211 (or a course from the School of Law), 220A (waiver by examination), 220B, 222, and one course on urbanization covering urban problems and processes chosen from a menu of options. Course 222 may be waived with the instructor's consent if the students can demonstrate mastery of the material through previous coursework with similar concepts, instructional materials, and content. Students are expected to present the relevant course syllabi. Qualified students with background in planning history may be allowed to waive course 222 and to enroll in 210B with permission of the instructor. Urban Planning 207, 220A, and 222, which are offered in the Fall Quarter, include required workshops on writing, verbal, and graphic presentation. Students who can demonstrate mastery of graphic presentation skills through prior background in design and/or graphic communications may waive the graphics workshop by portfolio review. The writing workshop may be waived by a written examination which is administered by the writing instructor at the beginning of Fall Quarter. Students must demonstrate sufficient writing skills and mastery of professional writing techniques.

On entering the program, students must pass proficiency examinations in basic mathematics and microeconomics before enrolling in Urban Planning 220A and 207 respectively. Copies of sample examinations are mailed to applicants accepted into the program. An undergraduate course in college algebra or precalculus should provide suitable background to pass the basic mathematics examination. An undergraduate course in microeconomics should be sufficient preparation for the microeconomics examination. Students are strongly encouraged to prepare for the examinations before beginning the program so that they can take Urban Planning 207 and 220A during their first year of study. If students do not pass either or both examinations, they are advised to take Mathematics 1 and/or Economics 1, 11, or 100 at UCLA during their first year of study. (These courses do not count toward the master's degree.) Proficiency examinations need to be passed at the start of the second year in order to enroll in re-

quired courses 220A and/or 207, which are only offered in the Fall Quarter.

Area Course Requirement. Students must choose an area of concentration and select at least five courses, two of which are generally specified, from a list of courses prepared for that area. One of the required core courses on urbanization may be used to fulfill an area of concentration requirement.

Students may seek waivers for requirements that have been met through coursework prior to entering the M.A. program.

Comprehensive Examination Plan

Students must select this option by the deadline set by the department. Once a deadline has passed, students are limited to options with subsequent deadlines.

Plan A (Client-Oriented Project). A client-oriented project is recommended if students are more interested in practical application of what they have learned than in scholarly research. The time span of the final project approximates that of the thesis. Academic credit for project involvement is given through Urban Planning 205 and through course 597. Guidance of the project rests with a committee of at least one faculty committee chair, one consulting faculty, and a representative of the client. The project proposal should be ready for committee review by the end of the seventh week of Fall Quarter of the second year of study. The project must be successfully completed when it is approved by the faculty committee and delivered to the client.

As an alternative under Plan A, students may take Urban Planning 217A-217B for eight units credit, offered each year during the Winter and Spring Quarters, to fulfill the comprehensive examination requirement. The faculty members in charge of this course sequence, one supervising, one consulting, plus a representative of the client, make up the comprehensive examination committee. Students must notify the graduate counselor that they have selected this option and (in the event that more than one section is offered), they must indicate in which section of Urban Planning 217A-217B they are to enroll, by the end of the Fall Quarter of the second year of study.

Plan B (Two-Week Examination). Examinations for all areas of concentration are normally offered during the break between Winter and Spring Quarters. Each area-of-concentration faculty coordinator appoints a committee of three faculty members to cover the examination. Students may be requested to do additional work on the examination after it has been reviewed by the committee. No course credit is received for the two-week examination. Students who choose this option must notify the graduate counselor by the end of the Fall Quarter of the second year of study.

Client and comprehensive projects and two-week examinations must receive a grade of B to be of passing quality. To receive an S grade for a project graded on an S/U basis, the work

must be at the level of B. The comprehensive letter-graded project (Urban Planning 217A-217B) must receive a B average over the two terms to be of passing quality.

Thesis Plan

Students must select this option by the deadline set by the department. Once a deadline has passed, students are limited to options with subsequent deadlines.

The thesis is intended to provide the opportunity for independent scholarly research and should be the length and quality of a publishable journal article. In order to meet graduation deadlines, students must begin thesis work no later than the beginning of Fall Quarter of the second year and present a preliminary proposal to their thesis committee chair by the end of the second week of classes. The thesis committee consists of three ladder faculty and must be selected by the end of Fall Quarter of the second year. Students enroll in Urban Planning 205 for four units of academic credit for thesis preparation, and in four units of course 598.

The thesis project (course 598) must receive a grade of S to be of passing quality.

Doctoral Degree

Admission

The Department of Urban Planning admits students to the program leading to the Ph.D. in Urban Planning in the Fall Quarter only, and the application process should begin a year in advance of the quarter for which applicants are applying. Applicants who are admitted but do not enroll are not guaranteed admission at a later date.

Prospective applicants may obtain a detailed program statement and Graduate Division application by writing to the department.

A statement of purpose, letters of recommendation, grade-point averages, and relevant experience are all considered in the review process for admission. Applicants must submit transcripts from each college attended and should have a minimum grade-point average of 3.0 or B for their junior and senior years. Applicants are required to submit Graduate Record Examination (GRE) scores. The Test of English as a Foreign Language (TOEFL) is required for students whose native language is not English, unless at least two years of university-level coursework at an English-language institution have been completed. A score of 600 on the TOEFL is expected, and applicants with a score below 550 are not considered for admission. Work samples, preferably research papers and/or a copy of the master's thesis, are required of doctoral applicants. No more than two pieces of work should be submitted; samples written in a foreign language are not considered. Work samples are returned only on request. Applicants in the U.S. must enclose a self-addressed, stamped envelope.

Students admitted to the Ph.D. program must have a master's degree in planning or a closely related field. Students in the M.A. degree program in Urban Planning at UCLA should inform the graduate adviser before December 15 of their second year if they wish to be considered for the Ph.D. program for the following Fall Quarter.

A minimum grade-point average of 3.5 is required in all graduate work completed for consideration for the Ph.D. program. Employment experience in planning or a closely related field is strongly recommended.

Applicants are required to submit two statements of purpose. The first should address how past experiences have shaped the applicant's interest in planning, the applicant's personal career plans, and how a Ph.D. in planning contributes to those plans. The second statement should describe the applicant's intended area of concentration, specific areas of interest in planning, including research interests, and current plans for the dissertation.

Before acceptance into the program, two faculty members must agree to assume responsibility for guiding students in their studies.

Major Fields or Subdisciplines

See Areas of Study under the Master of Arts section.

Course Requirements

A high level of competence in a major field and in planning theory and history, as measured by coursework and doctoral examinations, is required. In addition, students must satisfy a requirement in research methods outside of coursework and are required to take Urban Planning 208 to aid in the preparation of study for the major field examination. Also highly recommended in helping to develop a dissertation research and preparing for the Oral Qualifying Examination is Urban Planning 229.

Planning Theory and History Requirement. Planning theory is concerned with the ways that philosophers and social scientists have examined the question of how scientific and technical knowledge is to be joined to practice and action, with particular emphasis on the field of urban and regional planning. Planning history looks at how planning has evolved in the U.S., Western Europe, and elsewhere in the world as a form of institutionalized practice. Students are expected to acquire an understanding of both and become familiar with the several styles and forms of planning and the major debates in the field.

Two advanced courses are required of all doctoral students during the first year and must be passed with grades of A– or better: Urban Planning 210B and 210C. Students may waive the two courses by taking a six-hour comprehensive written examination. Students who do not pass the examination must either take the courses the next time they are offered or repeat the examination (once only) after a period of no less than six months.

Students who receive less than an A– in the courses may either repeat the courses once in the following year or sit for a waiver examination once in the failed subjects (history in the case of course 210B; theory in the case of 210C).

Major Field. The major field is defined as a subject in which a student is prepared to teach two or three courses and conduct advanced research. The area should be generally recognized by academics in other planning schools and should be substantially broader than a dissertation topic.

To prepare for an individualized major field examination which tests competence in an area of planned study, students must submit for approval a plan of study to their advisory committee and to the coordinator of doctoral studies, preferably no later than the beginning of Spring Quarter of the first year. The plan must include (1) a one- to two-page description of the major field and its subspecializations; (2) a short indicative bibliography; (3) a list of suggested courses and research papers through which the student proposes to prepare for the examination; (4) a list of three courses to satisfy the research methods and outside field requirements; (5) a timetable indicating expected completion dates for all requirements and examinations; and (6) a brief statement identifying a possible dissertation research topic. Once approved, the plan is filed with the graduate adviser. The normal time for completion of the major field requirement is two academic years. The actual timing of the examination is set by agreement between the student and the advisory committee. Students may submit revised plans when necessary after consultation with their advisers and the coordinator of doctoral studies.

Research Methods Requirement. To fulfill the research methods requirement, students must complete a sequence of three methods courses beyond the introductory level with grades of B or better. All doctoral students must first demonstrate competence in statistical methods at the master's level (Urban Planning 220B or equivalent) either by completing Urban Planning 220B with a grade of B+ or better or by submitting a waiver petition with appropriate documentation.

In addition, as part of their plan of study, all students must take a preapproved set of three advanced courses in research methods. These courses, which students should begin taking in the first year in the Ph.D. program, must be closely related to the major field and must be completed with grades of B+ or better. A list of recommended courses is included in the Ph.D. handbook. Students may waive a portion of this requirement on the basis of prior work by submitting a petition with the appropriate documentation to their committee and the coordinator of graduate studies.

Outside Field Requirement. As with methods, the outside field requirement should be complementary with both the major field and with

the preparation of a detailed dissertation research proposal. Three courses are required and must be completed with grades of B+ or better. Students are encouraged to take these courses outside the Department of Urban Planning, but with approval from the advisory committee; courses in urban planning that are outside the major field can be included.

Written and Oral Qualifying Examinations

For details on the written qualifying examinations, see planning theory and history requirement and major field in the Course Requirements section above.

After successful completion of the planning theory and history, major field, and research methods requirements, students may nominate their doctoral committee. The committee (see graduate adviser for details) consists of four members, three of whom may be chosen from the advisory committee and one of whom must come from outside of the department.

The doctoral committee administers the University Oral Qualifying Examination. At this examination the students defend the dissertation proposal.

The University Oral Qualifying Examination should be taken by the end of the third year of doctoral study.

Urban Planning

Lower Division Course

88. Lower Division Seminar: Special Topics in Urban Planning. (4) Seminar, three hours; outside study, nine hours. Preparation: satisfaction of Subject A requirement. Variable topics seminar which examines specific issues or problems and ways that professionals in urban planning approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Courses

CM128. Global Environment and Development: Problems and Issues. (4) (Same as Geography M128.) Lecture, three hours; discussion, one hour. Prerequisite: Geography 5. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and the environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Examination of emergent local and regional coalitions for self-reliance and sustainable development. Case studies from Africa, Latin America, Asia, and the U.S. Concurrently scheduled with course C252. P/NP or letter grading.

M149. Transportation Geography. (4) (Same as Geography M149.) Study of geographical aspects of transportation, focusing on characteristics and functions of the various modes and on complexities of intra-urban transport.

C184. Looking at Los Angeles. (4) Discussion, three hours. Introduction to physical form and history of Los Angeles, with emphasis on visual observation of the city as a skill for architects and planners. Field trips throughout the city. Concurrently scheduled with course C284.

187. Planning and Designing Our Cities. (4) Introduction to urban planning and urban design, with emphasis on methods and tools used in practice. Overview of planning field; physical planning for redevelopment, for projects in expanding areas, and for new towns. Lectures (with illustrated examples), field visits, and presentation of students' own projects create framework for expanding understanding of urban planning and design process.

CM189. Environmentalism: Past, Present, and Future. (4 to 6) (Same as Geography M115.) Discussion, three hours; optional field study, five to 10 hours. Exploration of history, politics, and theories of environmental movements, dynamics of race, class, and gender in relation to environmental agendas, and potential role of environmentalism in reshaping our society. Readings, discussion, and research papers. Offered annually as a graduate research seminar and biannually as an undergraduate upper division lecture and field studies program. Concurrently scheduled with course C265. P/NP or letter grading.

M190. Human Environment: Introduction to Architecture and Urban Planning. (4) (Same as Architecture and Urban Design M190.) Lecture, three hours; outside study, nine hours. Kinds of problems that arise in creating and maintaining an environment for urban activities, and approaches and methods of architecture and urban planning in helping to cope with such problems. Complexities involved in giving expression to human needs and desires in provision of shelters and movement systems, to possibilities and limitations of technology and building forms, and to issues involved in relating the human-made to the natural environment. Students encouraged to comprehend major urban issues both as citizens and as potential technical experts.

191. Introduction to Cities and Planning. (4) Survey of urban history and evolution in the 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. P/NP or letter grading.

192. Urban Policy and Planning. (4) 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.

193. Special Topics in Urban Policy and Research. (4) Lecture, three hours. Examination of a 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.

M194. Women and the City. (4) (Same as Women's Studies M194.) Lecture, three hours. 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.

197. Planning for Minority Communities. (4) Lecture, three hours. Introduction to inner-city policy issues on three separate levels: (1) each student develops a comprehensive inner-city urban program using materials from Alternatives Inner-City Future Exercise, (2) each student is expected to identify value assumptions and theories of social justice implicit or explicit in alternative intervention programs, and (3) each student is expected to participate in class discussions that emphasize minority issues which affect implementation.

199. Special Studies. (2 to 8) Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit.

Graduate Courses

M202A. Public Control of Land Development. (3 to 6) (Same as Law M286.) Lecture, three hours. Analysis of legal and constitutional constraints on land-use planning and development; administrative and environmental regulatory processes, including relationship between law and planning, formulating land-use legislation, zoning, subdivision controls, eminent domain, taxation, urban development, environmental law, and negotiation. Theory and doctrine applied to case studies; research project/paper and/or examination required.

M202B. Governance: State, Regional, and Local. (3 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.

M202C. Seminar: Urban Affairs. (3 to 6) (Same as Law M526.) Seminar, two 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.

205. Seminar: Master's Thesis/Comprehensive Examination. (4) Discussion, three hours. Designed for second-year M.A. students. Preparation for student thesis research and client projects. Through discussion of each other's work, participants learn how to design and implement a research/client project. Administrative issues and common implementation problems. S/U grading.

206A. Urban Data Analysis: Introduction to Geographic Information Systems. (4) Lecture, three hours; laboratory, one hour. Preparation: one graduate-level statistics course, familiarity with one of the packaged statistics programs. 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 a planning problem. Letter grading.

206B. Urban Data Analysis: Planning Models. (4) Lecture, three hours; laboratory, one hour. Prerequisite: course 206A. Advanced course in urban data analysis which builds on course 206A. Examination of relationship between demographic and other socioeconomic processes, with emphasis on planning models. Topics include internal and international migration, crime analysis, transportation demand, and economic activity forecasting.

207. Public Resource Allocation. (4) Lecture, three hours. 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.

208. Seminar: Advanced Research Methods. (4) Seminar, three hours. Required of Ph.D. students in their first year. Process of developing Ph.D. plan of study in preparation for major field examination. Advanced critical analysis of research methods prominent in social sciences and field of urban planning. S/U grading.

209. Special Topics in Planning Theory. (2 to 8) Seminar, three hours. Topics in planning theory selected by faculty. May be repeated for credit.

210A. Introduction to Planning Theory. (4) Lecture, three hours. Historical introduction to major ideas and theories of planning which have influenced its development from the early 19th century to the present.

210B. Comparative History of Planning Practice. (4) Lecture, three hours. Limited to Ph.D. and advanced M.A. students. History of city planning, its critics, and profession of planning through the 19th and 20th centuries. Comparison of evolution of the field in several countries, especially English-speaking countries.

210C. Colloquium in Planning Theory. (4) Lecture, one hour; discussion, two hours. Requisite: course 210A. Limited to Ph.D. students. Introduction to some central theoretical issues of contemporary planning.

211. Law and the Quality of Urban Life. (4) Lecture, three hours. Introduction to law as an 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 a partial cause and cure of urban problems. Examination of law as a changing process rather than a collection of principles, so that students develop facility to interact with law and lawyers in a positive and forceful manner.

214. Ethics in Planning. (4) Examination of ethical dimensions of planning at many levels, including issues of bribery and corruption, aspects of client/sponsor and employer/employee relationships, collection, use, and release of information, and ethical aspects of administrative discretion. Ethical aspects of planning methods, concept of environmental ethics, and evolution of code of ethics in planning profession.

M215. Spatial Statistics. (4) (Same as Geography M272.) Lecture, two hours; discussion, one hour; laboratory, one hour. Specific techniques useful in analysis of spatial data and modeling of spatial distributions.

216. Introduction to Nonprofit Development. (4) Discussion, three hours. 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.

217A-217B. Comprehensive Planning Project. (4-4) Designed for second-year students. Comprehensive project brings together students of varying backgrounds and interests in joint solution of an urban planning problem. Each project spans two terms. Successful completion of project meets requirements of Comprehensive Examination Plan A of master's program.

218. Graphics and Urban Information. (4) Lecture, two hours; studio, one hour. Presentation of basic graphic methods and tools for conceptualization, analysis, and documentation of the built environment. Development of fundamental skills of graphic ideation and communication.

219. Special Topics in the Built Environment. (2 to 8) Seminar, three hours. Topics in the built environment selected by the faculty. May be repeated for credit.

220A. Quantitative Analysis in Urban Planning I. (4) Lecture, three hours. 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 a tool in analysis of planning-related data.

220B. Quantitative Analysis in Urban Planning II. (4) Lecture, three hours. 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 a tool in statistical analysis and modeling.

221. Evaluation Methods. (4) Lecture, three hours. Requisites: courses 207, 220A. Examination of methods used to evaluate efficiency and effectiveness of government programs and investment projects. Theory and practice of evaluation, with emphasis on techniques of cost-effectiveness analysis, cost-benefit analysis, discounting, sensitivity analysis, target efficiency, fiscal audits, and evaluation design.

222. Introduction to Histories and Theories of Urban Planning. (4) Lecture, 90 minutes; discussion, 90 minutes. 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. Generally taken Fall Quarter of first year of M.A. program.

223. Professional Development Seminar. (4) Seminar, 90 minutes; discussion, 90 minutes. Recommended preparation: course 222. Problems of professional practice. Development of methods which integrate theory and practice through readings and individual and collective analyses of each student's fieldwork experience. Students must be working in a field setting to enroll. Job fair is held at end of Fall Quarter to place students in field settings. Students combine course 223 with one term of course 490 or 496 to meet fieldwork requirement.

229. Special Topics in Planning Methods. (2 to 8) Seminar on topics in planning methodology selected by faculty. May be repeated for credit.

M231. Urban Housing and Community Development. (3 to 6) (Same as Law M287.) Lecture, three hours; discussion, one hour. Examination of past 40 years of federal and state programs to stem urban decline and improve housing in the 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.

M232A. Introduction to Regional Planning: Evolution of Regional Planning Doctrines. (4) (Formerly numbered 232A.) (Same as Policy Studies 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.

232B. Spatial Planning: Regional and International Development. (4) Examination of theory and practice of spatial planning at regional, national, and international scales, including evaluation of regional growth strategies, national settlement policy, growth center concepts, and normative-ideological issues involved in international development planning. Generally taken in first year.

233. Political Economy of Urbanization. (4) Introduction to basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems. Topics include historical geography of urbanization, development and transformation of urban spatial structure, suburbanization and metropolitan political fragmentation, urban fiscal crisis, and role of urban social movements.

M234. Regional Development, Urbanization, and Industrial Policy. (4) (Same as Policy Studies M242.) Lecture, three hours. Survey of theories of regional development, with special reference to "new economic geography" and its relevance for formulation of local economic development policies.

235A-235B. Urbanization and Rural Development in Third World Countries. (4-4) Lecture, 90 minutes; discussion, 90 minutes. Requisite for course 235A: course 266; for course 235B: course 235A. Questions of urbanization and planning in first term; rural development in second term. Case studies from Latin America, Africa, and Asia. Lectures, student presentations, and policy debates.

M236A. Theories of Regional Economic Development I. (4) (Formerly numbered 236A.) (Same as Policy Studies M240.) Lecture, three hours; laboratory, 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.

236B. Theories of Regional Economic Development II. (4) 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.

236C. Regional World: Territorial Development in Global Economy. (4) Lecture, three hours. Requisite: course 236B. Advanced course in regional development examining changes in organization of economic systems, their geographies, and scale at which local, national, and international economies operate. Emphasis on importance of rules, information exchanges, and institutional and cognitive processes. Letter grading.

238. Advanced Seminar: Urban and Regional Development. (4) Seminar, two hours; discussion, two hours. Designed for Ph.D. students. Advanced research seminar on major issues in urban and regional development theory and/or policy. Topics usually reflect faculty research projects and change from year to year. May be repeated for credit.

239. Special Topics in Urban and Regional Development Policy. (2 to 8) Seminar, three hours. Topics in urban and regional development policy selected by faculty. May be repeated for credit.

M243. Privatization, Regulation, and Public Finance. (4) (Same as Policy Studies M293.) Lecture, three hours; outside study, nine hours. Requisite: Policy Studies 201. Evaluation of economic and political determinants of trend toward privatizing public services, and equity and efficiency outcomes of this trend as expressed through new pricing, financing, and service-level policies. Exploration of new regulatory role this trend implies for state and local governments. Letter grading.

244. Housing Markets. (4) Lecture, three hours. Ways that housing markets should but sometimes do not work in developed economies. Interaction of demand factors such as population distribution, household formation, income, and credit, as well as their particular impacts on groups of the population. Topics include filtering, housing search, segregation, pricing, production efficiency, organization of construction industry, market failure, and appropriate policy responses.

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.

246. Housing in Social and Economic Development Policy. (4) Seminar, three hours. Position of housing in national and regional development strategies, with focus on policies for Third World nations. Topics include nature of housing "need," market responses, evolution of housing policy, theory of intervention, alternative policies for increasing housing supply. Numerous case studies.

247. Race, Gender, Culture, and Cities. (4) Discussion, three hours. Exploration of multicultural context of contemporary U.S. cities, with focus on changing social and spatial relations of ethnic communities and their policy implications. Topics relate the new diversity and gender with global restructuring, new urban economy, and policies of workplace, housing, schools, and governance.

M248. Law and the Poor. (4) (Same as Law M215, Policy Studies M295, and Social Welfare M290R.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in the U.S., with emphasis on interaction of moral attitudes toward the poor and structure and implementation of the law, policy, and administration. Current reform consensus and major reforms. Letter grading.

249. Special Topics in Social Policy and Analysis. (2 to 8) Seminar, three hours. Topics in social policy and analysis selected by faculty. May be repeated for credit.

250. Introduction to Social Policy. (4) Lecture, three hours. Analysis of demographic changes, history, needs, and ideological debates which affect development of social policy in the U.S., compared with Western Europe.

251. 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.

C252. Global Environment and Development: Problems and Issues. (4) Lecture, three hours; discussion, one hour. Questions of population, resource use, Third World poverty, and the environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Examination of emergent local and regional coalitions for self-reliance and sustainable development. Case studies from Africa, Latin America, Asia, and the U.S. Concurrently scheduled with course CM128. S/U or letter grading.

254. Survey Methods in Planning. (4) Lecture, three hours. Requisite: course 220B. Use of surveys in planning. Conducting of a small area survey, with emphasis on methods to obtain quality data appropriate for planning: questionnaire development, sample design, interviewing, data processing, and analysis. Presentation of survey to planners or public agencies.

256. Social Impact Analysis. (4) Lecture, three hours. Exploration of ways of assessing and determining social impacts on communities resulting from large-scale planning projects. Students develop mitigation measures to address identified adverse consequences.

M259. Advanced Real Estate Development for Planners and Architects. (4) (Same as Architecture and Urban Design M259.) Discussion, three hours. Requisite: course 216. Review of basic site planning and design, with emphasis on how development plans (including proposed design solutions) are iteratively modified to achieve economic and political feasibility. Organized as a studio to produce a buildable project, including design and finance plans, for a client. S/U or letter grading.

260A. Political Economy and the Environment. (4) Lecture, three hours. Debate about environmental policy is increasingly couched in economic terms. Environmental issues have become questions of political economy, as they influence international and domestic policy and reflect on functioning of market system. Examination of assumptions and implications of alternative approaches to political economy, as these pertain to questions of environmental policy.

260B. Politics, Institutions, and the Environment. (4) Lecture, three hours. Planners face some important dilemmas in designing institutions and policies intended to correct or prevent disruptions of the environment. Introduction to these problems, focusing on essential theoretical questions that must be addressed in attempts to control environmental problems in our society. Review of recent developments in environmental policy in light of growing environmental movements; evaluation of current approaches to environmental problems, considering their institutional forms and epistemological foundations.

261. Land-Use Control: Economic and Structural Perspectives. (4) Lecture, two hours; discussion, one hour. Requisites: courses 260A, 260B. Comparison of regulatory methods of land-use control to command or planning methods. Basics of land use as a commodity in first part: land economics, land markets. Development, historically, of a structuralist perspective on use of land in cities and regions in second part. Land-use regulation (in third part) in light of first two, to see how effective it is in steering course of land development. Regulatory approach compared with real planning.

M262A. Toxics Reduction: Science, Engineering, and Policy Issues. (4) (Same as Chemical Engineering M290U and Environmental Health Sciences M249.) Lecture, three hours. Requisites: courses 260A, 260B. Public health experts, industrial engineers, and planners are being asked to assess risks biologically active chemicals present and to take such risks into account in planning process. Examination of potential for toxics reduction and current state of government and industry activities in this area. S/U or letter grading.

262B. Urban Environmental Problems: Water Resources. (4) Lecture, three hours. Water is life and wealth in California, which has world's most extensive long-distance, interbasin water transfer system. To date, water resources planning has been devoted almost exclusively to adding facilities for water delivery. But conflicts over additional developments have basically precluded further extension of this system, despite growing pressures to increase supplies. Examination of environmental impacts, geography, use of water, and consideration of resource planning.

M262C. Pollution Prevention. (2) (Same as Environmental Health Sciences M239.) Seminar, one hour. Designed for graduate students. Series of talks by academics, policymakers, industry representatives, and public interest advocates addressing opportunities for and obstacles to adopting principles of pollution prevention, including several case studies of specific policy and industry initiatives in this area. S/U grading.

263. Natural Resource Conservation. (4) Discussion, three hours. Requisites: courses 260A, 260B. Exploration, through reading, discussion, and student presentations, of meaning of resource conservation, its desirability, and ways of achieving it. Emphasis on integrated management of public lands, though students may attend particularly to a specific resource (minerals, water, timber, wilderness).

M264. Environmental Law. (3 to 6) (Same as Law M290.) Lecture, three to three and one-half hours. Examination of the 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 a means of illustrating policy issues underlying the field.

C265. Environmentalism: Past, Present, and Future. (4 to 6) Discussion, three hours; optional field study, five to 10 hours. Exploration of history, politics, and theories of environmental movements, dynamics of race, class, and gender in relation to environmental agendas, and potential role of environmentalism in reshaping our society. Readings, discussion, and research papers. Offered annually as a graduate research seminar and biannually as an undergraduate upper division lecture and field studies program. Concurrently scheduled with course CM189. S/U or letter grading.

266. City and Countryside in the Third World. (4) 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 the 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 M267A, 267B, and many of the other planning courses addressing Third World issues.

M267A. Resource-Based Development Issues: First World and Third World — Environmental Issues and Processes. (4) (Formerly numbered 267A.) (Same as Geography M229.) Discussion, three hours. Recommended preparation: course 266. 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 the state, corporations, and local groups, and environmental and social impact of its development.

267B. Rural Development Issues. (4) Lecture, three hours. Recommended preparation: course 266. Development more thoroughly of themes raised in earlier courses. Topics may include peasantries, development and rural women, agricultural ecology, comparative land reform, agrarian revolution, and special problems of tropical development. May be repeated for credit with consent of instructor.

268. Advanced Seminar: Environmental Analysis and Policy. (4) Discussion, three hours. Generally designed for second-year M.A. and Ph.D. students. Exploration of broad issues related to environmental and resource planning. May be repeated for credit.

269. Special Topics in Environmental Analysis and Policy. (2 to 8) Seminar, three hours. Topics in environmental analysis and policy selected by faculty. May be repeated for credit.

270. Homelessness: Housing and Social Service Issues. (4) 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 the homeless.

271. Community Economic Development. (4) (Formerly numbered 236C.) Lecture, three hours. Requisite: course 236B. Introduction to fundamentals of community economic development and neighborhood development strategies. Overview of basic approaches, important concepts, resources and language of the field, and major strategies for revitalization of low-income neighborhoods.

M272. Real Estate Development for Planners and Architects. (4) (Same as Architecture and Urban Design M272.) Lecture, two hours; workshop, two hours. 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 which are interactively modified to meet economic feasibility tests.

273. Site Planning. (4) Lecture, 90 minutes; laboratory, 90 minutes. Introduction to principles of site planning for urban areas.

274. Introduction to Physical Planning. (4) Lecture, 90 minutes; discussion, 90 minutes. Overview of physical planning, land use, site analysis, and surveys; general plans and community plans; environmental review; zoning and ordinances; social impacts.

275. Inner-City Housing Policies: Old and New Approaches. (4) Lecture, 90 minutes; discussion, 90 minutes. Study of federal and local housing policy as it affects inner cities, with emphasis on New York and Los Angeles. Examination of research on housing conditions and community development policies, with particular emphasis on alternatives such as resident-controlled housing; analysis of rehabilitation policies; review of new concepts and current legislative proposals.

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.

278. Qualitative Research Methods for Planners and Designers. (4) Lecture, 90 minutes; discussion, 90 minutes. Emphasis on conceptualizing research projects using grounded theory; relation to survey data. Techniques include content analysis, user needs analysis, participant observation, questionnaire construction, interview techniques. Projects include students' own research.

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.

M280. Environmental and Resource Economics and Policy. (4) (Same as Policy Studies CM250.) Lecture, three hours. Requisites: courses 207 and 220B, or Policy Studies 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 which bear on public policies. Letter grading.

281A. Introduction to History of the Built Environment in the 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.

281B. Advanced Seminar: History of the Built Environment. (4) Discussion, three hours. Requisite: course 281A. Extended discussion of research methods and writing techniques suitable for advanced students working toward completion of some research on history of the built environment in the U.S.

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 the built environment of cities.

283. History of the American Household and American Home. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 281A. Introduction to history of housing design in the U.S., emphasizing changing roles of women and men from Colonial times to the present and effects of these social changes on physical form of the dwelling and settlement. Discussion of concerns of professional architects and planners, as well as activity of bankers, builders, and homemakers.

C284. Looking at Los Angeles. (4) (Formerly numbered 284.) Discussion, three hours. Introduction to physical form and history of Los Angeles, with emphasis on visual observation of the city as a skill for architects and planners. Field trips throughout the city. Concurrently scheduled with course C184.

285. Great Planning Debates: Gender. (4) Seminar, 90 minutes; discussion, 90 minutes. Seminar on substantial literature on complex relationships between gender, race, and class in urban planning. Alternative theories describe an inadequate fit between American households, housing, and services and document environmental inequities women and children face in contemporary cities. Students prepare oral seminar reports on topics such as social service provision, housing, transportation planning, economic development, and safe public spaces.

M286. Transportation, Land Use, and Urban Form. (4) (Formerly numbered 286.) (Same as Policy Studies 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 the strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form.

M287. Travel Behavior Analysis. (4) (Formerly numbered 287.) (Same as Policy Studies M221.) Lecture, three hours. Requisites: courses 207 and 220B, or Policy Studies 201 and 203. Descriptions of travel patterns in metropolitan areas, recent trends and projections into the 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.

288. Transportation Planning. (4) Lecture, three hours. Examination of how planners analyze, manage, and operate transportation systems. Measuring system performance, intelligent transportation systems, transportation system demand management, parking management, freight movement and facilities, public transit evaluation and management, paratransit, bicycle and pedestrian planning, transportation for elderly and disabled.

M289. Transportation Economics, Finance, and Policy. (4) (Formerly numbered 289.) (Same as Policy Studies 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.

M290. Transportation and Environmental Issues. (4) (Formerly numbered 290.) (Same as Policy Studies M223.) Lecture, three hours. Regulatory structure linking transportation, air quality, and energy issues, chemistry of air pollution, overview of transportation-related approaches to air quality enhancement; new car tailpipe standards; vehicle inspection and maintenance issues; transportation demand management and transportation control measures; alternative fuels and electric vehicles; corporate average fuel economy and global warming issues; growth of automobile worldwide fleet; the automobile in the sustainability debate.

298. Special Topics in Emerging Planning Issues. (2 to 4) Discussion, two to 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. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

M404. 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 a 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.

M470. Introduction to Occupational and Environmental Health Education. (4) (Same as Community Health Sciences M470.) Lecture, four hours. Preparation: at least three social sciences courses. Designed to provide students with understanding of problem areas of occupational and environmental health and health education interventions which can be applied. Letter grading.

494. Supervised Independent Teaching. (2 to 8) Supervised individual teaching experience. May be repeated for credit. S/U grading.

496. Field Projects. (2 to 8) (Formerly numbered 496F.) 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. Research in Planning. (2 to 8) May be repeated for credit.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) May be repeated for credit. S/U grading.

598. Preparation for M.A. Thesis in Urban Planning. (2 to 8) May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research in Planning. (2 to 8) May be repeated for credit. S/U grading.

URBAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
4256 Bunche Hall
Box 951472
Los Angeles, CA 90095-1472
(310) 825-3862
<http://www.sscnet.ucla.edu/polisci/>

Eric H. Monkkonen, Ph.D., *Chair*

Professors

Bryan C. Ellickson, Ph.D. (*Economics*)
Eric H. Monkkonen, Ph.D. (*History*)

Assistant Professors

Brian Taylor, Ph.D. (*Urban Planning*)
Jan Reiff, Ph.D. (*History*)

Scope and Objectives

Cities are multifaceted and can usefully be explored from more than one disciplinary perspective. The undergraduate specialization in Urban Studies brings together students and faculty from the Departments of Economics, Geography, History, Political Science, Psychology, and Sociology who share an interest in the modern city. The program gives students a solid grounding in the urban perspectives and methods of at least two departments. The spe-

cialization must be taken in conjunction with a major in the social sciences.

Undergraduate Study

Urban Studies Specialization

Students may elect to combine the Urban Studies specialization with a departmental major and may petition to have the area of specialization recognized with the bachelor's degree.

The option of completing an individual major in Urban Studies is also open to qualified students. For more information on individual majors, see the College of Letters and Science section of this catalog.

Students with a departmental major should seek advising in their major department. Those interested in the individual major should consult a Letters and Science counselor.

Courses within the specialization must be taken for a letter grade. The specialization must be taken in conjunction with a major in the division of social sciences.

Preparation for the Specialization

Required: At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1, 2; Geography 4; Political Science 40; Psychology 10; Sociology 1, M18, 104 or equivalent.

Upper Division Requirements

Required: Nine upper division courses, including (1) at least three courses outside the major department selected from Anthropology 167, Economics 120, Geography 150, Psychology 168, Sociology 158; (2) a minimum of three courses selected from one of the following suites within the major department: Economics 130, 133; Geography 150, 156; History 154A through 154D; Political Science 143A, 143B, 167B; Psychology 127, 135; Sociology 132, 156, 160; (3) a minimum of three courses selected from one of the suites in item 2 in a department outside the major department; (4) internship experience in an urban governmental or community service organization.

Professor Eric H. Monkkonen (9252 Bunche Hall, 310-825-3376) is the program adviser. For further information, contact the political science undergraduate counselor in the program office.

UROLOGY

School of Medicine

UCLA
66-143 Center for the Health Sciences
Box 951738
Los Angeles, CA 90095-1738
(310) 825-5088

<http://www.urology.medsch.ucla.edu/>

Chairs

Jean B. deKernion, M.D. (*Fran and Ray Stark Foundation Professor of Urology*), Chair
Robert B. Smith, M.D., *Vice Chair*

Director

Mark S. Litwin, M.D., M.P.H., *Director of Medical Student Education*

Scope and Objectives

The fundamental goal of the Department of Urology is to teach medical students the general principles of diagnosis and management in diseases of the genitourinary tract. Urology encompasses a wide scope of human illness, including conditions that are congenital and acquired, pediatric and adult, male and female, malignant and benign. The department functions to acquaint students with the skills necessary to manage these conditions in the initial stages and over the long term.

Instruction spans all four years of the undergraduate medical school curriculum but is concentrated during the clinical rotations. Students spend two weeks on the urology service during the third year and may return for an additional four-week elective rotation during the fourth year. The clinical experience includes time spent in the operating room, the faculty clinics, on ward rounds, and in didactic conferences that cover general urology, urological subspecialties, uropathology, and uroradiology. Urology teaching settings include the UCLA, Harbor-UCLA, Olive View-UCLA, and West Los Angeles VA Medical Centers.

For further details on the Department of Urology and a listing of the courses offered, see the *Announcement of the UCLA School of Medicine*.

WOMEN'S STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
240 Kinsey Hall
Box 951504
Los Angeles, CA 90095-1504

(310) 206-8156, 206-8101
e-mail: wsp@humnet.ucla.edu
<http://www.humnet.ucla.edu/humnet/wsp/home.html>

Christine A. Littleton, J.D., *Cochair*
Kathryn Norberg, Ph.D., *Cochair*

Professors

Emily K. Abel, Ph.D. (*Health Services*)
Paula Gunn Allen, Ph.D. (*English*)
Edward A. Alpers, Ph.D. (*History*)
Emily Apter, Ph.D. (*French*)
Helen S. Astin, Ph.D. (*Education*)
Irma Dosamantes Beaudry, Ph.D. (*World Arts and Cultures*)
Ann L.T. Bergren, Ph.D. (*Classics*)
Karen Brodtkin, Ph.D. (*Anthropology*)

Marga Cottino-Jones, Ph.D. (*Italian*)
Ellen C. DuBois, Ph.D. (*History*)
Sandra Harding, Ph.D. (*Education*)
N. Kathryn Hayles, Ph.D. (*English*)
Lynn A. Hunt, Ph.D. (*History*)
Katherine C. King, Ph.D. (*Comparative Literature*)
Gail Kligman, Ph.D. (*Sociology*)
Jacqueline Leavitt, Ph.D. (*Urban Planning*)
François Lionnett, Ph.D. (*French*)
Christine A. Littleton, J.D. (*Law*)
Mary Niles Maack, D.L.S. (*Information Studies*)
Neil M. Malamuth, Ph.D. (*Communication Studies*)
Susan McClary, Ph.D. (*Musicology*)
Anne K. Mellor, Ph.D. (*English*)
Ruth M. Milkman, Ph.D. (*Sociology*)
Mary Kay Norseng (*Scandinavian Section*)
Felicity Nusbaum, Ph.D. (*English*)
Carole Pateman, D.Phil. (*Political Science*)
L. Anne Peplau, Ph.D. (*Psychology*)
Karen E. Rowe, Ph.D. (*English*)
James A. Schultz, Ph.D. (*Germanic Languages*)
Peter Sellars, B.A. (*World Arts and Cultures*)
Miriam R. Silverberg, Ph.D. (*History*)
Valerie A. Smith, Ph.D. (*English*)
Brenda Stevenson, Ph.D. (*History*)
Cécile Whiting, Ph.D. (*Art History*)

Professors Emeriti

Nina Byers, Ph.D. (*Physics*)
Nancy M. Henley, Ph.D. (*Psychology*)
Nikki Keddie, Ph.D. (*History*)

Associate Professors

Ruth H. Bloch, Ph.D. (*History*)
Evelyn Blumenberg, Ph.D. (*Urban Planning*)
King-Kok Cheung, Ph.D. (*English*)
J. Michael Ellis, Ph.D. (*Geography*)
M. Nicolette Hart, Ph.D. (*Sociology*)
Jill A. Kowalik, Ph.D. (*Germanic Languages*)
Nancy E. Levine, Ph.D. (*Anthropology*)
Jayne E. Lewis, Ph.D. (*English*)
Arthur L. Little, Ph.D. (*English*)
Valerie J. Matsumoto, Ph.D. (*History*)
Sara E. Melzer, Ph.D. (*French*)
Kathryn Norberg, Ph.D. (*History*)
Wilma Ortiz, Ph.D. (*Sociology*)
Lucia Re, Ph.D. (*Italian*)
Sonia Saldívar-Hull, Ph.D. (*English*)
Susan Sorenson, Ph.D. (*Community Health Sciences*)
Mariko Tamanoi, Ph.D. (*Anthropology*)
Sharon J. Traweek, Ph.D. (*History*)
Dawn M. Upchurch, Ph.D. (*Community Health Sciences*)

Assistant Professors

Alicia Gaspar de Alba, Ph.D. (*Chávez Center*)
Laura F. Edwards, Ph.D. (*History*)
Jodi L. Friedman, M.D., *Clinical (Medicine)*
Deborah M. Garfield, Ph.D. (*English*)
Cheryl Keyes, Ph.D. (*Ethnomusicology*)
Rachel C. Lee, Ph.D. (*English*)
Laura L. Miller, Ph.D. (*Sociology*)
María Cristina Pons (*Chávez Center*)
Judith A. Rosen, Ph.D. (*English*)
Seana Shiffrin, D.Phil. (*Philosophy*)
Kevin B. Terraciano, Ph.D. (*History*)

Lecturers

Miriam Robbins Dexter, Ph.D. (*Classics*)
Linda Garnets, Ph.D. (*Psychology*)
Rhonda Hammer, Ph.D. (*Communication Studies*)
Raquelle de la Rocha, J.D. (*Law*)
Susan Schafer, Ph.D. (*Spanish and Portuguese*)
Sylvia Sherno, Ph.D. (*Spanish and Portuguese*)
Patricia J. Smith, Ph.D. (*English*)
Paul Von Blum, Ph.D. (*Communication Studies*)

Adjunct Professor

Sondra Hale, Ph.D. (*Anthropology*)

Adjunct Associate Professor

Jacqueline D. Goodchilds, Ph.D. (*Psychology*)

Adjunct Assistant Professor

Fridelle Spiegel, Ph.D. (*History*)

Scope and Objectives

The Women's Studies Program, established in 1975, is an interdisciplinary academic program spanning departments, disciplines, and ideologies and offering two options for study: an undergraduate major and a minor. Students wishing to focus their studies on multidisciplinary perspectives in order to create a coherent and comprehensive analysis of women and gender may elect the major. Those wishing to enhance study in a traditional discipline may elect the Women's Studies minor in addition to a major in their chosen discipline.

The program offers the singular opportunity to study the full range of human experience and arrangements of social organization from the perspectives of those whose participation has been traditionally distorted, omitted, neglected, or denied — women in their racial, class, sexual, and cultural diversity. Students develop critical reasoning and analytical skills, research and communication skills, a deep appreciation for complexities of power, asymmetries in gender relations across time, class, and cultures, and conceptual tools for social change. Emphasis on multidisciplinary and multiethnic approaches assures a broader exposure to the humanities and social sciences than is commonly available within disciplinary confines. A background in women's studies offers unique contextual validation for today's gender controversies and prepares students for a wide range of career and life choices, as well as for advanced study in traditional disciplines and the professions.

The field of women's studies has exploded over the past 30 years. It has developed a theoretical base, body of knowledge, and perspective which cannot be attained as a by-product of studying other fields. Where the study of women has been neglected or omitted, the field develops new knowledge through research and fills in gaps in the existing curriculum. Further, women's studies generates new perspectives on existing knowledge of women and gender, offers a critique of accepted beliefs and ideas, intellectually challenges existing structures of knowledge, and introduces new conceptual paradigms.

The core faculty members who teach women's studies courses come from various UCLA departments and professional schools. Many professionals within and outside the University contribute their time, expertise, and enthusiasm. A governance committee composed of the chair, faculty members, and a student representative sets program policies and curricula.

The program sponsors two student associations and assists other student groups with extracurricular programming on feminist issues. Research in women's studies is promoted in cooperation with the Center for the Study of Women.

While no formal graduate program exists at UCLA at this time, a proposal for one is in the

final stages of review for implementation in 2000. Meanwhile, graduate students are invited to use the program's resources, attend lectures and events, and participate in the feminist research seminar sponsored by the center.

Undergraduate Study

Women's Studies B.A.

The interdisciplinary major in Women's Studies may be taken alone or in conjunction with another Letters and Science major. In the case of a double major, no more than five courses may be applied toward both majors.

Admission

To be admitted to the major, students must have completed Women's Studies 10, be in good standing, and formally register with the program. They are encouraged to declare their major as early as possible and to discuss their proposed course of study with the chair or undergraduate adviser.

Students are encouraged to draw on the University's diverse resources in creating their program of study. They may pursue traditional and/or innovative subjects in fields ranging from the humanities and fine arts to the social and life sciences. In addition to courses on the women's studies approved list, students may petition to have diverse courses accepted, including courses outside the College of Letters and Science, independent studies, or field study courses.

All courses applied toward the major must be taken for a letter grade, and students must have a grade-point average of 2.0 or better in women's studies courses to receive credit for completing the program. Courses in which they receive a grade of C- or lower may not be applied toward the core requirements in the major.

Preparation for the Major

Required: Women's Studies 10. Students must also complete departmental lower division requisites, as applicable, for upper division women's studies courses in the disciplines.

The Major

The major is designed to (1) impart core concepts in theory and critical analysis, research design, and methods, (2) provide exposure to a range of feminist scholarship across disciplines, and (3) enable students to acquire a depth of knowledge within one or two disciplinary or topical fields of inquiry. To achieve this goal, the major is divided into three categories.

Required: At least 13 upper division courses as follows:

(1) Three *core* courses, including (a) one feminist theory course from Women's Studies 110A or 110B or M192, (b) course 130 or one course on the study of American ethnic minority women from the approved list of women's studies credit courses issued each term by the

program, and (c) course 197 (departmental 197 courses may not be applied).

(2) A *distribution* of at least four courses, each from a different department or discipline, selected from the approved list of women's studies courses.

(3) Six additional *concentration* courses from one or two of the disciplines in which the core and distribution courses have been taken. Students may petition for interdisciplinary or topical concentrations such as feminist theory, women of color, women's health, or lesbian studies. If two fields are selected, the ratio of the six courses may be divided 3-3 or 4-2.

Four units of Women's Studies 199 may be applied toward the concentration requirement for the major. This limit does not apply to Women's Studies 199HA-199HB.

Honors Program

The honors program is open to advanced junior and senior Women's Studies majors with a 3.0 grade-point average in women's studies courses and a minimum 3.0 overall GPA who have no outstanding Incomplete grades, and to majors who demonstrate ability to do honors work by submitting a paper to the program chair for approval. Students wishing to undertake honors in the major are advised to complete Women's Studies 197 by Spring Quarter of the junior year.

To be eligible for honors at graduation, students must successfully complete course 197 and two successive terms of independent studies (courses 199HA-199HB) with their faculty sponsor and receive a grade of B+ or better on their research paper/project. Course 199HA may be applied toward the concentration requirement; course 199HB is in addition to the minimum required concentration courses. Further information is available from the undergraduate counselor in the program office.

Women's Studies Minor

The Women's Studies minor augments study in a traditional field. Students participating in this program are required to complete both a departmental major and the Women's Studies minor.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 240 Kinsey Hall. They are encouraged to declare the minor as early as possible and to discuss their proposed course of study with the chair or undergraduate adviser.

Required Lower Division Course (four units): Women's Studies 10.

Required Upper Division Courses (28 units): One feminist theory course from Women's Studies 110A or 110B or M192, 120 or 197, and five elective courses from the approved list of women's studies courses issued each term by the program. At least three elective courses must be taken in departments other than the

major department. No more than four units of any 199 course may be applied.

All minor courses must be taken for a letter grade, with an overall grade-point average of 2.0 or better. Courses in which students receive a grade of C– or lower may not be applied toward the core requirements in the minor. Successful completion of the minor is indicated on the transcript and diploma.

Women's Studies

Lower Division Course

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society. (4) Lecture, two and one-half hours; discussion, one hour. Introduction to study of women and men in society, covering comparative issues of social, political, and economic position in the workplace, family, cultural institutions; historical basis of women's subordination; the female experience; the male experience; relations between women and men; intersections of ethnicity, class, and gender; violence against women; cultural images of women and men; social roles of women and men and movements for social change.

Upper Division Courses

Core Courses

110A. Feminist Theories in Social Sciences. (4) Lecture/discussion, three hours. Requisite: course 10. Multidisciplinary explorations of theorists' attempts to describe, explain, and critique social institutions, considering impact of race, ethnicity, class, etc. Emphasis on relation of theories to change in law, work, politics, education, economics, family, religion, sexuality, etc. Applications of theories to research questions and methodologies.

110B. Feminist Theories in the Humanities. (4) Lecture/discussion, three hours. Requisite: course 10. Examination of theoretical positions on gender and women in study of literature and the arts. Analysis of ways in which women and sexuality have been represented in cultural production, considering impact of race, ethnicity, class, etc. Applications of theories to research questions and methodologies.

197. Senior Research Seminar. (4) Seminar, three hours. Requisites: courses 10, and 110A or 110B. Designed for advanced junior/senior Women's Studies majors or minors. In-depth study of a 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. P/NP or letter grading.

Supporting Courses

M101A. Lesbian and Gay Literature before Stonewall. (4) (Same as English M101A and Lesbian, Gay, Bisexual, and Transgender Studies M101A.) Lecture, four hours. Preparation: satisfaction of English Composition requirement. Survey of lesbian and gay literature in English from earlier periods through the 1960s. Works by such authors as Walt Whitman, Oscar Wilde, Radclyffe Hall, E.M. Forster, Willa Cather, Virginia Woolf, James Baldwin, Christopher Isherwood, William S. Burroughs, John Rechy, Audre Lorde, and Edward Albee. P/NP or letter grading.

M101B. Lesbian and Gay Literature after Stonewall. (4) (Same as English M101A and Lesbian, Gay, Bisexual, and Transgender Studies M101B.) Lecture, four hours. Preparation: satisfaction of English Composition requirement. Survey of lesbian and gay literature in English since 1969, year of Stonewall Riots in New York City, commonly recognized as beginning of modern lesbian and gay culture. Works by such authors as Adrienne Rich, Jane Rule, Maureen Duffy, Brigid Brophy, Larry Kramer, Bertha Harris, Edmund White, Rita Mae Brown, Alan Hollinghurst, and Emma Donahue. P/NP or letter grading.

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Gerontology M104C and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of the aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in a multidisciplinary perspective utilizing faculty from a 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, health care, and health care providers. Discussion of basic health concepts and self-care; consideration of a women's health speciality and ways to deliver health care to women. Exploration of roles and lifestyles of female physicians. P/NP or letter grading.

M106. Imaginary Women. (4) (Same as Honors Collegium M106.) 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.

M107A. American Women Writers. (4) (Same as English M107A.) Preparation: satisfaction of Subject A requirement. Survey of literary works by American women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by American women.

M107B. British Women Writers. (4) (Same as English M107B.) Preparation: satisfaction of Subject A requirement. Survey of literary works by British women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by British women.

M107C. Special Topics in Women and Literature. (4) (Same as English M107C.) Preparation: satisfaction of Subject A requirement. Variable specialized studies course in women and literature, with emphasis on a period, genre, particular theme, or nonnational literary grouping.

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

M112. Special Topics in Women and the Arts. (4) (Same as World Arts and Cultures M112.) Lecture, three hours; outside study, nine 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 women's studies major. P/NP or letter grading.

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (4) (Formerly numbered M14.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, and transgendered people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

M115. Topics in Study of Sexual and Gender Orientation. (4) (Formerly numbered 115.) (Same as Lesbian, Gay, Bisexual, and Transgender 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.

M116. Sexuality and the City: Queer Los Angeles. (4) (Formerly numbered 116.) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles.

M119. Tristan, Isolde, and History of Heterosexuality. (4) (Same as German M119K.) Lecture, three hours; outside study, nine hours. Tristan and Isolde are among the more famous and enduring of European literary lovers, and following their tradition from Middle Ages to the present provides opportunity to consider a host of issues — from questions of genre to those of kinship, from representation of love to tyranny of gender, and history of heterosexuality. P/NP or letter grading.

120. Internship in Women's Studies. (4) Seminar, three hours; internship, eight hours. Preparation: at least two upper division women's studies courses. Requisites: courses 10, 110A or 110B. Field studies course combining seminar with field placement. Practical experience in working on women's issues and connecting these experiences to methodological and theoretical themes explored in course 110A or 110B. Letter grading.

M123. International Political Economy of Work and Gender. (4) (Same as Economics M158.) Lecture, three hours; outside study, nine hours. Requisite: Economics 1 or 5 or 100. Analysis of women's economic status in world economy by taking account of interdependencies between household and market activities and between economic systems and legal and political institutions. Introduction of alternative theoretical approaches in social sciences; presentation of empirical evidence.

125. Women and Health Care in the U.S. (4) Lecture/discussion, three hours. Requisite: course 10. Examination in depth of various ways women provide health care in both paid and unpaid capacities and of political, economic, and social factors affecting women as recipients of health care. P/NP or letter grading.

M128. Roots of Patriarchy: Ancient Goddesses and Heroines. (4) (Formerly numbered 128.) (Same as Honors Collegium M118.) Lecture, three hours; outside study, nine 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.

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.

M132A. Chicana Feminism. (4) (Same as Chicana and Chicano Studies M110.) Lecture, three hours. Requisite: course 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 the Chicana/Chicano community and the dominant society. Attention to Anglo-European and Third World women.

M132B. Contemporary Issues among Chicanas.

(4) (Same as Chicana and Chicano Studies M154.) Requisite: course 10. Overview of conditions facing Chicanas in the U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas.

M133. Chicana Lesbian Literature. **(4)** (Same as Chicana and Chicano Studies M133 and Lesbian, Gay, Bisexual, and Transgender Studies M133.) Lecture, three 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.

134. Gender, Science, and Theory. **(4)** (Formerly numbered 110C.) 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 the theoretical critiques to research design, practice, and interpretation.

135. Women in Physics and Mathematics. **(4)** Examination of lives and scientific contributions of five women of the 20th century — Lise Meitner, discoverer of nuclear fission; Emmy Noether, mathematician; Maria Goeppert Mayer, discoverer of nuclear shell model; Dorothy Crowfoot Hodgkin, X-ray crystallographer and organic chemist; and Chien-Shiung Wu, nuclear physicist. P/NP or letter grading.

M136. Music and Gender. **(4)** (Same as Music History M136.) Lecture, four hours. Analysis of gender ideologies in several musical cultures; representations of gender, the body, and sexuality by both male and female musicians; contributions of women to Western art and popular musics; methods in feminist and gay/lesbian theory and criticism. Letter grading.

M137E. Work Behavior of Women and Men. **(4)** (Same as Psychology M137E.) 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.

M137J. Psychology of Language and Gender. **(4)** (Same as Communication Studies M124 and Psychology M137J.) Lecture, three hours. Requisite: Psychology 10. Designed for juniors/seniors. Examination of current topics at intersection of gender and language. Topics include sex differentiation in language cross-culturally; sex bias in lexicon and usage; sex differences in lexicon, syntax, phonology, and nonverbal behavior; development of sex-differentiated language in children; "women's" and "men's" language in various racial/ethnic/class/sexual preference groups; and conversational interaction.

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.

M140. Women's Studies in French Literature. **(4)** (Same as French M140.) Lecture, three hours. Exploration of a selected aspect of the situation of women in French literature as author, character, symbol, etc. P/NP or letter grading.

M141. Women, Health, and Aging: Policy Issues. **(4)** (Same as Gerontology M141 and Health Services CM141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Letter grading.

142. Maya Women and Contemporary Social Change.

(4) Seminar, three hours. Requisite: course 10. Survey of recent literature on Maya culture in Chiapas, Mexico, and Guatemala. Examination of culture change through study of women as social actors, participating in political, economic, and religious change. Letter grading.

M148. Women in Higher Education. **(4)** (Same as Education M148.) Designed for juniors/seniors. Education and career development of women in higher education. Specifically, emphasis on undergraduate and graduate women; women faculty and administrators; curricula, programs, and counseling services designed to enhance women's educational and career development, affirmative action, and other recent legislation.

M154P. Gender Systems: North American. **(4)** (Formerly numbered M154.) (Same as Anthropology M154P.) Lecture, three hours. Requisite: course 10. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from an anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, and student fieldwork, internship, and presentation. P/NP or letter grading.

M154Q. Gender Systems: Global. **(4)** (Formerly numbered M154.) (Same as Anthropology M154Q.) Lecture, three hours. Requisite: course 10. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from an anthropological perspective. Outline of material conditions of women's lives in the world — gender division of labor, relationship of gender to the state, and colonialism and resistance movements. P/NP or letter grading.

M155Q. Women and Social Movements. **(4)** (Formerly numbered M160.) (Same as Anthropology M155Q.) Lecture/discussion, three hours. Recommended preparation: prior women's 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.

M158. Women in Italian Culture. **(4)** (Same as Italian M158.) Lecture, three hours; discussion, one hour; outside study, eight hours. Examination of role of women in Italian society through history, politics, literature, film, and art. Italian majors required to read texts in Italian. P/NP or letter grading.

M162. Sociology of Gender. **(4)** (Same as Sociology M162.) Lecture, three hours; discussion, one hour. 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.

M163. Gender and Work. **(4)** (Formerly numbered M164.) (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.

M164. Politics of Reproduction. **(4)** (Same as Sociology M164.) Lecture, three hours; discussion, one hour. Title refers to intersection between politics and life cycle. Topics include social construction of gender and population, reproductive issues, politicization of mothers, motherhood, and mothering, surrogacy, and new reproductive technologies.

M165. 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.

M166. Women in Socialist and Post-Socialist States.

(4) (Same as Sociology M166.) Lecture, three hours; discussion, one hour. Exploration of diverse aspects of women's lives in socialist and post-socialist states. Although transition from socialism occurs differently, gender differences are everywhere central to democratization and marketization. Discussion of ways in which state policies affect women.

M167. Contested Sexualities. **(4)** (Same as Lesbian, Gay, Bisexual, and Transgender Studies M167 and Sociology 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.

171. Jurisprudence of Sexual Equality. **(4)** (Formerly numbered 170.) Lecture, four hours. Requisites: course 10 and one course from 110A through M110D or Political Science 10 or Philosophy 6 or 9. Exploration of models of equality described and/or advocated by legal theorists — equality of opportunity, equality of outcome, equality of respect, etc. — using specific problems of women (e.g., sexual harassment or pregnancy leave policy) for purposes of comparison and critique. P/NP or letter grading.

M172. The Afro-American Woman in the U.S. **(4)** (Same as Afro-American Studies M172 and Psychology M172.) Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of a large society and as members of their biological and ethnic group.

M173. Interracial Work, Friendship, and Love Relationships of African American Men and Women. **(4)** (Same as Afro-American Studies M175.) Seminar, three hours. Examination of factors that influence development, maintenance, and dissolution of interracial relationships of African Americans in three areas: work life, friendships, and intimate love relationships. P/NP or letter grading.

M174. Sociology of the Family. **(4)** (Same as Sociology M174.) Lecture, four hours. Theory and research dealing with the modern family, its structure, and functions, including historical changes, variant family patterns, family as an institution, and influence of contemporary society on the family. P/NP or letter grading.

M177. The Military and Society. **(4)** (Same as Sociology M177.) Lecture, three hours; discussion, one hour. Examination of the military as an organization and profession: personnel issues such as family, class, race, gender, and sexual orientation and post-modern military issues such as civil/military relations, media coverage, peacekeeping operations, and the future of war. P/NP or letter grading.

185A-185Z. Special Topics in Women's Studies. **(4 each)** Preparation: one prior women's studies course. Designed for juniors/seniors. Specialized or advanced study in an area within women's studies.

M186. Voices of Women in Scandinavian Literature. **(4)** (Same as Scandinavian CM186.) Discussion, three hours. Requisite: Scandinavian 5 or 15 or 25. Knowledge of a Scandinavian language not required for nonmajors. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. P/NP or letter grading.

M187. Violence against Women. **(4)** (Same as Social Welfare M108.) Lecture, three hours. Requisites: courses 10, 110A. 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.

188. Women and Economic Development. **(4)** Lecture, three hours. Requisite: course 10. Examination of effects of economic development on women, with primary focus on Third World and transition economies of Eastern Europe and former Soviet Union, including roles of women in policy and practice, disparate effects by economic sector, and socioeconomic groups. Letter grading.

M192. Philosophical Analysis of Issues in Feminist Theory. (4) (Formerly numbered M110D.) (Same as Philosophy M192.) Lecture, three hours. Prerequisite for Women's 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 the new scholarship on women in philosophy. Critical study of concepts and principles which arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor.

M194. Women and the City. (4) (Same as Urban Planning M194.) Lecture, three hours. 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.

199. Special Studies in Women's Studies. (4) Preparation: at least two upper division women's studies courses, minimum 3.0 grade-point average. Directed program of independent readings and/or research on a specific topic within women's studies. No more than four units may be applied toward Women's Studies major or minor.

199HA-199HB. Directed Studies for Honors. (4-4) Preparation: 3.0 grade-point average overall, 3.0 grade-point average in major. Prerequisite: course 197. Limited to women's studies honors program students. Two-term sequence to research and write honors thesis under direction of faculty sponsor. In Progress grading.

Related Courses

Check with the program office for additional course listings.

Anthropology

151. Marriage, Family, and Kinship
155. Women's Voices: Their Critique of Anthropology of Japan
263P. Gender Systems

Asian American Studies

115. Asian American Women

Classics

150A. Origins of the Western View of Women: The Female in Greek Thought
150B. Origins of the Western View of Women: The Female in Roman and Early Christian Thought

Communication Studies

153. The Media and Aggression against Women
197K. Special Topics in Communication Studies: Communication Policy — Pornography and Evolution

Community Health Sciences

230. Family and Sexual Violence
246. Women's Roles and Family Health
431. Research in Women's Health: Theories and Methods
433. Reproductive Health: Demographic Applications

Comparative Literature

C170. Alternate Traditions: In Search of Female Voices in Contemporary Literature
C270. Alternate Traditions: In Search of Female Voices in Contemporary Literature
271. Imaginary Women

English

177. Special Topics in American Literature: Lesbian Writers
180X. Specialized Studies in Literature

German (Germanic Languages)

118. Feminist Issues in German Literature and Culture

Health Services

CM241. Women, Health, and Aging: Policy Issues

History

137A-137B. History of Women in Europe
156C-156D-156E. Social History of American Women
M191D. Focal Themes in Jewish History: Jewish Studies — Women
197A-197Z. Undergraduate Seminars (selected)

Political Science

107. Women and Politics

Psychology

197A. Current Issues in Psychology: Social Psychology of the Lesbian Experience
231. Psychology of Gender

Russian (Slavic Languages)

127. Women in Russian Literature

Sociology

285. Special Topics in Sociology: Sociology of Gender

Spanish (Spanish and Portuguese)

151A. Women in Hispanic Literature: Spain
151B. Women in Hispanic Literature: Spanish American

WORLD ARTS AND CULTURES

School of the Arts and Architecture

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Christopher Waterman, Ph.D., *Chair*
Angelia Leung, M.A., C.M.A., *Vice Chair*
David Rousseve, B.A., *Vice Chair*

Professors

Irma Dosamantes Beaudry, Ph.D.
Donald J. Cosentino, Ph.D.
Michael O. Jones, Ph.D.
Judy Mitoma, M.A.
Peter Nabokov, Ph.D.
Allen Roberts, Ph.D.
Peter Sellars, B.A.
Christopher Waterman, Ph.D.

Professors Emeriti

Elsie Dunin, M.A.
Pia Gilbert
Carol Scothorn, M.A.
Marion Scott
Doris Siegel
Allegra Fuller Snyder, M.A.
Emma Lewis Thomas, Ph.D.

Associate Professors

Judith Alter, Ed.D.
Angelia Leung, M.A., C.M.A.
Colin Quigley, Ph.D.
David Rousseve, B.A.
Marta Savigliano, Ph.D.

Assistant Professors

David Gere, Ph.D.
Victoria Marks, B.A.

Lecturers

Shiva Rea Bailey, M.A.
Nzingha Camara
Teresita Dome-Perez

Nina Martin
Charles Tomlinson
Liliana De Leon Torsiello, M.A.
Scott Wardinsky

Adjunct Assistant Professors

Judy Gantz-Siegel, M.A.
Peter Tokofsky, Ph.D.

Adjunct Associate Professors

Doran Ross, Ph.D.
Judy Gantz-Siegel, M.A.

Visiting Associate Professor

Viji Prakash

Visiting Assistant Professors

John Bishop
Bonnie Brooks, M.A.
Karen Clippinger, M.S.P.E.
Simone Forti, B.F.A.
Keith Terry, B.A.

Scope and Objectives

The mission of the Department of World Arts and Cultures (WAC) centers on the creation, critical analysis, and contextualization of arts practice throughout the world, with particular reference to the diverse populations of the U.S. The program reflects an approach that advocates the inclusion and integration of performance practice, studies in cultural and performance theory, and the real-world application of both forms of knowledge. It offers an environment for interdisciplinary inquiry that responds to the challenges facing our pluralistic society. Within this context, both practical and theoretical studies in dance and interdisciplinary artistic and expressive performance practices are major emphases.

The undergraduate program offers concentrations in dance and cultural studies, as well as the more flexible integrated and honors options. The graduate program offers a Master of Arts in Dance, a Master of Arts in Dance/Movement Therapy (admission currently suspended), and a Master of Fine Arts in Dance. Students are encouraged to explore relationships among the different curricular emphases, including ethnology, history and criticism, movement studies, education, and therapy, as a means to tailor a particular course of study to their professional goals.

Students in world arts and cultures at UCLA study with faculty members of international standing engaged in both creative artistic work and research. Students from this unique department have gone on to pursue advanced degrees and/or careers in dance- and humanities-based fields, arts management or practice, education, cultural policy, community outreach, architecture and urban planning, law, public service, and many others.

Undergraduate Study

World Arts and Cultures B.A.

The World Arts and Cultures major leads to the Bachelor of Arts degree and is designed to offer choice and flexibility while maintaining balance and rigor. Courses may be taken in three

different categories — performance, theoretical, and applied. Performance courses include the study of movement, art making, and aesthetic expression. Theoretical courses consider critical analysis, history, and theory as means for the contextualization of creative products and processes. Applied courses address the utilization of artistic practices in alternative formats and real-world situations. Courses from each of these categories are configured into the following concentrations, one of which students declare by the end of their sophomore year.

The *dance concentration* offers courses in a wide range of idioms from throughout the world, including studies in modern dance and ballet. Opportunities for performance, production, and movement studies, as well as dance history, kinesiology, and performance criticism and philosophy, are further options in this concentration. Multimedia forms of expression integrating music, theater, visual arts, film, and other technologies along with hybrid forms of cultural expression utilizing both emerging and classically based vocabularies are encouraged.

The *cultural studies concentration* allows students to select from a range of courses offered within the department, as well as in anthropology, art history, ethnomusicology, folklore and mythology, film, music, and theater. Students may also consider courses from ethnic and area studies programs and may organize their course of study in relation to particular interests or professional goals (e.g., international comparative studies, intercultural studies, area specializations such as Africa, Asia, or Latin America, minority discourse, gender or women's studies).

The *integrated studies concentration* offers an opportunity for students to select an equal number of units from each of the three categories of course listings — performance, theoretical, and applied. Opportunities for hands-on experience through internships, apprenticeships, and field studies, as well as the opportunity to develop skills in media technology, are emphasized in this concentration.

The *honors concentration* is intended for exceptional students who have a minimum UCLA 3.5 grade-point average. Students can select their own program of study in close consultation with faculty. They develop a rationale outlining the objectives of their study, a self-assessment of their needs for the future, a proposed list of courses, some indication of their senior project, and a title for the course of study. This proposal is submitted to the student affairs officer and the faculty at the end of the sophomore year. After approval, students are assigned a faculty adviser for their junior and senior years. This structure allows them to focus on personal educational objectives.

Students who wish to confer with the departmental counselor regarding program planning and major requirements should contact Wendy

Temple, Student Affairs Officer, at (310) 825-8537.

Admission

New students are admitted to the major for Fall Quarter only. All applicants are reviewed individually, based on a questionnaire, transcripts, two letters of recommendation, and a personal essay. These materials are requested from students in mid-December, after the general UC application is received and processed, and are due back in the department in January. For freshman applicants, college placement test scores are also considered. Students interested in the dance concentration must participate in a January audition.

Current UCLA students who petition to change their major are required to meet with the student affairs officer prior to application. They are advised to take world arts and cultures courses during the term in which they apply to the program. They must have a minimum 3.0 overall grade-point average and no more than 120 quarter units. Students interested in the dance concentration must participate in the January audition.

The Major

The major includes a core of 32 units introducing the diverse forms of artistic practice, one of four concentrations (see above) consisting of 48 units, and an eight-unit senior project.

The following courses are required:

(1) A core of nine courses (32 units): World Arts and Cultures 12, 20, 80A-80B, 80C, 134, 140A or 140B, Design 182, and Anthropology 9 or 33.

(2) A concentration of 48 units (see specific course listings below) as follows:

Dance Concentration: 32 units from group A, eight units from group B, eight units from group C

Cultural Studies Concentration: eight units from group A, 32 units from group B, eight units from group C

Integrated Studies Concentration: 16 units from group A, 16 units from group B, 16 units from group C

Honors Concentration: 48 units of coursework to be approved by the department faculty; a minimum 3.5 UCLA grade-point average is required. Proposals are to be submitted to the department faculty at the end of the sophomore year.

Group A: Performance Courses

Ethnomusicology 91A through 91Z, Theater 12, 15, 50, 130A, 138 (by petition), 150, World Arts and Cultures 1C, 5, 7A, 7B, 7C, 70, 71B through 79, 101A, 101B, 101C, C102A, C102B, C102C, 103, 105, C107, 115, 130 (by petition), 140C, 149, C171B through C179, 191, 192.

Group B: Theoretical Courses

Anthropology 9 or 33 (if not used to satisfy the core requirement), 34, 114Q, 114R, 130,

133R, 135A, 135B, 141, 144, M145, 146, 150, 151, 152, M154P, M154Q, 161, M164, 165, 167, 171, 172R, 173Q, 175R, 175T, 175U, Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57, 104A, 104B, 110G, 114A, 114C through 114F, C115D, C115E, C115F, C117A, C117B, C117C, 118A, 118D, Ethnomusicology 106A, 106B, 106C, M108A, 108B, M110A, M110B, M111, M115, 120A, 120B, M126, 128, 136A, 136B, 147, 156A, 156B, 160A, 160B, 174, M180, 181, Film and Television 106C, 112, 128, Folklore and Mythology 101, C105, CM106, C107, 108, 118, M122, M127, 130, 131, CM132, M142, M149, M150, M154A, M154B, M155, 163, C165, M170, 172, C175, M180, M181, CM182, M183, CM184, 190, German 120, Music 158, Music History 130, 135A, 135B, 135C, Theater 11, 13, 101A, 101B, 101C, 102A, 102B, 102C, 102E, M103A through 103F, 104A, 104B, 104C, 106, 107, 111A, 111B, 111C, World Arts and Cultures 40, M103D, M103H, M112, 128, 130 (by petition), 132A, 135, 141A, 146, 150, M152, C161A, 163, C164, 165A, 165B, M167, 181A through 181D, 182, 183, CM184, C187.

Group C: Applied Courses

Anthropology 118B, M136Q, 143, Ethnomusicology 10A, 10B, 10C, Folklore and Mythology C145, Music 1A, 1B, 4A, 4B, 4C, 20A, 20B, 20C, 23, 105, Theater 174A, World Arts and Cultures 23L, 48, 50, 110, C120, 122, 123A, 123B, 125, 126, C127, 130 (by petition), 141, 142, 144, 145, 148, 151A, 151B, 153, C160A, C160B, C160C, M166A/M166AL, M166B/M166BL, M166C/M166CL, C180A, C180B.

(3) World Arts and Cultures 190A-190B (eight units total). These courses are the culmination of the major and have three possible areas of focus — performance, applied research, or cultural studies research — as follows: (a) the performance project is a creative project leading to the production and public performance of original or traditional work; (b) the applied research focus implies an application of knowledge in a hands-on situation and includes projects in and with the community or campus; (c) the cultural studies focus involves students in independent ethnographic research in some aspect of the arts. The subject of study can be found in, but is not restricted to, the Los Angeles community. Field study includes the use of video, slides, and sound recordings.

Graduate Study

The following constitutes introductory information regarding graduate degree programs and is based on the 1998-99 edition of *Program Requirements for UCLA Graduate Degrees*. Complete, annual editions of *Program Requirements* are available (listed under "Publications") on the Graduate Division website at <http://www.gdnet.ucla.edu>. Students are subject to the degree requirements as published in *Program Requirements* for the year in which they matriculate.

Master's Degrees

The Department of World Arts and Cultures offers the following master's degrees: Master of Arts (M.A.) degree in Dance, Master of Arts degree in Dance/Movement Therapy, and Master of Fine Arts (M.F.A.) degree in Dance.

Admission

The program in dance/movement therapy is not accepting applications for 1999-00.

Master of Arts

For the M.A. degree in Dance or in Dance/Movement Therapy, a baccalaureate degree with an undergraduate major in dance or equivalent experience is required. Some of this experience may have been gained outside the academic setting through such avenues as dance studios or dance performance. Prospective students may contact the UCLA Department of World Arts and Cultures for a brochure which gives additional information on the overall graduate program and specific curriculum for the stated area of specialization.

In addition to the application for admission, the department has its own screening procedure: three letters of recommendation, an audition, and a personal interview. The audition evaluates applicants' creative potential and technical proficiency with consideration toward applicants' primary focus.

Admission to the dance/movement therapy program requires one undergraduate course in abnormal psychology in addition to the requirements listed above.

Master of Fine Arts

M.F.A. applicants must demonstrate exceptional promise in either choreography or performance. Auditioners in choreography show three original works; auditioners in performance present three selections already in their repertory. Applicants are required to prepare a statement (no more than one page) describing the works shown.

Areas of Study

The M.A. degree in Dance is designed for students preparing to continue professionally as researchers and teachers. The M.A. program in Dance/Movement Therapy is approved by the American Dance Therapy Association (ADTA). The M.F.A. degree is designed for students preparing to continue professionally as choreographers and/or performers.

Unique interests in areas such as dance ethnology, education, history, philosophy and criticism, dance kinesiology, dance production, dance and media, computer-aided dance studies, and music for dance may be pursued on advisement.

Course Requirements

Course requirements, beyond the basic requirements previously outlined, vary for each program and are determined under the direction of faculty advisers.

M.A. in Dance

Thirty-six units are required, including nine courses (or more depending on the specialization chosen), distributed as follows: (1) World Arts and Cultures 230; (2) four courses (16 units) in the department at the graduate level (200 series); (3) four courses (16 units) in or outside the department at the upper division or graduate level. These may not be courses taken to fulfill prerequisites nor studio technique courses. Eight units of 500-series courses (World Arts and Cultures 596A, 596R, 598) may be applied toward the total course requirement; four units may be applied toward the minimum graduate course requirement. Specific concentrations within the M.A. may be designed under the direction of faculty advisers.

M.A. in Dance/Movement Therapy

A total of 66 units is required distributed as follows: (1) World Arts and Cultures 230; (2) 46 units in the department at the graduate level (200 series); (3) 16 units in or outside the department at the upper division or graduate level. These may not be technique courses nor courses taken to fulfill prerequisites. A total of 18 units of 500-series courses (World Arts and Cultures 596A, 596R, 598) may be applied toward the total course requirement; eight units may be applied toward the minimum graduate course requirement.

These course requirements are to be partially fulfilled by World Arts and Cultures 225A-225B, C260A-C260B-C260C, C261A, 261B, 261C, 262A-262B-262C, 460A-460B-460C, 596A, 596R.

While an undergraduate course in abnormal psychology is a requisite for the M.A., other courses in psychology (developmental, personality, and group dynamics) are highly recommended.

The program in dance/movement therapy requires an intensive experience in a therapeutic setting during the second year. The internship provides an orientation to the hospital clinical setting and experience as a movement therapist.

M.F.A. in Dance

A total of 72 units is required, distributed as follows: (1) 20 units of choreographic/performance training, including at least 12 units from World Arts and Cultures 211A through 211D and at least eight units from courses 192 and/or 490; (2) 12 units of studio technique courses at the 400 level; (3) 12 units of production courses from World Arts and Cultures 142, 145, 221, C227, 240B, 240C, 240D; (4) eight units of movement studies from World Arts and Cultures 122, 225A, 225B; (5) eight units of cultural/critical studies from World Arts and Cultures 181A through 181D, 182, 183, 230, 232, 235, 236, 240A, 280A, 280B, CM284, C287; (6) eight units of education, internship, field studies, and practicum studies from World Arts and Cultures 151A, 151B, 153, 191, 251A, 251B, 251C, C261A, 261B, 261C, 262A, 262B, 262C, 400, 441, 452, 498; (7) four units of

elective coursework. Only four units of 500-level courses may be applied toward the degree. Students must enroll in a studio technique class every quarter except during an internship or the final concert/production. The required 72 units for the degree must include a minimum of 32 units of coursework at the graduate (200 and 400) level. The four units of coursework at the 500 level may be applied toward the overall unit total. Required courses are individually designed through advisement with the faculty academic adviser.

Students are expected to choose choreography or performance as their M.F.A. focus.

Comprehensive Examination Plan

Master of Arts

During the first year students in dance or dance/movement therapy who decide to take the comprehensive examination option write a proposal stating why this option is most suitable to their M.A. program. There are specific steps to the proposal presentation and approval process. Guidelines may be obtained from the department.

After completing coursework, passing the presentation, and nominating the comprehensive examination committee, students may file the advancement to candidacy petition. Students are allowed one year after advancement to candidacy to complete their comprehensive examination.

Examining committee members grade each question (1) pass with honors, (2) pass, (3) pass minus, or (4) fail. In order to pass, each question must be graded pass or better by two out of three committee members. If the questions are failed, the examination may be retaken once only during the next scheduled examination period.

Master of Fine Arts

For M.F.A. students, the preliminary examination consists of a written proposal submitted to a faculty panel and a presentation of proposed works. The written proposal includes fundamental concepts, objectives for the concert material, and production plans.

After passing the preliminary examination, a three-member M.F.A. comprehensive examination committee is selected to advise students in developing the final concert material. Obtain specific guidelines for nominating the comprehensive examination committee from the department. Students may advance to candidacy when the coursework toward the degree is completed and the presentation is passed. Students are allowed one year after advancement to candidacy to complete their M.F.A. comprehensive examination. Choreographers and performers prepare a major concert in the third year, or a series of concerts in the second and third years. An oral defense of the concert material is held with the M.F.A. comprehensive examination committee and production staff.

A written production book with visual materials and a concept paper are completed after the performance. Obtain specific guidelines from the department.

Thesis Plan

Master of Arts

During the first year M.A. students in dance or dance/movement therapy who decide to take the thesis option discuss potential thesis topics with faculty members. They prepare a written proposal which is presented to a faculty panel. After the thesis proposal is approved by the faculty panel, a three-member thesis committee is formed. There are specific steps to the proposal presentation and approval process. These guidelines may be obtained from the department.

After completing coursework, passing the presentation, and selecting the thesis committee, students may file the advancement to candidacy petition. Students are allowed one year after advancement to candidacy to file the thesis.

World Arts and Cultures

Lower Division Courses

1A-1B. Fundamentals of Modern Dance. (2-2) Laboratory, four hours. Designed for nondance majors. Courses should be taken in sequence. Study of dance technique, improvisation, and choreography. Critical viewing, reading, and discussion of modern dance artists' works. Each course may be repeated once. P/NP or letter grading.

1C. Fundamentals of Modern Dance. (2) Laboratory, four hours. Study of dance technique and improvisation. Critical viewing, reading, and discussion of modern dance artists' works. May be repeated twice. P/NP or letter grading.

5. Creative Process: Developing Imagination and Craft. (2) Lecture, one hour; laboratory, three hours. Introduction to creative exploration in movement through improvisational and compositional exercises that access and develop the imagination, find relationship between imagination and dance making, and enrich movement vocabulary. May be repeated once. P/NP or letter grading.

6. Fundamentals of Ballet. (2) Laboratory, four hours. Study of ballet techniques and principles, including dance terminology. May be repeated twice; only two units may be applied toward the major. P/NP or letter grading.

7A-7B-7C. Beginning Ballet. (2-2-2) Laboratory, four hours. Limited to World Arts and Cultures majors. Study of beginning ballet techniques and principles, including dance terminology. Only two units may be applied toward the major. P/NP or letter grading.

10. Introduction to Dance. (2) Introduction to the many and varied theoretical aspects of dance as a discipline.

12. Integrated Arts. (Formerly numbered 100.) Lecture, three hours. Limited to World Arts and Cultures majors. Introduction to concepts and theories which integrate and underlie the multidisciplinary World Arts and Cultures major.

20. Fundamentals of Music: Sounds and Systems. (4) Lecture, three hours; laboratory, one hour. Study of basic musical concepts through movement, with introductory survey of major world music/dance systems. P/NP or letter grading.

23L. Laboratory in Conditioning for Dancers. (2) Laboratory, four hours. Specific conditioning principles applied to strengthening, stretching, and endurance training. Personalized attention enables students to increase their ability to dance more efficiently and to prevent dance injuries. May be repeated twice. P/NP grading.

25. Introduction to Dance/Movement Notation. (2) Lecture, two hours; laboratory, one hour. Beginning skills in observing, analyzing, reconstructing, and recording dance/movement based on principles of the labanotation and labananalysis systems.

40. Introduction to Dance Theater. (2) Lecture, two hours; laboratory, two hours. Introduction to practical and aesthetic perspectives on theater space, as well as basic aspects of scene, lighting, costume, and sound design technology for dance production.

48. Laboratory in Dance Production. (1) Laboratory, two hours. Realization of concepts of lighting, sound, costume, scene design, and stage practices in departmental dance productions. Must be repeated once in another year. P/NP grading.

50. World Arts Forum. (1) Lecture, 90 minutes. Introduction to various arts resources on campus. Presentations by curators, artistic directors, performers, scholars, national leaders in the arts, international guests. Specific presentations vary from term to term. May be repeated for a maximum of four units. P/NP grading.

70. Survey of Dancing in Selected Cultures. (2) Studio, three hours. Introduction to dances and their movement characteristics in Western and non-Western cultures.

71B. Dance of Indonesia. (2) Studio, three hours. Dance experience not required. Introduction to technique and repertory of dance traditions (e.g., Java, Bali, Sunda).

71C. Dance of Japan. (2) Studio, three hours. Dance experience not required. Technique and repertory from the court dance tradition (e.g., Gagaku).

71D. Dance of India. (2) Studio, three hours. Dance experience not required. Introduction to dance in India, with emphasis on a particular tradition (e.g., Bharata Natyam).

71E. Dance of Korea. (2) Studio, three hours. Dance experience not required. Technique and repertoire of a selected dance tradition (e.g., Korean classical and folk).

72B. Dance of West Africa. (2) Studio, three hours. Dance experience not required. Introduction to technique and repertory of a selected region (e.g., Ghana, Guinea, Nigeria).

73B. Dance of Mexico. (2) Studio, three hours. Dance experience not required. Introduction to forms and styles in dances of several ethnographic regions. Emphasis on identifying dance characteristics through actual dancing.

74C. Dance of Spain. (2) Studio, three hours. Dance experience not required. Technique and repertory of dances from selected ethnographic regions.

74D. Dance of Anglo- and Celtic-American Tradition. (2) Laboratory, four hours. Introduction to technique and repertory of vernacular dance traditions of the British Isles and their derivatives in North America. P/NP or letter grading.

76B. Dance of Israel. (2) Studio, three hours. Dance experience not required. Technique and repertory from selected ethnographic regions.

79. Dance of a Selected Culture. (2) Studio, four hours. Introduction to selected dance forms from a culture area or historical period or of a particular dance genre. May be repeated for a maximum of 20 units. P/NP or letter grading.

80A-80B. Movement as Cultural Behavior. (2-2) Studio, three hours. Limited to World Arts and Cultures majors. Studio/laboratory examination of individual and cultural factors which affect expressive movement in cultures. Experimental classes which enhance kinesthetic and movement awareness of self and others through cultural perspective.

80C. Fundamentals of Movement. (4) Lecture, three hours; laboratory, two hours. Introduction to dance/movement principles and concepts, with primary emphasis on developing skills for understanding and analysis of art of moving. Techniques from Laban movement analysis work to be used to increase body instrument's effectiveness as a source of knowledge.

Upper Division Courses

101A-101B-101C. Intermediate Modern Dance Technique. (2-2-2) Lecture, two hours; laboratory, two hours. Technique levels II and III. Emphasis on increasing technical skill. Each course may be repeated once.

C102A-C102B-C102C. Advanced Modern Dance Technique. (2-2-2) Laboratory, four and one-half hours. Requisite: course 101C. Technique levels IV and V. Studies in advanced modern dance technique, with emphasis on performing skills. Each course may be repeated for a maximum of six units. Concurrently scheduled with courses C402A-C402B-C402C. P/NP or letter grading.

103. Improvisation in Dance. (2) Studio, four hours. Designed for World Arts and Cultures majors. Development of aesthetic perspective through use of imagery, sound, and other art. Concentration and projection. May be repeated twice.

M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (4) (Same as Chicana and Chicano Studies M103D and Theater M103D.) Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions which led to emergence of Chicano theater.

M103H. Contemporary Chicano Theater: Chicano Theater since 1980. (4) (Same as Chicana and Chicano Studies M103H and Theater M103H.) Requisite: course M103D. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art.

105. Form and Motion in Choreography. (2) (Formerly numbered 114.) Lecture, one hour; laboratory, three hours. Requisite: course 5. Study of processes derived from a Western theatrical tradition by which movement is generated with specific consideration toward shaping/forming of movement materials. May be repeated twice for credit. P/NP or letter grading.

C107. Workshop in Ballet. (2) (Formerly numbered C107A-C107B-C107C.) Lecture, one hour; studio, five hours. Requisites: courses 7A-7B-7C. Use of forms of ballet at intermediate to advanced levels, structured to integrate a somatic learning process of uncovering habitual choices in order to free personal movement habits. Examination and practice of theoretical elements of ballet, basic components of coordination, and technical training combined with expressivity. May be repeated for a maximum of 24 units. Concurrently scheduled with course C407. P/NP or letter grading.

CM109. African Religion in the Diaspora. (4) (Same as Folklore CM109.) Lecture, three hours. Designed for juniors/seniors and graduate students. Ethnography of diaspora African religions, including voodoo, Santeria, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course CM209.

110. Field Studies in World Arts and Cultures. (2 to 4) (Formerly numbered 120.) Seminar, two to four hours; fieldwork in community settings, eight to 12 hours. Field studies in the arts. Seminars, guest speakers, and field trips provide theory and methodology related to ethnographic research and/or internship placements. Projects emphasize ethnic communities or international arts organizations. May be taken for a maximum of eight units. P/NP or letter grading.

M112. Special Topics in Women and the Arts. (4) (Same as Women's Studies M112.) Lecture, three hours; outside study, nine hours. 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 women's studies major. P/NP or letter grading.

115. Topics in Choreography. (3) Lecture, two hours; laboratory, four hours. Requisite: course 5 or 103 or 105. Directed exploration in composition, with focus on developing theme-based choreographic works that are informed by theoretical engagement with selected topic 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 a maximum of 12 units. P/NP or letter grading.

C120. Music as Dance Accompaniment. (4) Requisite: course 20. Piano and percussion improvisation for dance. Choreographer/composer relationships. History of music for dance, with emphasis on contemporary trends. Music for dance performance. May be concurrently scheduled with course C220.

122. Movement Theories: Variable Topics. (2) Lecture, two hours; laboratory, two hours. Study of motor coordination patterns as related to expressive movement features for dance performance. Personalized attention and use of video to increase students' stylistic diversity. Development of movement efficiency for prevention of dance injuries. May be repeated twice. P/NP or letter grading.

123A. Anatomy for the Dancer. (4) Study of human muscular-skeletal system as related to dance.

123B. Principles of Conditioning and Correctives for Dance. (4) Requisite: course 123A. Study of biological and physical principles of human movement as related to dance. Prevention and care of dance injuries.

123C. Projects in Dance Kinesiology. (4) Requisite: course 123B. In-depth study of selected topics introduced in courses 123A and 123B.

125. Principles of Movement Analysis: Labananalysis. (4) Lecture, two hours; laboratory, two hours. Requisite: course 25. Basic principles of labananalysis. Emphasis on experiential understanding of movement through study of motion factors and elementary concepts of spatial dynamics. Focus on qualitative area of movement to further comprehension of dance as a creative art form.

126. Principles of Movement Analysis: Labanotation. (4) Lecture, two hours; laboratory, two hours. Requisite: course 25. Developing skills in reading, writing, reconstructing, and score preparation of complex movement.

C127. Video Production for Performance and Research in Traditional and Performing Arts. (4) Lecture, one hour; laboratory, three hours. Fundamentals of video production: conceptualization, field recording (camera, lighting, sound, coverage), and editing (organizing raw footage, constructing a program, mastering finished tape). Emphasis alternates quarterly between ethnographic documentary and dance/choreography. May be repeated once for credit. Concurrently scheduled with course C227.

128. Dance and the Visual Media. (4) Examination of aesthetic differences between dance, film, and video and exploration of the new aesthetic when they are combined. Analysis of the record and documentary dance film, choreo-cinema, and impact of MTV, as well as integration of media with performance.

130. Selected Topics in World Arts and Cultures. (4) Lecture, three hours. Designed for juniors/seniors. Selected topics dealing with arts and cultures through disciplines of anthropology, art history, dance, folklore and mythology, music, and theater, and additional multidisciplinary cross-cultural areas. Consult *Schedule of Classes* for topics to be offered in a specific term. May be repeated twice for credit. P/NP or letter grading.

132A-C132B. Philosophical Bases and Trends in Dance (4-2). Course 132A is requisite to C132B. Critical analysis of dance as a creative experience and role of professional and educational dance in our society. Study of present-day concepts and their relationships to other art forms and cultures. Course C132B is concurrently scheduled with course C231B.

134. History of Dance in Culture and Performance. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Study of dance in historical and cultural context, its function in society and its relationship to contemporary artistic expression. Focus on topics from traditional and recent research in world dance. P/NP or letter grading.

135. Dance in the U.S. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Designed for juniors/seniors. Study of dance expression in the U.S., including concert modern dance and ballet, popular idioms, and video dance. Special attention to influences from Native America, Asia, Africa, and Europe. P/NP or letter grading.

140A. Art as Social Action. (4) Designed for juniors/seniors. Discussion of what constitutes an artist's social responsibility and in what ways art is qualified to engage in direct political action. Study of tension between the powers of this world and the powers of art. P/NP or letter grading.

140B. Art as Moral Action. (4) 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.

140C. Seminar: Intercultural and Interdisciplinary Performance. (4) Designed for juniors/seniors. Recent discussions of multiculturalism have demanded a broader base of cultural literacy for society in general and from artists in particular. Moving beyond stereotyping and formalism, focus on areas of overlap and exchange, collaborations, collective creation, hybridization, and evolving possibilities of video and extended media. May be repeated once for credit. P/NP or letter grading.

141. Lighting Design for Dance Theater. (4) Lecture, four hours; laboratory, two hours. Lighting for dance: examination of aesthetics, principles, and technical elements. Application to selected choreographies to be publicly performed.

141A. The City as a Work of Art. (4) Lecture, three hours. Designed for juniors/seniors. Interdisciplinary approach to complex physical, emotional, psychological, and spiritual dynamics that create and sustain urban life, with emphasis on artist's role in shaping the spaces which affect people's lives. Discussion of religious and social aspirations as expressed in music, poetry, dance, and visual arts, as well as architecture and city planning. P/NP or letter grading.

142. Advanced Studies in Dance Theater Lighting. (2 or 4) Lecture, four hours; laboratory, four or more hours. Requisite: course 141. Analysis of diverse dance theater lighting problems at advanced level and individual development of creative solutions. May be taken for a maximum of four units.

144. Costume and Scenic Design Concepts for Dance Theater. (4) Study of theory for conceptualizing dance performance environments, communication through visual elements, artistic properties of costume and sets media, and procedures for producing dance costumes and sets in order to facilitate choreographer/designer communication.

145. Advanced Dance Costuming. (4) Lecture, three hours; laboratory, six hours. Requisite: course 144. Theory of dance costume construction as it relates to design intent; enhancement, accommodation, and impact on movement. Choice of textiles, construction methodology, fabric modification, and accessories. Laboratories include dance design projects currently in production.

146. Textiles of the 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.

148. Advanced Laboratory in Dance Production. (1) Laboratory, two hours. Requisites or corequisites: courses 141, 144. Further development and application of concepts of lighting, sound, costume, scene design, and stage practices in departmental dance productions. May be repeated once. P/NP grading.

149. Dance Performance Practicum. (1) Laboratory, four hours. Dancing in selected choreography or repertory in performance. May be repeated for credit. P/NP grading.

150. Viewing Native American Culture. (4) Lecture, three hours; outside study, nine hours. Exploration of artistic, political, folk, and religious images of American Indians as demonstrated in literature, art, anthropology, film, and folklore and contrasted with historic and contemporary views held by Native Americans and others. P/NP or letter grading.

151A. Foundations of Dance Education. (4) Lecture, two hours; laboratory, three hours. Designed for World Arts and Cultures majors. Introduction to movement concepts, skills, and teaching principles for modern dance instruction. Supervised teaching practicum included.

151B. Dance as Culture in Education. (4) Lecture, two hours; laboratory, two hours. Requisite: course 70. Theoretical and practical aspects of teaching ethnic dance, especially in higher education.

M152. Asian American Aesthetics. (4) (Same as Asian American Studies M119.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Exploration of shared and distinctive aspects of aesthetics found among groups of Asian Americans through lecture, readings, and field study. Formal and informal expressions of the culture, with focus on origins, artists, arts activists, and reinterpretations of culture through the arts. Individual project required. P/NP or letter grading.

153. Creative Dance for Children. (4) Lecture, three hours; laboratory, one hour. Designed for World Arts and Cultures majors. Introduction to movement concepts, skills, and principles for teaching children's dance; emphasis on dance as a creative medium of expression.

C160A-C160B-C160C. Group Dynamics and Process. (2-2-2) Lecture, one hour; laboratory, three hours. Exploration of individual and group dynamics within context of an ongoing dance/movement therapy group. Courses must be taken in sequence. Concurrently scheduled with courses C260A-C260B-C260C. P/NP or letter grading.

C161A. Women Healers, Ritual, and Transformation. (4) Lecture, four hours. Examination of role of women healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and role of arts in healing troubled communities. Concurrently scheduled with course C261A. Letter grading.

163. Living Vernacular. (4) Lecture, three hours. Survey of array of spaces and places from a cross-cultural or comparative perspective and with a performance emphasis, which means focus on mutual interaction of human beings and their created environments. Emphasis on "common," "ordinary," "anonymous," or "vernacular" nonbuilt and built environments, which are built and used by members of small-scale, "traditional," and "transitional" communities around the world. P/NP or letter grading.

C164. Arts of Identity. (4) Lecture, three hours. Introduction to a range of expressive forms, from performative and artisan traditions, that indicate cultural "identity." Survey of these arts of identity in a variety of cultural settings to provide students with a "tool kit" for perceiving and interpreting these forms in their life experiences. Concurrently scheduled with course C264. P/NP or letter grading.

165A. Introduction to Museology: Museum Collections and Administration. (5) Lecture, six hours. Introduction to history and functions of museums, tracing development to the present. Collection, organization, management, and conservation of objects and legal and ethical issues surrounding these practices. P/NP or letter grading.

165B. Introduction to Museology: Museum Exhibitions and Education. (5) Lecture, six hours. Requisite: course 165A. 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.

165C. Introduction to Museology: Selected Topics in Museology. (4) Discussion, six hours; individual study, six hours. Requisites: courses 165A, 165B. Students pursue projects in an area of museum operations, working with staff members and museum directors to produce papers on contemporary issues in museums. For example, one student might work under a curator and director to examine cultural property issues as they pertain to contemporary museums, following a suggested reading list. P/NP or letter grading.

M166A. Beyond the Mexican Mural: Beginning Muralism and Community Development. (4) (Formerly numbered M166.) (Same as Art M186A and Chicana and Chicano Studies M186A.) Studio/lecture, six hours. Corequisite: course M166AL. Investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a community. Students research, design, and work with community participants. P/NP or letter grading.

M166AL-M166BL-M166CL. Beyond the Mexican Mural: Muralism and Community Laboratory. (2-2-2) (Same as Art M186AL-M186BL-M186CL and Chicana and Chicano Studies M186AL-M186BL-M186CL.) Laboratory, two hours. Course M166AL is requisite to M166BL, which is requisite to M166CL. Mural and Digital Laboratory is an art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in a 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 a community setting. P/NP or letter grading. **M166AL.** Beginning; **M166BL.** Intermediate; **M166CL.** Advanced.

M166B. Beyond the Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Art M186B and Chicana and Chicano Studies M186B.) Studio/lecture, six hours. Requisites: courses M166A/M166AL. Corequisite: course M166BL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

M166C. Beyond the Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Art M186C and Chicana and Chicano Studies M186C.) Studio/lecture, six hours. Requisites: courses M166B/M166BL. Corequisite: course M166CL. Continuation of investigation of muralism as a method of community education, development, and empowerment. Exploration of issues through development of a large-scale collaborative digitally created image and/or painting for placement in a 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.

M167. Whose Monument Where: Course on Public Art. (4) (Same as Art M188 and Chicana and Chicano Studies M188.) Lecture, four hours. Recommended corequisite: course M166A, M166B, or M166C. Examination of public monuments in the U.S. as a basis for cultural insight and critique of American values from perspective of an artist. Use of urban Los Angeles as textbook in urban space issues such as who is the "public," what is "public space" at the end of the 20th century, what defines a neighborhood, and do different ethnic populations use public space differently. P/NP or letter grading.

C171B. Dance of Indonesia. (2) Studio, three hours. Requisite: course 71B. Technique and repertoire of a selected dance tradition (e.g., Java, Bali, or Sunda). Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C471B.

C171C. Dance of Japan. (2) Studio, three hours. Requisite: course 71C. Technique and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C471C.

C171D. Dance of India. (2) Studio, three hours. Requisite: course 71D. Technique and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C471D.

C171E. Dance of Korea. (2) Studio, three hours. Requisite: course 71E. Technique and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C471E.

C172B. Dance of West Africa. (2) Studio, three hours. Requisite: course 72B. Technique and repertoire of a selected region (e.g., Ghana, Guinea, Nigeria). Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C472B.

C173B. Dance of Mexico. (2) Studio, three hours. Requisite: course 73B. Dance techniques of selected ethnographic regions. May be repeated once. Concurrently scheduled with course C473B.

C174C. Dance of Spain. (2) Studio, three hours. Requisite: course 74C. Techniques and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C474C.

174D. Dance of Anglo- and Celtic-American Tradition. (2) Laboratory, four hours. Requisite: course 74D. Technique and repertoire of vernacular dance traditions of the British Isles and their derivatives in North America. May be repeated for credit. P/NP or letter grading.

C176B. Dance of Israel. (2) Studio, three hours. Requisite: course 76B. Technique and repertoire from selected ethnographic regions. May be repeated once. Concurrently scheduled with course C476B.

C179. Dance of a Selected Culture. (2) Laboratory, four hours. Dance technique of a selected dance form from a culture area or historical period or of a particular dance genre. May be repeated for credit. Concurrently scheduled with course C479. P/NP or letter grading.

C180A-C180B. Studies in Dance Ethnography. (4-4) Lecture, two hours; discussion, two hours. Development of observation and recording skills for study of dance events, including both analytical consideration of selected ethnographies and training in and application of field research methodologies. Concurrently scheduled with courses C279A-C279B. P/NP or letter grading. **C180A.** Dance Event Ethnographies; **C180B.** Field Research. Requisite: course C180A.

181A. Dance Cultures of Asia. (4) Introduction to dance cultures of Asia. How theories and practices of dance are influenced by historical and social factors and by ideological and aesthetic systems. Lectures illustrated with demonstrations, films, and slides.

181B. Dance in Southeast Asia. (4) Requisite: course 181A. Survey of selected ritual, social, and court dances of Indonesia, Cambodia, Thailand, and the Philippines. Social, historical, and aesthetic factors. Lectures illustrated with demonstrations, films, and slides.

181C. Dance in East Asia. (4) Requisite: course 181A. Survey of dances of Japan, China, and Korea and factors which have influenced their development and social function. Consideration of relationship of dance to other art forms. Lectures illustrated with demonstrations, films, and slides.

181D. Dance in South Asia. (4) Requisite: course 181A. Survey of dance forms in India and Sri Lanka. Factors influencing development of dance, its social function, and its relationship to other art forms. Lectures illustrated with demonstrations, films, and slides.

182. Dance in Africa and the African Diaspora. (4) Survey of dance in sub-Saharan cultures and their new world transformations, with consideration of role of dance in society, its cultural significance, and historical background. Emphasis on various African and African American cultures and genres.

183. Dance in Latino American Cultures. (4) Survey of dance in Latin America, with consideration of role of dance in society, its cultural significance, historical background, and relationship to other art forms. Emphasis on various Latino American cultures and dance genres.

CM184. Dance and Folklore. (4) (Same as Folklore CM184.) Consideration of vernacular tradition as a site for cultural configuration, social construction, representation, and display of national, ethnic, and other affinity identities. Emphasis on various European and European-American dance idioms. Concurrently scheduled with course CM284.

C187. Dance in Native American Cultures. (4) Survey of Native American dance; role of dance in society, its cultural significance, and historical background. Concurrently scheduled with course C287.

190A-190B. World Arts and Cultures Senior Colloquium. (4) Limited to senior World Arts and Cultures majors. Comparative and integrative studies in world arts and cultures, with application of concepts and content from the six disciplines of the major. Lecture/seminar format with World Arts and Cultures faculty during first term; topics include arts in a societal context, ethnicity and the individual, and problems and approaches to fieldwork. Faculty-directed individual projects during second term. Fieldwork on some aspect of various arts/expressive behaviors found in ethnic communities of Los Angeles. In Progress grading.

191. Repertory Dance Tour. (2 or 4) Lecture, two hours; rehearsal or performance, four to six hours. Designed for World Arts and Cultures majors. Creation and performance of dance concerts in the community, with special emphasis on problems of touring dance company with a variable repertoire. May be repeated once.

192. Projects in Dance. (2 to 4) Laboratory, four to six hours (one or two hours may be individualized consultation). Individualized major projects in choreography, performance, production, media. May be repeated for credit. P/NP or letter grading.

196. Senior Project. (2 or 4) Seminar, two hours; discussion, two hours, or laboratory, to be arranged. Limited to seniors. Advanced project reflecting student's area of concentration. May be taken for a maximum of four units.

C197. Selected Topics in Dance. (2 to 4) Lecture, discussion, and analysis of a selected dance style, specific time period, or dance of a particular culture group. May be repeated once. Concurrently scheduled with course C297.

199. Special Studies in World Arts and Cultures. (2 to 8) Preparation: 3.0 grade-point average in major. Designed for juniors/seniors. Individual studies for World Arts and Cultures majors. May be taken for a maximum of eight units. P/NP or letter grading.

Graduate Courses

CM209. African Religion in the Diaspora. (4) (Same as Folklore CM209.) Lecture, three hours. Designed for juniors/seniors and graduate students. Ethnography of diaspora African religions, including voodoo, Santeria, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course CM109.

211A-211F. Advanced Choreography. (4) Lecture, two hours; laboratory, two hours. Theoretical aspects of advanced choreography for students who have reached the level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers.

C220. Music as Dance Accompaniment. (4) Requisite: course 20. Piano and percussion improvisation for dance. Choreographer/composer relationships. History of music for dance, with emphasis on contemporary trends. Music for dance performance. May be concurrently scheduled with course C120. Graduate students must complete two additional assignments. May not be applied toward M.A. degree requirements.

221. Music for Dance. (4) Requisite: course C120. Theory of aesthetic and functional relationship of music to dance.

223. Principles of Dance Kinesiology. (4) Scientific basis for movement for dance. Study of anatomical, kinesiological, and physical principles and demands of dance.

225A-225B. Theories of Movement: Laban analysis. (4) Lecture, two hours; laboratory, two hours. Theories of Laban movement analysis as means for analyzing and describing human movement. Use of Laban movement analysis to increase movement observation skills and theoretical understanding of role of movement in dance, nonverbal behavior, and cross-cultural dance studies. Focus on complex movement patterns and timing.

226. Advanced Studies in Notation. (2) Requisite: course 126. Selected problems in directing from notated repertoire; principles of teaching, comparative notation systems, writing projects.

C227. Video Production for Performance and Research in Traditional and Performing Arts. (4) Lecture, one hour; laboratory, three hours. Fundamentals of video production: conceptualization, field recording (camera, lighting, sound, coverage), and editing (organizing raw footage, constructing a program, mastering finished tape). Emphasis alternates quarterly between ethnographic documentary and dance/choreography. May be repeated once for credit. Concurrently scheduled with course C127.

230. Research Methods and Bibliography in Dance. (4) Survey of methods for scholarly analysis of dance materials using systems from social sciences, physical sciences, and humanities.

231A. Basic Issues in Dance and Dance Theory. (4) Lecture, four hours. Issues common to specialization areas in the field of dance: movement, presentation and transformation, composition, contexts (such as historical, ritual, social, educational, therapeutic), documentation (notation, film, video), production, etc. S/U or letter grading.

C231B. Philosophical Bases and Trends in Dance. (2) Requisite: course 231A. Study of present-day concepts and their relationship to other art forms and cultures. Concurrently scheduled with course C132B. Evaluations of graduate students based on extended reading list and term papers.

232. Aesthetics of Dance. (4) Analysis of aesthetic concepts and critical methods used in writing about dance.

235. History of Ballet. (4) Development of ballet from 19th-century Romanticism to the present. Stylistic differences in Italy, France, England, Denmark, and Russia. S/U or letter grading.

236. Dance in the 20th Century. (4) Seminar in historical development of 20th-century dance. S/U or letter grading.

240A. Production Arts Seminar. (4) Seminar, two hours; discussion, two hours; laboratory, two hours. Examination and research of dance and performer/audience relationships in various historic periods and cultural settings. Impact of different aesthetic/directorial approaches to theatrical production of dance. Exploration of selection of locale, style, aural and visual enhancements.

240B. Production Arts Seminar. (4) Seminar, four hours; laboratory, to be arranged. Study of elements of design. Development of a vocabulary for analysis of dance movement and choreography. Communication among collaborating artists. Conceptualizing and producing the design and sound score for a dance production.

240C. Production Arts Seminar. (4) Seminar, four hours; laboratory, to be arranged. Examination of contemporary art world, including arts organizations, funding sources, legal aspects of arts production, support groups, public relations and publicity. S/U or letter grading.

240D. Production Arts Seminar. (2) Seminar, three hours. Corequisites: courses 441, 490. Topics from current problems of students preparing M.F.A. concert productions.

251A-251D. Advanced Studies in Dance Education. (4 each) Lecture, two hours; discussion, two hours. Preparation: previous teaching experience. S/U or letter grading:

251A. Historical and Theoretical Framework for Dance Education. Development of a framework for teaching/learning process in dance and application to varied settings and populations.

251B. Theories and Methods. Examination of current theories of artistic intelligence, body education systems, motor learning, and creativity and how they are related to teaching dance, including analysis of traditional models for developing alternative methodologies.

251C. Curriculum Development in Varied Dance Settings. Issues include course/program/materials planning, development, implementation, and evaluation, with emphasis on analyzing underlying educational values affecting decision-making process.

251D. Dance Administration. Relation of theories and practice to dance settings, clarifying issues of hierarchical structures, chains of command, staffing, facilities, and budget and why and how dance courses/programs succeed or fail.

C260A-C260B-C260C. Group Dynamics and Process. (2-2-2) Lecture, one hour; laboratory, three hours. Exploration of individual and group dynamics within context of an ongoing dance/movement therapy group. Concurrently scheduled with courses C160A-C160B-C160C. S/U grading.

C261A. Women Healers, Ritual, and Transformation. (4) Lecture, four hours. Examination of role of women healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and role of arts in healing troubled communities. Concurrently scheduled with course C161A. Letter grading.

261B. Self and Culture. (4) (Not the same as course 261B prior to Fall Quarter 1997.) Lecture, two hours; laboratory, two hours. Requisite: course C261A. Examination of critical developmental processes and situational factors contributing to construction of a sense of self and emergence of creativity and subjective relatedness in different cultural contexts.

261C. Dance/Movement Therapy: Dance as Healing and Therapy. (4) Lecture, two hours; laboratory, two hours. Requisites: courses C261A, 261B. Historical overview of various theoretical approaches and corresponding methodologies encompassed by dance/movement therapy, a contemporary creative arts therapy field which encompasses healing and therapeutic aspects of dance.

262A-262B-262C. Seminars: Dance/Movement Therapy. (4-4-4) Seminar, two hours; laboratory, two hours. Requisites: courses C261A, 261B-261C. Year-long sequential dance/movement therapy seminars adopting a psychodynamic life-span developmental approach to clinical community work with ethnically diverse populations.

C264. Arts of Identity. (4) Lecture, three hours. Introduction to a range of expressive forms, from performative and artisan traditions, that indicate cultural "identity." Survey of these arts of identity in a variety of cultural settings to provide students with a "tool kit" for perceiving and interpreting these forms in their life experiences. Concurrently scheduled with course C164. S/U or letter grading.

C279A-C279B. Studies in Dance Ethnography. (4-4) Lecture, two hours; discussion, two hours. Development of observation and recording skills for study of dance events, including both analytical consideration of selected ethnographies and training in and application of field research methodologies. Concurrently scheduled with courses C180A-C180B. S/U or letter grading. **C279A.** Dance Event Ethnographies; **C279B.** Field Research. Requisite: course C279A.

280A-280B. Advanced Studies in Dance Ethnology. (4-4) Dance viewed as an aspect of culture and human behavior. S/U or letter grading. **280A.** Survey of literature of the field of dance ethnology and in related fields of anthropology, folklore, performance studies, and sociology. **280B.** Advanced studies in methodologies and theories to develop dance-focused ethnographic research.

CM284. Dance and Folklore. (4) (Same as Folklore CM284.) Consideration of vernacular tradition as a site for cultural configuration, social construction, representation, and display of national, ethnic, and other affinity identities. Emphasis on various European and European-American dance idioms. Concurrently scheduled with course CM184.

C287. Dance in Native American Cultures. (4) Survey of Native American dance; role of dance in society, its cultural significance, and historical background. Concurrently scheduled with course C187.

C297. Selected Topics in Dance. (2 to 4) Lecture, discussion, and analysis of a selected dance style, specific time period, or dance of a particular culture group. May be repeated once. Concurrently scheduled with courses C197. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Preparation: apprentice personnel employment as a teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

400. Directed Professional Activities. (2 to 8) Directed projects in professional editing, bibliography, filmography, videography, conference and festival direction, and other professional activities. May not be applied toward M.A. degree requirements. May be repeated. S/U grading.

C402A-C402B-C402C. Advanced Modern Dance Technique. (2-2-2) Laboratory, four and one-half hours. Technique levels IV and V. Studies in advanced modern dance technique, with emphasis on performing skills. May be repeated for credit. Concurrently scheduled with courses C102A-C102B-C102C. S/U or letter grading.

C407. Workshop in Ballet. (2) (Formerly numbered C407A-C407B-C407C.) Lecture, one hour; studio, five hours. Requisites: courses 7A-7B-7C. Use of forms of ballet at intermediate to advanced levels, structured to integrate a somatic learning process of uncovering habitual choices in order to free personal movement habits. Examination and practice of theoretical elements of ballet, basic components of coordination, and technical training combined with expressivity. May be repeated for a maximum of 24 units. Concurrently scheduled with course C107. 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 a maximum of eight units. S/U grading.

451. 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.

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 the community school or other approved site. No more than four units may be applied toward M.A. degree requirements. S/U grading.

460A-460B-460C. Clinical Internship Supervision. (4-4-4) Lecture, two hours; discussion, two hours. Corequisites: courses 262A-262B-262C, 596R. Practicum dealing with student internship: movement/observation, therapeutic goals, therapeutic process, and other clinical uses. S/U grading.

C471B. Dance of Indonesia. (2) Studio, three hours. Requisite: course 71B. Technique and repertoire of a selected dance tradition (e.g., Java, Bali, or Sunda). Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C171B.

C471C. Dance of Japan. (2) Studio, three hours. Requisite: course 71C. Technique and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C171C.

C471D. Dance of India. (2) Studio, three hours. Requisite: course 71D. Technique and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C171D.

C471E. Dance of Korea. (2) Studio, three hours. Requisite: course 71E. Technique and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C171E.

C472B. Dance of West Africa. (2) Studio, three hours. Requisite: course 72B. Technique and repertoire of a selected region (e.g., Ghana, Guinea, Nigeria). Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C172B.

C473B. Dance of Mexico. (2) Studio, three hours. Requisite: course 73B. Dance techniques of selected ethnographic regions. May be repeated once. Concurrently scheduled with course C173B.

C474C. Dance of Spain. (2) Studio, three hours. Requisite: course 74C. Techniques and repertoire of a selected tradition. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once. Concurrently scheduled with course C174C.

C476B. Dance of Israel. (2) Studio, three hours. Requisite: course 76B. Technique and repertoire from selected ethnographic regions. May be repeated once. Concurrently scheduled with course C176B.

C479. Dance of a Selected Culture. (2) Laboratory, four hours. Dance technique of a selected dance form from a culture area or historical period or of a particular dance genre. May be repeated for credit. Concurrently scheduled with course C179. S/U or letter grading.

480. Seminar: Research Topics. (2) Forum in which faculty, students, and visitors make presentations and obtain feedback on research being planned, conducted, or recently completed. Students required to make a presentation each term they are enrolled for credit. May be repeated for a maximum of eight units. S/U grading.

490. Projects in Choreography and Performance. (2 to 8) Tutorial, one three-hour rehearsal per unit per week minimum. Requisite: course 240C. 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 a maximum of 16 units.

498. Professional Internship in Dance. (4, 8, or 12) Full- or part-time supervised fieldwork. Limited to M.F.A. students. Internship in dance, theater, film, or television organization. Participation in creative, administrative, or technical work of professionals in their specialties.

596A. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

596R. Directed Study or Research in a Hospital or Clinic. (2 to 8) S/U grading.

597. Preparation for Master's Comprehensive Examination. (2 to 8) Preparation for M.A. or M.F.A. comprehensive examination. S/U grading.

598. Research for and Preparation of Master's Thesis. (2 to 8) Research for and preparation of M.A. or M.F.A. thesis. S/U grading.

Appendix A

Regulations and Policies

Nondiscrimination

The University of California, in accordance with applicable Federal and State Laws and University Policies, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities.

Inquiries regarding the University's student-related nondiscrimination policies may be directed to the UCLA Campus Counsel, 3149 Murphy Hall, Box 951405, Los Angeles, CA 90095-1405, (310) 825-4042. Speech- and hearing-impaired persons may call TTY (310) 206-6083.

Inquiries regarding nondiscrimination on the basis of disability covered by the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act of 1973 may be directed to Dr. Douglas Martin, Special Assistant to the Chancellor/Coordinator of ADA and 504 Compliance, A239 Murphy Hall, UCLA, Box 951405, Los Angeles, CA 90095-1405, voice (310) 825-2242, TTY (310) 206-3349; <http://www.saonet.ucla.edu/ada.htm>.

Students may complain of any action which they believe discriminates against them on the ground of race, color, national origin, marital status, sex, sexual orientation, disability, or age and may contact the Office of the Dean of Students, 1206 Murphy Hall, and/or refer to Section 111.00 of the *University of California Policies Applying to Campus Activities, Organizations, and Students* (available in 1206 Murphy Hall or at <http://www.ucop.edu/ucophome/uwnews/aospol.html>) for further information and procedures.

Student Conduct Policies

Students are members of both society and the academic community with attendant rights and responsibilities. Students are expected to comply with the general law, University policies, and campus regulations. For further information, refer to the *University of California Policies Applying to Campus Activities, Organizations, and Students* at <http://www.ucop.edu/ucophome/uwnews/aospol/toc.html> and the *UCLA Students Conduct Code* at <http://www.saonet.ucla.edu/dos/SCC98.htm>.

A. Jurisdiction

The University shall have jurisdiction over student conduct that occurs on University property, or in connection with official University functions whether on or off University property. Although the University will not routinely invoke its disciplinary processes over student conduct that occurs off campus except in connection with an official University function, the University shall have discretion to exercise jurisdiction over conduct that occurs off campus and that would violate student conduct and discipline policies or regulations if the conduct had occurred on campus when (1) the alleged misconduct indicates the student poses a threat to the safety or security of any member(s) of the University community or (2) the alleged misconduct involves academic work or the forgery, alteration, or misuse of any University document, record, key, electronic device, or identification.

Specifically, the University may choose to exercise jurisdiction over off-campus incidents under item 1 above where the alleged misconduct involves

(a) Physical abuse, including but not limited to rape, sexual assault, sex offenses, and other physical assault; threats of violence; or conduct that threatens the health or safety of any person;

(b) Stalking (as defined in Section 102.10 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*);

(c) Sexual harassment (as defined in Section 102.09 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*);

(d) Hazing (as defined in Section 102.12 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*).

In determining whether or not to exercise off-campus jurisdiction in cases under item 1 above, the University will consider the seriousness of the alleged misconduct; whether the alleged victim is a member of the campus community; the ability of the University to gather evidence, including the testimony of witnesses; or whether the off-campus conduct is part of a series of actions that occurred both on and off campus.

This section is intended only to provide guidance for the exercise of discretion by the University in invoking its jurisdiction over conduct that occurs off campus. It may not be relied on by any student charged under this section to create any rights, substantive or procedural, or as a basis for a challenge to the exercise of the University's jurisdiction.

B. Grounds for Discipline

The chancellor may impose discipline for violation of, or an attempt to violate, any University policies or campus regulations. The lack of intent to commit a violation is not a factor in determining if a violation occurred; however, the lack of intent may be considered a mitigating factor in determining the appropriate sanction if it has been determined that a violation has occurred. Violations or attempted violations include, but are not limited to, the following types of misconduct (Sections 102.01 through 102.25 below are adapted from the *University of California Policies Applying to Campus Activities, Organizations, and Students*):

C. Types of Misconduct

102.01: Academic Dishonesty. All forms of academic misconduct, including but not limited to cheating, fabrication, plagiarism, multiple submissions, or facilitating academic dishonesty. For the purposes of this Code, the following definitions apply:

Salary and Employment Information, University of California

	DEGREE LEVEL OF GRADUATES		
	BACHELOR'S	MASTER'S	DOCTORATE
	AVERAGE MONTHLY SALARY*		
Engineering	\$3,549	\$4,256	\$5,443
Humanities	2,150	2,719	3,083
Life Sciences	2,114	2,725	3,814
Management	2,711	4,429	5,281
Physical Sciences	2,842	3,877	5,002
Social Sciences	2,221	3,386	4,375

*Source: A national survey of a representative group of colleges conducted by the National Association of Colleges and Employers, representing the 80 percent range of offers for April 1999 throughout the country. It should be noted that a wide variation in starting salaries exists within each discipline based on job location, type of employer, personal qualifications of the individual, and employment conditions at the time of job entry.

102.01a: Cheating. Cheating includes, but is not limited to, the use of unauthorized materials, information, or study aids in any academic exercise; or helping another student commit an act of academic fraud; or the failure to observe the expressed procedures or instructions of an academic exercise (e.g., examination instructions regarding alternate seating or conversation during an examination).

102.01b: Fabrication. Fabrication includes, but is not limited to, falsification or invention of any information or citation in an academic exercise.

102.01c: Plagiarism. Plagiarism includes, but is not limited to, the use of another's words or ideas as if they were one's own; including but not limited to representing, either with the intent to deceive or by the omission of the true source, part of or an entire work produced by someone other than the student, obtained by purchase or otherwise, as the student's original work; or representing the identifiable but altered ideas, data, or writing of another person as if those ideas, data, or writing were the student's original work.

102.01d: Multiple Submissions. Multiple submissions includes, but is not limited to, the re-submission by a student of any work which has been previously submitted for credit in identical or similar form in one course to fulfill the requirements of a second course, without the informed permission/consent of the instructor of the second course; or the submission by a student of any work submitted for credit in identical or similar form in one course to fulfill the requirements of a concurrent course, without the permission/consent of the instructors of both courses.

102.02: Other Forms of Dishonesty. Other forms of dishonesty, including but not limited to fabricating information or knowingly furnishing false information or reporting a false emergency to the University or to University officials acting in the performance of their duties.

102.03: Forgery. Forgery, alteration, or misuse of any University document, record, key, electronic device, or identification. Section 102.03 applies to any individual for whom the University maintains records, regardless of current student status.

102.04: Theft. Theft of, conversion of, misappropriation of, or damage to or destruction of any property of the University or property of others while on University premises or at official University functions; or possession of any property of the University or others stolen while on University premises or at official University functions.

102.05: Computers. Theft or other abuse of computing facilities or computer time, including but not limited to unauthorized entry into a file to use, read, or change the contents or for any other purpose; unauthorized transfer of a file; unauthorized use of another individual's identification or password; use of computing facilities to interfere with the work of another student,

faculty member, or University official; use of computing facilities to interfere with a University computing system. Violation of the *University of California Electronic Mail Policy* (available at www.ucop.edu/ucophome/policies/email/), or of any UCLA acceptable or allowable use policy, is also considered a violation of Section 102.05.

102.06: Unauthorized Conduct. Unauthorized possession of, receipt of, duplication of, or use of the University's name, insignia, or seal. Unauthorized entry to, possession of, receipt of, or use of any University properties, equipment, resources, or services. Selling or distributing course lecture notes, handouts, readers, or other information provided by an instructor, or using them for any commercial purpose, without the express permission of the instructor.

102.07: University-Owned Housing. Violation of policies, regulations, or rules governing University-owned or operated housing facilities or leased housing facilities located on University property.

102.08: Physical Abuse. Physical abuse, including but not limited to rape, sexual assault, sex offenses, and other physical assault; threats of violence; or conduct that threatens the health or safety of any person.

102.08a: Rape. For the purposes of this Code, rape refers to "rape" as defined by the California Penal Code (as it may be amended from time to time). Among other acts, the Penal Code prohibits the following acts:

(1) Sexual intercourse against a person's will accomplished by force or threats of bodily injury.

(2) Sexual intercourse against a person's will where the person has reasonable fear that she (or he) or another will be injured if she (or he) does not submit to the intercourse.

(3) Sexual intercourse where the person is incapable of giving consent, or is prevented from resisting, due to alcohol or drugs, and this condition was known, or reasonably should have been known by the accused.

(4) Sexual intercourse where the person is incapable of resisting because she (or he), at the time, is unconscious or asleep, and this is known to the accused.

102.08b: Sexual Assault. The act of sexual assault includes forced sodomy (anal intercourse); forced oral copulation (oral-genital contact); rape by foreign object (forced penetration by a foreign object, including a finger); and sexual battery (the unwanted touching of an intimate part of another person for the purpose of sexual arousal). These also include situations when the accused sexually assaults a complainant incapable of giving consent, including where the complainant is prevented from resisting due to alcohol or drugs and this condition was known, or reasonably should have been known by the accused. NOTE: For

the purpose of this regulation, students should understand that

(1) Forced intercourse or other unwanted sexual contact is defined as rape or sexual assault whether the assailant is a stranger or an acquaintance of the complainant.

(2) Intoxication of the assailant shall not diminish the assailant's responsibility for sexual assault.

102.09: Sexual Harassment. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when

(1) Submission to such conduct is made either explicitly or implicitly a term or condition of instruction, employment, or participation in other University activity;

(2) Submission to or rejection of such conduct by an individual is used as a basis for evaluation in making academic or personnel decisions affecting an individual; or

(3) Such conduct has the purpose or effect of unreasonably interfering with an individual's performance or creating an intimidating, hostile, or offensive University environment.

In determining whether the alleged conduct constitutes sexual harassment, consideration shall be given to the record of the incident as a whole and to the totality of the circumstances, including the context in which the alleged incidents occurred.

102.10: Stalking. Stalking behavior in which an individual willfully, maliciously, and repeatedly engages in a knowing course of conduct directed at a specific person which reasonably and seriously alarms, torments, or terrorizes the person, and which serves no legitimate purpose.

102.11: "Fighting Words." The use of "fighting words" by students to harass any person(s) on University property, on other property to which these policies apply, or in connection with official University functions or University-sponsored programs. "Fighting words" are those personally abusive epithets which, when directly addressed to any ordinary person are, in the context used and as a matter of common knowledge, inherently likely to provoke a violent reaction whether or not they actually do so. Such words include, but are not limited to, those terms widely recognized to be derogatory references to race, ethnicity, religion, sex, sexual orientation, disability, and other personal characteristics. "Fighting words" constitute "harassment" when the circumstances of their utterance create a hostile and intimidating environment which the student uttering them should reasonably know will interfere with the victim's ability to pursue effectively his or her education or otherwise to participate fully in University programs and activities.

102.12: Hazing. Hazing or any method of initiation or preinitiation into a campus organization or any activity engaged in by the organization or members of the organization which

causes, or is likely to cause, bodily danger, physical harm, or personal degradation or disgrace resulting in physical or mental harm to any student or other person.

102.13: Obstruction or Disruption. Obstruction or disruption of teaching, research, administration, disciplinary procedures, or other University activities.

102.14: Disorderly Conduct. Disorderly or lewd conduct.

102.15: Disturbing the Peace. Participation in a disturbance of the peace or unlawful assembly.

102.16: Failure to Comply. Failure to identify oneself to, or comply with directions of, a University official or other public official acting in the performance of their duties while on University property or at official University functions, or resisting or obstructing such University or other public officials in the performance of or the attempt to perform their duties.

102.17: Controlled Substances. Unlawful manufacture, distribution, dispensing, possession, use, or sale of, or the attempted manufacture, distribution, dispensing, or sale of controlled substances, identified in Federal and State laws or regulations.

102.18: Alcohol. Manufacture, distribution, dispensing, possession, use, or sale of, or the attempted manufacture, distribution, dispensing, or sale of alcohol which is unlawful or otherwise prohibited by, or not in compliance with, University policy or campus regulations.

102.19: Destructive Devices. Possession, use, storage, or manufacture of explosives, firebombs, or other destructive devices.

102.20: Weapons. Except as expressly permitted by law, possession, use, storage, or manufacture of a firearm or other weapon capable of causing bodily injury.

102.21: Violation of Disciplinary Conditions. Violation of the conditions contained in the terms of a disciplinary action imposed under this Code.

102.22: Violation of Emergency or Interim Suspension Conditions. Violation of the conditions contained in a written Notice of Emergency or Interim Suspension issued pursuant to Section IV of this Code.

102.23: Violation of Campus Restraining Order. Violation of the conditions contained in a written Campus Restraining Order issued pursuant to Section III.A.2.a.(1) of this Code.

102.24: University Properties. Using University properties for the purpose of organizing or carrying out unlawful activity.

102.25: Violations of Law. Violation of Federal, State, or local laws.

Rape and Other Forms of Sexual Assault

UCLA does not tolerate sexual assault in any form, including acquaintance or date rape.

Where there is probable cause to believe that the campus regulations prohibiting sexual assault have been violated, the campus pursues disciplinary actions which may include sanctions up to and including dismissal from the University.

A student charged with sexual assault can be prosecuted under California criminal statutes *and* disciplined under the campus student conduct policies and regulations. Even if the criminal justice authorities choose not to prosecute, the campus can pursue disciplinary action.

Definitions

For explicit definitions of **rape** and **sexual assault**, refer to Sections 102.08a and 102.08B of the Student Conduct Policies listed above.

If a Person Has Been Raped or Sexually Assaulted

Those who believe that they are the victims of rape or other forms of sexual assault should

(1) **Immediately call the police department.** If possible, call 911 or the UCLA Police Department at (310) 825-1491.

(2) **Get medical attention.** Campus police will provide transportation to the Santa Monica UCLA Medical Center Emergency Room for emergency medical treatment and evidence collection. A counselor from the Santa Monica Rape Treatment Center will be available at that time, free of charge.

Utilize campus and community support services:

(1) **Contact a Rape Services Consultant (RSC)** at the Women's Resource Center. RSCs have expertise in working with victims of rape or sexual assault. They can discuss options and alternatives, help identify the most appropriate support services, and provide information about medical care, psychological counseling, academic assistance, legal options, how to file a police report, and how to file a complaint through the Office of the Dean of Students. RSCs are available to assist UCLA faculty, staff, and students regardless of where or when the assault occurred. For assistance, contact the Women's Resource Center at (310) 206-8240 or go to 2 Dodd Hall and ask to speak to an RSC.

(2) **Contact the Rape Treatment Center** at Santa Monica UCLA Medical Center (310-319-4000) for free emergency medical treatment and counseling services.

Campus Discipline Process When the Assailant Is a Student

Those who believe that they are the victims of rape or other forms of sexual assault by a student on University properties or in conjunction with an official University function may file a complaint directly with the Office of the Dean of Students, 1206 Murphy Hall, <http://www.saonet.ucla.edu/dos/>.

Cases referred to the Office of the Dean of Students are treated under the hearing procedures set forth in the *UCLA Student Conduct Code*

(<http://www.saonet.ucla.edu/dos/SCC98.htm>).

Where the allegation is of rape or other forms of sexual assault, and the case is referred to the Student Conduct Committee, the following *additional* procedures shall apply:

(1) The complainant shall be entitled, for support, to have up to two persons of the complainant's choice accompany the complainant to the hearing. A support person may be called as a witness, and the fact that he or she is to act as a witness shall not preclude that person's attendance throughout the entire hearing. If a support person is also a witness, the committee chair (or the hearing officer) may require him or her to testify before the complainant. Neither of these persons shall be entitled to represent or defend the complainant. Similar rights shall be afforded to the accused student.

(2) The complainant shall have the right to be present during the entire hearing, notwithstanding the fact that the complainant is to be called as a witness.

(3) Evidence of the complainant's past sexual history, including opinion evidence, reputation evidence, and evidence of specific instances of the complainant's sexual conduct, shall not be admissible by the accused student unless the committee chair or hearing officer makes a specific finding of relevance after an offer of proof by the accused student. Under no circumstances is past sexual history admissible to prove consent. The offer of proof must be made and resolved by the panel before the complainant testifies.

(4) The hearing shall be closed to spectators.

Harassment

Sexual Harassment

Every member of the campus community should be aware that the University is strongly opposed to sexual harassment and that such behavior is prohibited both by law and by University policy.

Definitions

For explicit definitions of **sexual harassment**, refer to Section 102.09 of the Student Conduct Policies listed above.

Complaint Resolution

Experience has demonstrated that many complaints of sexual harassment can be effectively resolved through informal intervention. Individuals who experience what they consider to be sexual harassment are advised to confront the alleged offender immediately and firmly.

Additionally, an individual who believes that she or he has been sexually harassed may contact the alleged offender's supervisor and/or a Sexual Harassment Information Center counselor for help and information regarding sexual harassment complaint resolution or grievance procedures at one of the locations listed below as determined by the complainant's status at the University at the time of the alleged incident:

(1) Campus Ombuds Office, 1172 Career Center, (310) 825-7627, <http://www.saonet.ucla.edu/ombuds/> (for faculty, staff, and students)

(2) Women's Resource Center, 2 Dodd Hall, (310) 825-3945 (for faculty, staff, and students)

(3) Office of Residential Life, Residential Life Building, (310) 825-3401, <http://www.orl.ucla.edu/> (for students)

(4) Office of International Students and Scholars, 106 Bradley Hall, (310) 825-1681, <http://www.saonet.ucla.edu/intl/> (for international students)

(5) Student Psychological Services, 4223 Math Sciences, (310) 825-0768, or A3-062 Center for the Health Sciences, (310) 825-7985, <http://www.saonet.ucla.edu/sps.htm> (for students)

(6) Office of Vice Chancellor — Academic Personnel, 2147 Murphy Hall, (310) 206-9345, <http://www.apo.ucla.edu/apoweb/index.htm> (for faculty, including non-Senate academic appointees and student academic appointees when acting in the capacity of their non-Senate appointments)

(7) Campus Human Resources/Employee and Labor Relations Division, 200 UCLA Wilshire Center, (310) 794-0859, <http://www.chr.ucla.edu> (for campus staff employees and students when acting in the capacity of their staff appointments)

(8) Medical Center Human Resources Office, 924 Westwood Boulevard (Bank of America Building), Suite 200, (310) 794-0500, <http://149.142.193.6/healthnet/medctr.hr/> (for Medical Center staff employees and students when acting in the capacity of their staff appointments)

(9) UCLA Extension Dean's Office, 770 UCLA Extension (UNEX), (310) 825-5603, <http://www.unex.ucla.edu> (for UCLA Extension faculty, staff employees, and students)

Other Forms of Harassment

The University strives to create an environment which fosters the values of mutual respect and tolerance and is free from discrimination based on race, ethnicity, sex, religion, sexual orientation, disability, age, and other personal characteristics. Certainly harassment, in its many forms, works against those values and often corrodes a person's sense of worth and interferes with one's ability to participate in University programs or activities. While the University is committed to the free exchange of ideas and the full protection of free expression, the University also recognizes that words can be used in such a way that they no longer express an idea, but rather injure and intimidate, thus undermining the ability of individuals to participate in the University community. The *University of California Policies Applying to Campus Activities, Organizations, and Students* (hereafter referred to as *Policies*; <http://www.ucop.edu/ucophome/uwnews/aospol/toc.html>) presently prohibit a variety of conduct by students which, in certain contexts, may be regarded as harassment or intimidation.

For example, harassing expression which is accompanied by physical abuse, threats of violence, or conduct that threatens the health or safety of any person on University property or in connection with official University functions may subject an offending student to University discipline under the provisions of Section 102.08 of the *Policies*.

Similarly, harassing conduct, including symbolic expression, which also involves conduct resulting in damage to or destruction of any property of the University or property of others while on University premises may subject a student violator to University discipline under the provisions of Section 102.04 of the *Policies*.

Further, under specific circumstances described in the *Universitywide Student Conduct Harassment Policy* (<http://www.saonet.ucla.edu/dos/sexharas.htm>), students may be subject to University discipline for misconduct which may consist solely of expression. Copies of this *Policy* are available in the Office of the Dean of Students, 1206 Murphy Hall, or in any of the Harassment Information Centers listed below:

(1) Campus Ombuds Office, 1172 Career Center, (310) 825-7627, <http://www.saonet.ucla.edu/ombuds/>

(2) Women's Resource Center, 2 Dodd Hall, (310) 825-3945

(3) Office of Residential Life, Residential Life Building, (310) 825-3401, <http://www.orl.ucla.edu/>

(4) Office of International Students and Scholars, 106 Bradley Hall, (310) 825-1681, <http://www.saonet.ucla.edu/intl/>

(5) Student Psychological Services, 4223 Math Sciences, (310) 825-0768, or A3-062 Center for the Health Sciences, (310) 825-7985, <http://www.saonet.ucla.edu/sps.htm>

(6) Office of Fraternity and Sorority Relations, 118 Men's Gym, (310) 825-6322, <http://www.saonet.ucla.edu/csp/FSR/>

Complaint Resolution

One of the necessary measures in our efforts to assure an atmosphere of civility and mutual respect is the establishment of procedures which provide effective informal and formal mechanisms for those who believe that they have been victims of any of the above misconduct.

Many incidents of harassment and intimidation can be effectively resolved through informal means. For example, an individual may wish to confront the alleged offender immediately and firmly. An individual who chooses not to confront the alleged offender and who wishes help, advice, or information is urged to contact any of the Harassment Information Centers listed immediately above.

In addition to providing support for those who believe they have been victims of harassment, Harassment Information Centers offer persons the opportunity to learn about the phenomena

of harassment and intimidation; to understand the formal and informal mechanisms by which misunderstandings may be corrected and, when appropriate, student perpetrators may be disciplined; and to consider which of the available options is the most useful for the particular circumstances.

With regard to the *Universitywide Student Conduct Harassment Policy*, complainants should be aware that not all conduct which is offensive may be regarded as a violation of this *Policy* and may, in fact, be protected expression. Thus, the application of formal institutional discipline to such protected expression may not be legally permissible. Nevertheless, the University is committed to reviewing any complaint of harassing or intimidating conduct by a student and intervening on behalf of the complainant to the extent possible.

Faculty Code of Conduct

The entire Faculty Code of Conduct can be found in the *UCLA Faculty Handbook* (copies are available in the Academic Personnel Office, 3109 Murphy Hall, and at <http://www.apo.ucla.edu/apoweb/facultyhandbook/9.htm#9c>). Part IIA outlines faculty obligations to students and reads as follows:

Teaching and Students

Ethical Principles: "As teachers, the professors encourage the free pursuit of learning in their students. They hold before them the best scholarly standards of their discipline. Professors demonstrate respect for students as individuals and adhere to their proper roles as intellectual guides and counselors. Professors make every reasonable effort to foster honest academic conduct and to assure that their evaluations of students reflect each student's true merit. They respect the confidential nature of the relationship between professor and student. They avoid any exploitation, harassment, or discriminatory treatment of students. They acknowledge significant academic and scholarly assistance from them. They protect their academic freedom." (from 1966 AAUP statement, revised 1987)

Types of Unacceptable Conduct

(1) Failure to meet the responsibilities of instruction, including (a) arbitrary denial of access to instruction, (b) significant intrusion of material unrelated to the course, (c) significant failure to adhere, without legitimate reason, to the rules of the faculty in the conduct of courses, to meet class, to keep office hours, or to hold examinations as scheduled, (d) evaluation of student work by criteria not directly reflective of course performance, (e) undue and unexcused delay in evaluating student work.

(2) Discrimination against a student on political grounds or for reasons of race, religion, sex, sexual orientation, ethnic origin, national origin, ancestry, marital status, medical condition, status as a Vietnam-era veteran or disabled veteran or, within the limits imposed by law or University regulations, because of age or citi-

zenship or for other arbitrary or personal reasons.

(3) Knowing violation of University policy, including the pertinent guidelines, applying to nondiscrimination against students on the basis of handicap.

(4) Use of the position or powers of a faculty member to coerce the judgment or conscience of a student or to cause harm to a student for arbitrary or personal reasons.

(5) Participating in or deliberately abetting disruption, interference, or intimidation in the classroom.

Charges of Violation

If a student has reason to believe that a faculty member has violated the code, the student may consult with a member of the Academic Senate Grievance and Disciplinary Procedures Committee (3125 Murphy Hall, 310-825-3851) for help in deciding on appropriate action. If the student believes that formal discipline may be warranted, the alleged violator should be reported to the chair of the department and to the dean of the division or school with a request that a charge be filed with the Academic Senate Charges Committee. If the dean, in consultation with the vice chancellor of Academic Personnel, determines that there are not sufficient grounds for the administration to file a charge, the student may, after discussing the matter with a member of the Academic Senate Grievance and Disciplinary Procedures Committee, file such a charge in person if the student continues to feel it is warranted.

Residence for Tuition Purposes

Students who have not been living in California with intent to make it their permanent home for more than one year immediately before the residence determination date for each term in which they propose to attend the University must pay a nonresident tuition fee in addition to all other fees. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

Law Governing Residence

The rules regarding residence for tuition purposes at the University of California are governed by the California Education Code and implemented by Standing Orders of The Regents of the University of California. Under these rules adult citizens and certain classes of aliens can establish residence for tuition purposes. There are particular rules that apply to the residence classification of minors (see below).

Who Is a Resident?

Persons who are adult students (at least 18 years of age) may establish residence for tuition purposes in California if (1) they are U.S. citizens, (2) they are permanent residents or

other immigrants, or (3) they are nonimmigrants who are not precluded from establishing a domicile in the U.S. Nonimmigrants who are not precluded from establishing domicile in the U.S. include those who hold valid visas of the following types — A, E, G, H-1, H-4, I, K, L, O-1, O-3, or R. To establish residence students must be physically present in California for more than one year, and they must have come here with the intent to make California their home as opposed to coming to this state to go to school. Physical presence within the state solely for educational purposes does not constitute the establishment of California residence, regardless of the length of stay. Students must demonstrate their intention to make California their home by severing their residential ties with their former state of residence and establishing those ties with California. If these steps are delayed, the one-year durational period is extended until students have demonstrated both presence and intent for one full year. If their parents are not California residents or students were not enrolled in a regular session at any University of California campus prior to fall 1993, they are required to be financially independent in order to be a resident for tuition purposes. Their residence cannot be derived from their spouse or their parents.

Requirements for Financial Independence

Students are considered "financially independent" if one or more of the following apply: (1) they are at least 24 years of age by December 31 of the calendar year for which they are requesting residence classification; (2) they are a veteran of the U.S. Armed Forces; (3) they are a ward of the court or both parents are deceased; (4) they have legal dependents other than a spouse; (5) they are married, or a graduate student or a professional student, and they were not claimed as an income tax deduction by their parents or any other individual for the tax year immediately preceding the term for which they are requesting resident classification; or (6) they are a single undergraduate student and they were not claimed as an income tax deduction by their parents or any other individual for the two tax years immediately preceding the term for which they are requesting resident classification, and they can demonstrate self-sufficiency for those years and the current year. *Note:* Financial dependence is not a factor in determining residence status for graduate student instructors, graduate student teaching assistants, research assistants, junior specialists, postgraduate researchers, graduate student researchers, and teaching associates who are employed 49 percent or more of full time or awarded the equivalent in University-administered funds (e.g., grants, stipends, fellowships) in the term for which classification is sought.

Establishing Intent to Become a California Resident

Indications of students' intent to make California their permanent residence can include the

following: registering to vote and voting in California elections; designating California as their permanent address on all school and employment records, including military records if they are in the military service; obtaining a California driver's license or, if they do not drive, a California Identification Card; obtaining California vehicle registration; paying California income taxes as a resident, including taxes on income earned outside California from the date they establish residence; establishing a California residence in which they keep their personal belongings; and licensing for professional practice in California. The absence of these indicia in other states during any period for which students claim residence can also serve as an indication of their intent. Documentary evidence is required, and all relevant indications are considered in determining the classification. Intent is questioned if students return to their prior state of residence when the University is not in session.

General Rules Applying to Minors

If students are unmarried minors (under age 18), the residence of the parent with whom they live is considered to be their residence. If they have a parent living, they cannot change their residence by their own act, by the appointment of a legal guardian, or by the relinquishment of their parent's right of control. If students live with neither parent, their residence is that of the parent with whom they last lived. Unless they are minor aliens present in the U.S. under the terms of a nonimmigrant visa which precludes them from establishing domicile in the U.S., students may establish their own residence when both their parents are deceased and a legal guardian has not been appointed. If they derive California residence from a parent, that parent must satisfy the one-year durational residence requirement.

Specific Rules Applying to Minors

(1) **Divorced or Separated Parents.** Students may be able to derive California resident status from a California resident parent if they move to California to live with that parent on or before their 18th birthday. If they begin residing with their California parent after their 18th birthday, they are treated like any other adult student coming to California to establish residence.

(2) **Parent of Minor Moves from California.** Students may be entitled to resident status if they are minor U.S. citizens or eligible aliens whose parent(s) was a resident of California who left the state within one year of the residence determination date if (a) they remained in California after their parent(s) departed, (b) they enroll in a California public postsecondary institution within one year of their parent(s) departure, and (c) once enrolled, they maintain continuous attendance in that institution. Financial independence is not required in this case.

(3) **Two-Year Care and Control.** Students may be entitled to resident status if they are U.S. citizens or eligible aliens and they have lived continuously with an adult who is not their

parent for at least two years prior to the residence determination date. The adult with whom they are living must have been responsible for their care and control for the entire two-year period and must have been residing in California during the one year immediately preceding the residence determination date.

Exemptions from Nonresident Tuition

(1) **Member of the Military.** If students are members of the U.S. military stationed in California on active duty, unless they are assigned for educational purposes to a state-supported institution of higher education, they may be exempt from the nonresident tuition fees until they have lived in California long enough to become a resident. They must provide the residence deputy on campus with a statement from their commanding officer or personnel officer stating that their assignment to active duty in California is not for educational purposes. The letter must include the dates of their assignment to the state.

(2) **Spouse or Other Dependents of Military Personnel.** Students are exempt from payment of the nonresident tuition fee if they are a spouse or a natural or adopted child or stepchild who is a dependent of a member of the U.S. military stationed in California on active duty. The exemption is available until they have lived in California long enough to become a resident. Students must petition for a waiver of the nonresident tuition fee each term they are eligible. If they are enrolled in an educational institution and the member of the military is transferred on military orders to a place outside California where he or she continues to serve in the Armed Forces, or the member of the military retires from active duty immediately after having served in California on active duty, they may retain this exemption under conditions listed above.

(3) **Child or Spouse of Faculty Member.** To the extent funds are available, if students are an unmarried dependent child under age 21 or the spouse of a member of the University faculty who is a member of the Academic Senate, they may be eligible for a waiver of the nonresident tuition fee. Confirmation of the faculty member's membership on the Academic Senate must be secured each term this waiver is granted.

(4) **Child or Spouse of University Employee.** Students may be entitled to resident classification if they are an unmarried dependent child or the spouse of a full-time University employee whose assignment is outside California (e.g., Los Alamos Scientific Laboratory). Their parent's or spouse's employment status with the University must be ascertained each term.

(5) **Child of Deceased Public Law Enforcement or Fire Suppression Employee.** Students may be entitled to a waiver of the nonresident tuition fee if they are the child of a deceased public law enforcement or fire suppression employee who was a California

resident at the time of his or her death and who was killed in the course of fire suppression or law enforcement duties.

(6) **Dependent Child of a California Resident.** If students have not been an adult resident of California for more than one year and are the natural or adopted dependent child of a California resident who has been a resident for more than one year immediately prior to the residence determination date, they may be entitled to a waiver of the nonresident tuition until they have resided in California the minimum time necessary to become a resident, so long as continuous attendance is maintained at an institution.

Temporary Absences

If persons are nonresident students who are in the process of establishing a residence for tuition purposes and they return to their former home during noninstructional periods, their presence in the state is presumed to be solely for educational purposes and only convincing evidence to the contrary rebuts this presumption. **Students who are in the state solely for educational purposes are NOT classified as residents for tuition purposes regardless of the length of their stay.**

If persons are students who have been classified as residents for tuition purposes and they leave the state temporarily, their absence could result in the loss of their California residence. The burden is on students (or their parents if they are minors) to verify that they did nothing inconsistent with their claim of a continuing California residence during their absence. Steps that students (or their parents) should take to retain a California residence include the following:

(1) Continue to use a California permanent address in all records — educational, employment, military, etc.

(2) Continue to satisfy California tax obligations. If students are claiming California residence, they are liable for payment of income taxes on their total income from the date they establish their residence in the state, including income earned in another state or country.

(3) Retain a California voter's registration and vote by absentee ballot.

(4) Maintain a California driver's license and vehicle registration. If it is necessary to change the driver's license or vehicle registration, students must change them back within the time prescribed by law.

Petition for Resident Classification

Students may obtain a petition at 1113 Murphy Hall for a change of classification from nonresident to resident status. All changes of status must be initiated prior to the first day of classes for the term for which they intend to be classified as residents.

Time Limitation on Providing Documentation

If additional documentation is required for residence classification but is not readily accessible, students are allowed until the end of the applicable term to provide it.

Incorrect Classification

Students who were incorrectly classified as residents are subject to nonresident classification and to payment of all nonresident tuition fees not paid. If they concealed information or furnished false information and were classified incorrectly as a result, you are also subject to University discipline. Resident students who become nonresidents must immediately notify the residence deputy.

Inquiries and Appeals

Inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to the Residence Deputy, Office of the Registrar, 1113 Murphy Hall, 405 Hilgard Avenue, Los Angeles, CA 90024-1429 (310-825-3447; <http://www.registrar.ucla.edu/faq/res.htm>) or to the Legal Analyst — Residence Matters, 1111 Franklin Street, 8th Floor, Oakland, CA 94607-5200. **NO OTHER UNIVERSITY PERSONNEL ARE AUTHORIZED TO SUPPLY INFORMATION RELATIVE TO RESIDENCE REQUIREMENTS FOR TUITION PURPOSES.**

Students are cautioned that this summary is NOT a complete explanation of the law regarding residence. Note that changes may be made in the residence requirements between the publication of this statement and the relevant residence determination date. Any student, following a final decision on residence classification by the residence deputy, may appeal in writing to the legal analyst within 45 days of notification of the residence deputy's final decision.

Privacy Notice

All of the information requested on the Statement of Legal Residence form is required (by the authority of Standing Order 110.2 (a)-(d) of The Regents of the University of California) for determining whether or not students are legal residents for tuition purposes. Registration cannot be processed without this information. The Registrar's Office on campus maintains the requested information. Students have the right to inspect University records containing the residence information requested on the form.

Financial Aid Minimum Progress Standards

Federal regulations require UCLA to establish, publish, and apply standards of satisfactory academic progress for financial aid eligibility. Students who fail to meet minimum progress standards become ineligible to receive financial aid until they are in compliance with the standards. If, during any term, students expect they cannot meet the satisfactory academic progress

requirements listed below, they should contact the Financial Aid Office immediately for further advising.

Undergraduate Students

Qualitative Standard

The qualitative standard is enforced by the college or school. Students are notified by their academic department if they fall below the required grade-point average (GPA).

Quantitative Standard

This standard is enforced by the Financial Aid Office on the basis of the number of units (including remedial courses) successfully completed within any given number of regular session terms. It may differ from the college/school requirement.

All students receiving aid as full-time students must be enrolled in at least 12 units in order to obtain funds. To be eligible for financial aid as full-time students, they must successfully complete at least 24 units in their first academic year at UCLA to maintain satisfactory academic progress. Thereafter, students must successfully complete 90 units by the end of the ninth term, 123 units by the end of the twelfth term, 156 units by the end of the fifteenth term, and 180 units by the end of the seventeenth term.

After 17 terms of enrollment as a full-time student or the equivalent as a part-time student, no further need-based financial aid is granted.

The measurement of progress occurs at the end of the academic year. The schedule above is adjusted appropriately for students ending an academic year with a different number of terms completed than is listed above. If students enter UCLA in advanced standing, the number of terms for which they are eligible for aid is reduced proportionally to the number of transfer units credited to their record. For example, students who are credited with 90 transfer units would have only 11 terms of financial aid eligibility as an undergraduate at UCLA.

If persons are continuing students at UCLA at the time they apply for financial aid, their progress is measured by the satisfactory academic progress chart to determine their eligibility (i.e., they must have successfully completed 57 units if they attended UCLA for six terms). They would then have only 11 terms of financial aid eligibility.

Nonstandard Enrollment

Progress for students approved for part-time enrollment by the Registrar's Office is measured by a modified schedule. Part-time students should inform the Financial Aid Office of their enrollment arrangements so their aid can be adjusted accordingly. Any units earned during Summer Sessions are applied toward the unit count for the following year. Summer Sessions are not included as part of the overall term count.

Successful Completion

To successfully complete units, students must receive a grade of A, B, C, D, or P (S for graduate students) in a course. Grades of F, I, NP (U for graduate students), NR (No Report), and DR (Deferred Report) do not earn completed units. An I or DR grade that is replaced with a passing grade does earn units.

Withdrawal and Cancellation

Withdrawal after the first day of classes during a term counts as a term attended when determining overall term and unit count eligibility, unless students do not attend any classes for the given term and receive a 100 percent refund of all fees. Cancellation of registration on or before the first day of classes does not count as a term attended when determining term or unit count eligibility. Beginning with Fall Quarter 1997, administrative cancellation does not count toward the overall term or unit count eligibility; however, cancellation in any term prior to Fall Quarter 1997 does count toward the term and unit counts.

Disqualification and Reinstatement

The Financial Aid Office monitors satisfactory progress annually after Winter Quarter grades are recorded. Progress is measured according to the number of terms students have attended and the number of units they have successfully completed.

If students have not met the requirements shown on the schedule, their financial aid is discontinued until the deficiencies are satisfied. They may use Summer Sessions or completion of extra units during regular academic terms to make up deficiencies.

Financial aid eligibility is reinstated for the term following the term in which students reestablish compliance with the units-per-term schedule. For example, if they successfully complete 16 units in Fall Quarter and therefore make up the deficiency, they become eligible for financial aid in Winter Quarter. Financial aid is then awarded on the basis of their need and the availability of funds.

Appeal Process

Students who fail to meet the satisfactory academic progress standards because of debilitating illness, prolonged hospitalization, death in the immediate family, or other such mitigating circumstances may appeal their disqualification.

To appeal, students should submit a letter and supporting documentation to the Financial Aid Appeal Committee explaining the circumstances and how they affected their ability to meet the requirements. The committee evaluates the request based on the rationale and evidence provided.

Graduate Students

Qualitative Standard

The qualitative standard is enforced by the dean of the Graduate Division in consultation with the department.

Quantitative Standard

Students must successfully complete at least 12 units per term of enrollment to be eligible for financial aid as full-time students. Approved study loads of less than 12 units result in proportionally reduced aid for that term and are charged against the maximum period of eligibility at the appropriate proportional rate.

Disqualification and Appeal Process

If students fail to meet the qualitative and quantitative requirements, their financial aid is discontinued until the deficiencies are made up. Appeals are reviewed by their academic department, the dean of the Graduate Division, and/or the Financial Aid Appeal Committee.

Period of Eligibility

The degree program to which students are admitted determines the maximum number of terms for which they can receive need-based financial aid. Terms for which no need-based aid is received are considered when determining the remaining number of terms of financial aid eligibility.

Students who are in a credential program or a professional master's program (other than Master of Fine Arts) are eligible for a maximum of nine terms of need-based financial aid.

Students who are in a Master of Fine Arts program are eligible to apply for aid for the first 12 terms of enrollment. If students are in an M.A. or M.S. program, a doctoral program, or a combination master's/doctoral program, their eligibility expires after 27 terms of enrollment. Students who change their program may be accommodated through an extension of terms of eligibility. The extension should be secured at the time the program change is made.

Professional Schools

Students attending the Schools of Dentistry, Law, and Medicine are covered by criteria established by the respective school.

Grading Regulations

Assigning a Grade

The instructor in charge of a course is responsible for determining the grade of each student in the course. The standards for evaluating student performance are based on the course description as approved by the appropriate course committee.

The final grade in the course is based on the instructor's evaluation of the student's achievement in the course. When on an examination or other work submitted by a student, the student is suspected of having engaged in plagiarism or otherwise having cheated, the suspected infraction is to be reported to the appropriate administrative officer of the University for consideration of disciplinary proceedings against the student. Until such proceedings, if any, have been completed, the grade DR (Deferred Report) is assigned for that course. If in such disciplinary proceedings it is determined that the student did engage in plagiarism or otherwise cheat, the administrative officer, in

addition to imposing discipline, reports back to the instructor of the course involved, the nature of the plagiarism or cheating. In light of that report, the instructor may replace the grade DR with a final grade that reflects an evaluation of that which may fairly be designated as the student's own achievement in the course as distinguished from any achievement that resulted from plagiarism or cheating.

Grade Complaints

A grade may be appealed, on any reasonable grounds, to the instructor, the chair of the department, and the dean of the division or school.

If the student believes that the instructor has violated the Faculty Code of Conduct by assigning the grade on any basis other than academic, the matter should first be taken up with the instructor. If the matter is not resolved, the student may go for counsel to the Campus Ombuds Office or may follow the procedures for the formal filing of charges (see Faculty Code of Conduct earlier in the Appendix). If a charge is sustained by the Academic Senate Committees on Charges and on Privilege and Tenure, an ad hoc committee is appointed within two weeks to review the disputed grade, and any warranted change is made within four weeks.

Correction of Grades

All grades, except DR, I, and IP, are final when filed by the instructor in the end-of-term course report. However, the Registrar's Office is authorized to change a final grade (1) on written request of an instructor, provided that a clerical or procedural error is the reason for the change or (2) on written request of the chair of the UCLA Academic Senate in cases where it has been determined by the Committee on Privilege and Tenure that an instructor has assigned a grade on any basis other than academic grounds. No change of grade may be made on the basis of reexamination or, with the exception of the I and IP grades, the completion of additional work. Any grade change request made more than one year after the original filing must be validated for authenticity of the instructor's signature by the department chair. Any grade change request made by an instructor who has left the University must be countersigned by the department chair. All grade changes are recorded on the transcript.

Policy on Alternate Examination Dates

In compliance with Section 92640(a) of the California Education Code, the University must accommodate requests for alternate examination dates at a time when that activity would not violate a student's religious creed. This requirement does not apply in the event that administering the test or examination at an alternate time would impose an undue hardship which could not reasonably be avoided. Accommodation for alternate examination dates will be worked out directly and on an individual

basis between the student and the faculty member involved.

(1) In general, students should make such requests of the instructor during the first two weeks of any given academic term, or as soon as possible after a particular examination date is announced by the instructor.

(2) Students unable to reach a satisfactory arrangement with their instructor should contact the Campus Ombuds Office, 1172 Career Center, or the Office of the Dean of Students, 1206 Murphy Hall, for assistance.

(3) Instructors who have questions or who wish to verify the nature of the religious event or practice involved should contact the Campus Ombuds Office or the Office of the Dean of Students for assistance.

Undergraduate Final Examinations

No student shall be excused from assigned final examinations, except as provided above in the policy on alternate examination dates and as provided in the following three paragraphs.

The instructor in charge of an undergraduate course is responsible for assigning the final grade in the course. The final grade shall reflect the student's achievement in the course and shall be based on adequate evaluation of that achievement. The instructor's method of evaluation must be announced at the beginning of the course. The methods may include a final written examination, a term paper, a final oral examination, a take-home examination, or other evaluation device. Evaluation methods must be of reasonable duration and difficulty and must be in accord with applicable departmental policies. Final written examinations may not exceed three hours' duration and are given only at the times and places established and published by the department chair and the Registrar's Office.

At the end of the term in which a student is expected to be graduated, a student's major department may examine him or her in the field of the major, may excuse the student from final examinations in courses offered by the department during that term and, with the approval of the Undergraduate Council, assign a credit value to such general examination.

An instructor shall, if he or she wishes, release to individual students their original final examinations (or copies). This may be done by any method which insures the students' right to privacy. Otherwise, the instructor shall retain final examination materials, or a copy thereof, until the end of the next succeeding regular term of instruction, during which period students shall have access to their examinations.

Disclosure of Student Records

Pursuant to the Federal Family Educational Rights and Privacy Act, the California Education Code, and the University of California Policies Applying to the Disclosure of Information

from Student Records, students at UCLA have the right to (1) inspect and review records pertaining to themselves in their capacity as students, except as the right may be waived or qualified under the Federal and State Laws and the University Policies, (2) have withheld from disclosure, absent their prior consent for release, personally identifiable information from their student records, except as provided by the Federal and State Laws and the University Policies, (3) inspect records maintained by UCLA of disclosures of personally identifiable information from their student records, (4) seek correction of their student records through a request to amend the records or, if such request is denied, through a hearing, and (5) file complaints with the U.S. Department of Education regarding alleged violations of the rights accorded them by the Federal Act.

UCLA, in accordance with the Federal and State Laws and the University Policies, has designated the following categories of personally identifiable information as "public information" which UCLA may release and publish without the student's prior consent: name, address (local/mailling, permanent, and/or e-mail), telephone numbers, major field of study, dates of attendance, number of course units in which enrolled, degrees and honors received, the most recent previous educational institution attended, participation in officially recognized activities (including intercollegiate athletics), and the name, weight, and height of participants on intercollegiate athletic teams.

Students who do not wish certain items (i.e., name, local/mailling, permanent, and/or e-mail address, telephone numbers, major field of study, dates of attendance, number of course units in which enrolled, and degrees and honors received) of this "public information" released and published may so indicate through URSA OnLine (<http://www.ursa.ucla.edu/>). To restrict the release and publication of the additional items in the category of "public information," complete the Decline to Release form available from Enrollment and Degree Services, 1113 Murphy Hall.

Student records which are the subject of the Federal and State Laws and the University Policies may be maintained in a variety of offices, including the Registrar's Office, Office of the Dean of Students, UCLA Career Center, Graduate Division, and the offices of a student's college or school and major department. Students are referred to the *UCLA Campus and CHS Directory* which lists all the offices that may maintain student records, together with their campus address and telephone number. Students have the right to inspect their student records in any such office subject to the terms of the Federal and State Laws and the University Policies. Inspection of student records maintained by the Registrar's Office is by appointment only and must be arranged 24 hours in advance. Call (310) 825-3801 or inquire at Academic Record Services, 1134 Murphy Hall.

A copy of the Federal and State Laws, the University Policies, and the *UCLA Campus and CHS Directory* may be inspected in the office of the Information Practices Coordinator, 500 UCLA Wilshire Center. Information concerning students' hearing rights may be obtained from that office and from the Office of the Dean of Students, 1206 Murphy Hall.

In addition to the public information described above, information related to students' Social Security number, sex, and marital status, and the name(s), address(es), and telephone number(s) of their parents or next of kin are made available to the UCLA External Affairs Department for use in alumni, development, and public relations activities. To restrict the release of this additional information, complete a Request for External Affairs Information Restriction form available from Enrollment and Degree Services, 1113 Murphy Hall.

UCLA Retention/Graduation Rates and Time to Degree

Current retention and graduation rates are the highest on record for UCLA and among the highest rates for public universities anywhere in the country. One-year retention rates for new undergraduates have been above 90 percent for over a decade. For students entering over a three-year span from Fall Quarter 1995 to Fall Quarter 1997, more than 95 percent of new freshmen and 93 percent of new transfers were still enrolled at UCLA one year later.

Graduation rates are high and still increasing. Over the past three years the four-year, five-year, and six-year graduation rates for cohorts of entering fall freshmen averaged 38, 74, and 79 percent respectively, up from 29, 68, and 73 percent for the same set of indicators at a point in time six years ago. More than 80 percent of all fall freshmen entering from 1986 to 1991 have now graduated from UCLA; final graduation rates of better than 82 percent are projected for all freshmen cohorts arriving since 1992.

Over the past three years the two-year, three-year, and four-year graduation rates for cohorts of entering fall transfers have averaged 37, 72, and 80 percent respectively, up from 23, 65, and 74 percent for the same set of indicators at a point in time six years ago. More than 80 percent of all fall transfers entering from 1988 to 1993 have now graduated from UCLA; final graduation rates of better than 82 percent are projected for all transfer cohorts arriving since 1994. The graduation rates listed above refer exclusively to degrees awarded by UCLA. Students who transfer to and graduate from another UC campus or university are not included.

Time to degree for UCLA undergraduates declined significantly during the 1990s. During the past four years (1994-95 to 1997-98), more than 12,800 baccalaureate degrees were awarded to students who entered directly from high school. The average number of quarters

registered at UCLA was 13.22, declining from an average of 13.74 quarters for similar graduates in 1989-90. Among the recent graduates, 50 percent were registered for 12 quarters or less (i.e., four years or less), 59 percent for 13 quarters or less, 70 percent for 14 quarters or less, and 92 percent for 15 quarters or less (i.e., five years or less).

During the same four years (1994-95 to 1997-98), more than 8,900 baccalaureate degrees were awarded to students who entered as transfers. The average number of quarters registered at UCLA was 7.64, declining from an average of 8.25 quarters for similar graduates in 1989-90. Among the recent graduates, 42 percent were registered for six quarters or less (i.e., two years or less), 57 percent for seven quarters or less, 68 percent for eight quarters or less, and 87 percent for 15 quarters or less (i.e., three years or less).

Additional information on retention and graduation rates is available at <http://www.apb.ucla.edu>.

Campus Security Information

UCLA Police Department

The UCLA Police Department (310-825-1491; <http://www.ucpd.ucla.edu>), located at Westwood Plaza and Circle Drive South, has 56 sworn California State Police Officers empowered by the State of California with the authority to enforce all state and local laws. UCLA police officers patrol the campus 24 hours a day, 365 days a year. They enforce all applicable local, state, and federal laws, arrest violators, investigate and suppress crime, and provide a full range of police services and community safety programs.

The department is linked by computer to city, state, and federal criminal justice agencies that provide access to information concerning criminal records, wanted persons, stolen property, and vehicle identification. The Detective Bureau handles all criminal investigations, and detectives conduct interviews, arrest violators, execute search warrants, and file cases with the city attorney's office.

Incident Reporting

UCLA police officers have primary jurisdiction over the UCLA campus, Center for the Health Sciences, and University Apartments South. The City of Los Angeles Police Department does not handle calls for service on campus. All requests for police service should be made to the UCLA Police Department. All crime occurring on campus and in the Center for the Health Sciences should be reported immediately to the department to ensure appropriate action is taken. The University endorses a policy that strongly encourages victims to report all incidents to the department anytime of the day or night. Crimes occurring off campus should be reported immediately to the local law enforcement agency.

Police, fire, or medical EMERGENCIES can be reported by dialing **911** from any telephone on campus. All telephones (University, private, public) located on University grounds are tied into the 911 emergency system. Emergencies can also be reported by using the blue-hooded Emergency Reporting Telephones located throughout the campus.

NONEMERGENCY calls for service can be made by contacting the department at (310) 825-1491.

Crime Statistics

Statistics on FBI Crime Index offenses (violent and property crime) and other offenses committed between 1994 and 1998, as well as a crime trend overview, are available at <http://www.ucpd.ucla.edu/ucpd/stats96-98.htm>.

Community Service Officers

The UCLA Police Department employs approximately 125 student community service officers (CSOs; <http://www.ucpd.ucla.edu/ucpd/cso/index.htm>) who are the "eyes and ears" (trained observers) of the department and act as nonintervention visual deterrents to crime. CSOs wear high-visibility uniforms and carry two-way police radios. They are dispatched by the department's Communications Center and provide a direct link to police, fire, or medical aid. CSOs provide security service to a number of campus buildings, including residence halls and libraries. They are most well-known for the Campus Escort Service and the Evening Van Service. The Campus Escort Service operates every day of the year from dusk to 1 a.m. Individuals requesting the service call the Communications Center; a CSO is then dispatched to walk them safely to their destination. The service is available to UCLA students, staff, faculty, and visitors and operates on campus and in the nearby residential areas. The Evening Van Service provides a safe and convenient mode of transportation around campus at night and is accessible to people with disabilities.

Crime Prevention

An involved community is one of the best defenses against crime. Therefore, the department is committed to a community policing philosophy and supports a proactive Crime Prevention Unit (<http://www.ucpd.ucla.edu/ucpd/crimepre.htm>) that works closely with community members to make UCLA a safer place to work, live, and learn. The unit gives presentations on vehicle and residential security, personal safety, office and equipment security, and rape prevention. Other programs are developed to meet the special needs of the campus community. Brochures and literature on crime prevention and personal safety are available. The Women's Resource Center (WRC) and the Crime Prevention Unit provide presentations on sexual assault issues. Topics include acquaintance rape education and prevention, personal safety and prevention techniques, recovery from sexual assault, clear communications, pornography, and the continuum of violence and rape in society. The educational pro-

grams, tailored to meet the needs of individual audiences, include films, discussion groups, lectures, role-plays, and communication exercises. The WRC reaches students through the residence halls, sororities, fraternities, athletic teams, student clubs, and various student functions. Services include crisis intervention and advocacy for victims of sexual assault; short-term counseling and referrals for survivors, their families, and friends; support groups for rape survivors; and self-defense classes and a lending library. The WRC works closely with the student housing offices and the police department to increase campus safety.

Several programs have been designed to increase the level of crime awareness and campus safety at UCLA. All incidents of criminal activity which pose a potential threat to the campus are brought immediately to the attention of the community through *Campus Alert Bulletins* (<http://www.ucpd.ucla.edu/ucpd/alerts.htm>). With the combined efforts of the Crime Prevention Unit, the Women's Resource Center, and the CSOs, incidents of sexual assault on campus have been reduced.

Alcohol and Substance Abuse Education

Students with alcohol or substance abuse problems create safety and health risks for themselves and others. Such abuses also can result in a wide range of emotional and behavioral problems. Therefore, UCLA makes available to every student a variety of alcohol and substance abuse awareness programs which are designed to discourage the use of illicit substances and to educate students on the merits of legal and responsible alcohol consumption. Student Psychological Services (310-825-7985; <http://www.saonet.ucla.edu/sps.htm>) provides counseling and referral assistance to students who are troubled by alcohol or substance abuse problems. The service is completely confidential and free to regularly enrolled students. All information and counseling is treated in accordance with University Policies and State and Federal Laws. Any decision to seek assistance is not used in connection with any academic determination or as a basis for disciplinary proceedings.

Policies

UCLA has been designated drug free, and only under certain conditions is alcohol consumption permitted (none is permitted at athletic events). In keeping with its educational mission, the University assumes the responsibility to better inform the UCLA community about alcohol and substance abuse.

The sale, manufacture, distribution, or possession of any controlled substance without a prescription is illegal under both State and Federal Laws. Such laws are strictly enforced by UCLA police officers. Student violators are subject to University disciplinary action, criminal prosecution, fine, and imprisonment. Refer to the UCLA policies on substance abuse for further information.

The sale, consumption, and distribution of alcohol on the UCLA campus is restricted by the UCLA alcohol policy and California State Law. Organizations or groups violating alcohol or substance policies or laws may be subject to sanctions by the University.

Residential Housing

UCLA is the size of a small city and provides residential housing to approximately 18,000 students. Housing facilities range from apartments designed for students with children to multi-student apartment complexes to high-rise student residence halls. The UCLA Police Department and student housing staff work hand in hand to create a safe and comfortable living and learning environment.

Campuswide security and safety programs for residents are held throughout the year to increase crime potential awareness and improve campus safety. To keep residents immediately informed of major crime or threats to the campus, *Crime Alert Bulletins* are posted in residential areas by the housing staff. However, residents must take an active role to ensure their own safety by exercising simple commonsense crime prevention techniques. Because the campus is open 24 hours a day, visitation to residence halls and apartments is not restricted. All residence halls have 24-hour access control on entrance doors, and during the evening hours access control monitors are stationed at each entrance. Police officers and CSOs are also assigned to the residence halls.

UCLA-affiliated organizations that maintain off-campus facilities are under the shared jurisdiction of their local police department and the UCLA Police Department, which provides assistance to students, faculty, and staff and/or referrals to neighboring police departments.

Safety Tips

The nature of the studies and research done at UCLA requires many of the campus buildings to be open 24 hours. Because the campus is so large and adjacent to the greater Los Angeles community, individuals with criminal intent are able to access the University grounds. Regardless of the time of day or night and no matter where persons are on campus, they should be alert and aware of their surroundings and exercise good commonsense safety precautions. Anyone parking on campus should remember to lock their vehicles and consider investing in a steering wheel locking device and/or alarm. Take advantage of all of the safety services provided by the University and the UCLA Police Department. Use the Campus Escort Service when walking at night. Keep room and apartment doors locked at all times. Most important, anyone needing assistance should not hesitate to contact the department.

Appendix B

University Administrative Officers

Terms of Regents (<http://www.ucop.edu/regents/>) appointed by the Governor expire March 1 of the year in parentheses. The Student Regent (Michelle K. Pannor) and Alumni Regents serve a one-year term beginning July 1 and ending June 30 of the year listed.

Regents Ex Officio

Governor of California
Gray Davis
Lieutenant Governor of California
Cruz M. Bustamante
Speaker of the Assembly
Antonio R. Villaraigosa
State Superintendent of Public Instruction
Delaine Eastin
President of the Alumni Association of the University of California
Kent M. Vining
Vice President of the Alumni Association of the University of California
Peter J. Taylor
President of the University
Richard C. Atkinson

Appointed Regents

William T. Bagley (2002)
Frank W. Clark, Jr. (2000)
Ward Connerly (2005)
John G. Davies (2004)
Judith L. Hopkinson (2009)
Odessa P. Johnson (2000)
S. Sue Johnson (2002)
Meredith J. Khachigian (2001)
Joanne C. Kozberg (2010)
Sherry L. Lansing (2010)
Howard H. Leach (2001)
David S. Lee (2006)
Velma Montoya (2005)
John J. Moores (2009)
S. Stephen Nakashima (2004)
Gerald L. Parsky (2008)
Peter Preuss (2008)
Tom Sayles (2006)
Michelle K. Pannor, Student Regent (2000)

Faculty Representatives to the Board of Regents

Lawrence B. Coleman
Aimée Dorr

Officers of The Regents

President of The Regents
Gray Davis
Chair of The Regents
John G. Davies
Vice Chair of The Regents
Frank W. Clark, Jr.
General Counsel
James E. Holst
Secretary
Leigh Trivette

Treasurer

Patricia A. Small

Office of the President*President of the University*

Richard C. Atkinson

*Provost and Senior Vice President —**Academic Affairs*

C. Judson King

*Senior Vice President — Business and**Finance*

V. Wayne Kennedy

*Vice President — Agriculture and Natural**Resources*

W.R. Gomes

Vice President — Budget

Lawrence C. Hershman

*Vice President — Clinical Services**Development*

William H. Gurtner

Vice President — Financial Management

Anne C. Broome

Vice President — Health Affairs

Cornelius L. Hopper, M.D.

*Vice President — University and External**Relations*

Bruce B. Darling

Chancellors of the Campuses*Chancellor at Berkeley*

Robert M. Berdahl

Chancellor at Davis

Larry N. Vanderhoef

Chancellor at Irvine

Ralph J. Cicerone

Chancellor at Los Angeles

Albert Carnesale

Chancellor at Riverside

Raymond L. Orbach

Chancellor at San Diego

Robert C. Dynes

Chancellor at San Francisco

J. Michael Bishop

Chancellor at Santa Barbara

Henry T. Yang

Chancellor at Santa Cruz

M.R.C. Greenwood

University Professors, UCLADonald J. Cram, *University Professor**Emeritus, Los Angeles, Chemistry and Biochemistry*Robert B. Edgerton, *University Professor, Los**Angeles, Anthropology, Psychiatry and Biobehavioral Sciences*M. Frederick Hawthorne, *University Professor,**Los Angeles, Chemistry and Biochemistry***UCLA Administrative Officers***Chancellor*

Albert Carnesale, Ph.D.

Executive Vice Chancellor

Wyatt R. Hume, B.D.S., Ph.D., D.D.Sc.

Administrative Vice Chancellor

Peter W. Blackman, J. D.

Vice Chancellor — Academic Affairs and Dean of Graduate Division

Claudia Mitchell-Kernan, Ph.D.

Vice Chancellor — Academic Personnel

Norman Abrams, J.D.

Vice Chancellor — External Affairs

Michael C. Eicher, B.S.

Vice Chancellor — Finance and Budget

Steven A. Olsen, M.P.P.

Vice Chancellor — Legal Affairs

Joseph D. Mandel, LL.B.

Vice Chancellor — Research Programs

C. Kumar N. Patel, Ph.D.

Vice Chancellor — Student Affairs

Winston C. Doby, Ed.D.

Chief of Staff

Gloria K. Stypinski

Director of UCLA Medical Center

Michael Karpf, M.D.

University Librarian

Gloria S. Werner, M.L.

*Dean of International Studies and Overseas**Programs*

John N. Hawkins, Ph.D.

*Dean of UCLA Extension and Continuing**Education*

Robert Lapiner, Ph.D.

Deans of UCLA Colleges and Schools*School of the Arts and Architecture*

Daniel Neuman, Ph.D.

School of Dentistry

No-Hee Park, D.M.D., Ph.D.

*Graduate School of Education and Information**Studies*Harold G. Levine, Ph.D., *Interim**School of Engineering and Applied Science*

A.R. Frank Wazzan, Ph.D.

School of Law

Jonathan D. Varat, J.D.

*College of Letters and Science**Provost*

Brian P. Copenhaver, Ph.D.

Division of Humanities

Pauline R. Yu, Ph.D.

Division of Life Sciences

Frederick A. Eiserling, Ph.D.

Division of Physical Sciences

Roberto Peccei, Ph.D.

Division of Social Sciences

Scott L. Waugh, Ph.D.

*John E. Anderson Graduate School of**Management*

Bruce Willison, M.B.A.

School of Medicine

Gerald S. Levey, M.D.

School of Nursing

Marie J. Cowan, R.N., Ph.D.

School of Public Health

Abdelmonem A. Affifi, Ph.D.

School of Public Policy and Social Research

Barbara J. Nelson, Ph.D.

School of Theater, Film, and Television

Robert Rosen, M.A.

are endowed professorships or “chairs,” which support the educational and research activities of distinguished members of the faculty.

As this catalog goes to press, UCLA has 144 endowed chairs which have been approved by the Office of the President of the University of California, as follows. (Asterisks indicate new chairs which have been approved by the Office of the President since publication of the 1997-99 *UCLA General Catalog*.)

School of the Arts and Architecture

S. Charles Lee Chair in Architecture and

Urban Design

Harvey S. Perloff Chair

UCLA Art Council Professorship of Art

Graduate School of Education and Information Studies

Allan Murray Cartter Chair in Higher Education

*George F. Kneller Chair in Education and

Anthropology

George F. Kneller Chair in Education and

Philosophy

School of Engineering and Applied Science

L.M.K. Boelter Chair in Engineering

*Roy and Carol Doumani Chair in Biomedical

Engineering

Norman E. Friedmann Chair in Knowledge

Sciences

Hughes Aircraft Company Chair in Electrical

Engineering

Hughes Aircraft Company Chair in

Manufacturing Engineering

Levi James Knight, Jr., Chair in Engineering

Nippon Sheet Glass Company Chair in

Materials Science

Northrop Chair in Electrical Engineering/

Electromagnetics

Ralph M. Parsons Chair in Chemical

Engineering

Ben Rich Lockheed Martin Chair in

Aeronautics

Rockwell International Chair in Engineering

TRW Chair in Electrical Engineering

School of Law

Harry Graham Balter Chair in Law

Connell Professorship of Law

Richard C. Maxwell Chair in Law

Arjay and Frances Fearing Miller Chair in Law

David G. and Dallas P. Price Chair in Law

Security Pacific Bank Chair

William D. Warren Chair in Law

College of Letters and Science

*Armen A. Alchian Chair in Economic Theory

Maurice Amado Chair in Sephardic Studies

Armenian Educational Foundation Chair in

Modern Armenian History

Henry J. Bruman Chair in German History

Ralph Bunche Chair in International Studies

Edward W. Carter Chair in Netherlandish Art

James S. Coleman Chair in International

Development Studies

Courtaulds Chair in Chemistry

*Norman Cousins Endowed Chair in

Psychoneuroimmunology

Appendix C

Endowed Chairs

Although UCLA is a public institution, private gifts are increasingly important in maintaining the quality of the University's three missions of teaching, research, and community service. Among the principal forms of private support

*Navin and Pratima Doshi Chair in Premodern Indian History
 Mr. and Mrs. C.N. Flint Professorship of Philosophy
 *Evan Frankel Endowed Chair in English
 Gloria and Paul Griffin Chair in Philosophy
 Marvin Hoffenberg Chair in American Politics and Public Policy
 Franklin D. Murphy Chair in Italian Renaissance Studies
 Narekatsi Chair in Armenian Studies
 "1939" Club Chair
 President's Chair in Developmental Immunology
 Hans Reichenbach Chair in Scientific Philosophy
 David S. Saxon Presidential Chair in Physics
 Louis B. Slichter Chair in Geophysics and Planetary Physics
 Charles Speroni Chair in Italian Literature and Culture
 UCLA Alumni and Friends of Japanese Ancestry Chair in Japanese American Studies
 UCLA Foundation Chair
 Eugen Weber Chair in Modern European History
 Alexander von Humboldt Endowed Chair in Geography
 Saul Winstein Chair in Organic Chemistry

John E. Anderson Graduate School of Management

Allstate Chair in Insurance and Finance
 Andersen Worldwide Chair in Management
 John E. Anderson Chair in Management
 Marion Anderson Chair in Management
 California Chair in Real Estate and Land Economics
 Edward W. Carter Chair in Business Administration
 William M. Cockrum Professorship in Entrepreneurial Finance
 James A. Collins Chair in Management
 Warren C. Corder Chair in Money and Financial Markets
 Ernst and Young Chair in Accounting
 Henry Ford II Chair in International Management
 Goldyne and Irwin Hearsh Chair in Money and Banking
 IBM Chair in Computers and Information Systems
 Joseph Jacobs Chair in Entrepreneurial Studies
 Neil Jacoby Chair in Management
 *Betsy Wood Knapp Professorship for Innovation and Creativity
 *Bud Knapp Professorship
 Kommerstad Chair in Financial Markets
 Harry and Elsa Kunin Chair in Business and Society
 William E. Leonhard Chair in Management
 Chauncey J. Medberry Chair in Management
 Howard Noble Chair in Management
 Paine Chair in Management
 *Price Waterhouse Chair in Accounting
 George Robbins Chair in Management
 Sanford and Betty Sigoloff Chair in Corporate Renewal
 Times Mirror Chair in Management Strategy and Policy

Ho-Su Wu Chair in Management

School of Medicine

William S. Adams, M.D., Chair in Medicine
 Louis D. Beaumont Chair in Surgery
 *Jerome L. Belzer Chair in Medical Research
 Bowyer Professorship of Medical Oncology
 Judson Braun Chair in Biological Psychiatry
 *Rubin Brown Chair in Pediatric Neurology
 Joseph Campbell Chair in Child Psychiatry
 Iris Cantor Chair in Breast Imaging
 Edward W. Carter Chair in Internal Medicine
 Castera Chair in Cardiology
 Tony Coelho Chair in Neurology
 *Norman Cousins Endowed Chair in Psychoneuroimmunology
 Crump Chair in Medical Engineering
 M. Philip Davis Chair in Microbiology and Immunology
 Dumont-UCLA Chair in Transplantation Surgery
 Max Factor Family Foundation Chair in Nephrology
 Charles Kenneth Feldman Chair in Ophthalmology
 *Laraine and David Gerber Chair in Ophthalmology
 Dolly Green Chair in Ophthalmology
 Maud Cady Guthman Chair in Cardiology
 *Stefan Hatos Endowed Chair in Psychiatry and Biobehavioral Sciences
 *Ronald S. Hirschberg Chair in Translational Pancreatic Cancer Research
 *Ronald L. Katz, M.D., Endowed Chair in Anesthesiology
 Chizuko Kawata Chair in Cardiology
 George F. Kneller Chair in Family Medicine
 Grace and Walter Lantz Endowed Chair
 Eleanor I. Leslie Chair in Neuroscience
 William P. Longmire, Jr., Chair in Surgery
 *Gordon and Virginia MacDonald Distinguished Chair in Human Genetics
 Charles H. Markham Chair in Neurology
 Della Martin Chair in Psychiatry
 *David May II Chair in Ophthalmology
 Sherman M. Mellinkoff Distinguished Professor in Medicine Endowed Chair
 James H. Nicholson Chair in Pediatric Cardiology
 *Albert F. and David H. Parlow-Soloman Chair for UCLA Program on Aging
 Samuel J. Pearlman, M.D., and Della Z. Pearlman Chair in Head and Neck Surgery
 Thomas P. and Katherine K. Pike Chair in Alcohol Studies
 Elizabeth R. and Thomas E. Plott Chair in Gerontology
 Edith Agnes Plumb Endowed Chair in Neurobiology
 Revlon Chair in Women's Health
 Leo G. Rigler Chair in Radiological Sciences
 Augustus S. Rose Chair in Neurology
 *Bernard G. Sarnat Endowed Chair in Craniofacial Biology
 Jennifer Jones Simon Chair in Radiation Oncology
 Norton Simon Chair in Biophysics
 Norman F. Sprague Chair in Molecular Oncology
 Fran and Ray Stark Foundation Chair in Digestive Diseases
 Fran and Ray Stark Foundation Chair in Urology

Frances and Ray Stark Chair in Ophthalmology
 Frances Stark Chair in Neurology
 Jules Stein Chair in Ophthalmology
 W. Eugene Stern Chair in Neurosurgery
 Ruth and Raymond H. Stotter Chair in Neurosurgery
 Bradley R. Straatsma, M.D., Endowed Chair in Ophthalmology
 Dorothy and Leonard Straus Chair in Gastroenterology in Memory of Gussie Borun
 Streisand Chair in Cardiology
 Leon J. Tiber, M.D., and David S. Alpert, M.D., Chair in Medicine
 Vernon O. Underwood Family Chair in Ophthalmology
 Richard D. and Ruth P. Walter Chair in Neurology
 Wasserman Professor of Ophthalmology

School of Nursing

Lulu Wolf Hassenplug Chair in Nursing
 *Audrienne H. Moseley Chair in Nursing

School of Public Health

Fred H. Bixby Chair in Population Policy
 Fred W. and Pamela K. Wasserman Chair in Health Services

School of Public Policy and Social Research

Marjorie Crump Chair in Social Welfare
 Harvey S. Perloff Chair

Appendix D

Distinguished Teaching Awards

Academic Senate Recipients

Each year the UCLA Alumni Association presents Distinguished Teaching Awards to five Academic Senate faculty members. The highly prized awards are presented at the annual UCLA Alumni Association Awards Ceremony, and selection of recipients is based on recommendations of the Academic Senate Committee on Teaching. Nominations are solicited from academic departments during Fall Quarter.

The Luckman Distinguished Teaching Awards Program was established in late 1991 after receipt of a generous gift from Harriet and Charles Luckman. Awards given for 1992 through 1997 were named the Luckman Distinguished Teaching Awards.

1961

John F. Barron (*Economics*)
 Hector E. Hall (*Physiology*)
 Kenneth N. Trueblood (*Chemistry and Biochemistry*)

1962

Charles W. Hoffman (*Germanic Languages*)
 Thomas P. Jenkin (*Political Science*)

Ken Nobe (*Chemical Engineering*)

1963

Carl W. Hagge (*Germanic Languages*)
Wendell P. Jones (*Education*)
Robert H. Sorgenfrey (*Mathematics*)
Saul Winstein (*Chemistry and Biochemistry*)

1964

Mostafa A. El-Sayed (*Chemistry and Biochemistry*)
Leon Howard (*English*)
Moshe F. Rubinstein (*Civil and Environmental Engineering*)

1965

E.A. Carlson (*Biology*)
W.R. Hitchcock (*History*)
Allen Parducci (*Psychology*)
William R. Romig (*Microbiology and Molecular Genetics*)

1966

George A. Bartholomew (*Biology*)
William P. Gerberding (*Political Science*)
Hans Meyerhoff (*Philosophy*)
Joseph E. Spencer (*Geography*)

1967

Basil Gordon (*Mathematics*)
J.A.C. Grant (*Political Science*)
William Matthews (*English*)
David S. Saxon (*Physics and Astronomy*)
E.K.L. Upton (*Physics and Astronomy*)

1968

Edward W. Graham (*Chemistry and Biochemistry*)
W. James Popham (*Education*)
Sydney C. Rittenberg (*Microbiology and Molecular Genetics*)
Robert P. Stockwell (*Linguistics*)
Fred N. White (*Physiology*)

1969

Robert J. Finkelstein (*Physics and Astronomy*)
Douglas S. Hobbs (*Political Science*)
J.E. Phillips (*English*)
Raymond M. Redheffer (*Mathematics*)
Margret I. Sellers (*Microbiology and Immunology*)

1970

Ehrhard Bahr (*Germanic Languages*)
Joseph Cascarano (*Biology*)
B. Lamar Johnson (*Education*)
Daniel Kivelson (*Chemistry and Biochemistry*)
Richard D. Lehan (*English*)

1971

Vernon E. Denny (*Chemical Engineering*)
Peter N. Ladefoged (*Linguistics*)
Arthur D. Schwabe (*Medicine*)
Duane E. Smith (*Political Science*)
Andreas Tietze (*Near Eastern Languages and Cultures*)

1972

Barbara K. Keogh (*Education*)
James N. Miller (*Microbiology and Immunology*)
David S. Rodes (*English*)
Ned A. Shearer (*Speech*)
Charles A. West (*Chemistry and Biochemistry*)

1973

Kirby A. Baker (*Mathematics*)
David Evans (*Chemistry and Biochemistry*)
Albert Hoxie (*History*)
Nhan Levan (*Electrical Engineering*)
Judith L. Smith (*Physiological Science*)

1974

Robert B. Edgerton (*Anthropology, Psychiatry and Biobehavioral Sciences*)
David S. Eisenberg (*Chemistry and Biochemistry*)
Victoria A. Fromkin (*Linguistics*)
Robert C. Neerhout (*Pediatrics*)
Andrea L. Rich (*Speech*)

1975

Alma M. Hawkins (*World Arts and Cultures*)
Morris Holland (*Psychology*)
Paul M. Schachter (*Linguistics*)
Stanley A. Wolpert (*History*)
Richard W. Young (*Neurobiology*)

1976

Marianne Celce-Murcia (*Teaching English as a Second Language and Applied Linguistics*)
Jesse J. Dukeminier (*Law*)
George R. Guffey (*English*)
Marilyn L. Kourilsky (*Education*)
Chand R. Viswanathan (*Electrical Engineering*)

1977

Michael J.B. Allen (*English*)
Henry M. Cherrick (*Dentistry*)
Richard C. Maxwell (*Law*)
J. William Schopf (*Earth and Space Sciences*)
Verne N. Schumaker (*Chemistry and Biochemistry*)

1978

William R. Allen (*Economics*)
Michael E. Jung (*Chemistry and Biochemistry*)
J. Fred Weston (*Management*)
Thomas D. Wickens (*Psychology*)
Johannes Wilbert (*Anthropology*)

1979

Steven Krantz (*Mathematics*)
Paul I. Rosenthal (*Communication Studies*)
Christopher Salter (*Geography*)
James H. White (*Mathematics*)
Stephen C. Yeazell (*Law*)

1980

A.R. Braunmuller (*English*)
Fredi Chiappelli (*Italian*)
Kenneth L. Karst (*Law*)
Richard F. Logan (*Geography*)
Ronald F. Zernicke (*Physiological Science*)

1981

Arnold J. Band (*Near Eastern Languages and Cultures*)
Charles L. Batten, Jr. (*English*)
Lucien B. Guze (*Medicine*)
Gerald Lopez (*Law*)
Andy Wong (*Dentistry*)

1982

Dean Bok (*Neurobiology*)
Robin S. Liggett (*Architecture and Urban Design, Urban Planning*)
William Melnitz (*Theater*)
Joseph K. Perloff (*Medicine*)

Karen E. Rowe (*English*)

1983

Claude Bernard (*Physics and Astronomy*)
Bryan C. Ellickson (*Economics*)
Robert S. Elliott (*Electrical Engineering*)
Albert D. Hutter (*English*)
Charles M. Knobler (*Chemistry and Biochemistry*)

1984

Robert Dallek (*History*)
Hooshang Kangerloo (*Radiological Sciences*)
Jeffrey Prager (*Sociology*)
Stanley Siegel (*Law*)
Sandra A. Thompson (*Linguistics*)

1985

Patricia M. Greenfield (*Psychology*)
David F. Martin (*Computer Science*)
Mark W. Plant (*Economics*)
Ross P. Shideler (*Scandinavian Section, Comparative Literature*)
William D. Warren (*Law*)

1986

Roger A. Gorski (*Neurobiology*)
Patricia A. Keating (*Linguistics*)
Leonard Kleinrock (*Computer Science*)
Martin Wachs (*Urban Planning*)
Scott L. Waugh (*History*)

1987

Lawrence W. Bassett (*Radiological Sciences*)
E. Bradford Burns (*History*)
Kenneth W. Graham, Jr. (*Law*)
Howard Suber (*Film and Television*)
Richard A. Yarborough (*English*)

1988

Alison G. Anderson (*Law*)
Ann L.T. Bergren (*Classics*)
Charles A. Berst (*English*)
Michael J. Goldstein (*Psychology*)
Richard L. Sklar (*Political Science*)

1989

John B. Garnett (*Mathematics*)
Kathleen L. Komar (*Comparative Literature, Germanic Languages*)
William G. Roy (*Sociology*)
Stephen Yenser (*English*)
Eric M. Zolt (*Law*)

1990

Peter M. Narins (*Physiological Science*)
Gary B. Nash (*History*)
John S. Wiley (*Law*)
Merlin C. Wittrock (*Education*)
Ruth Yeazell (*English*)

1991

Michael R. Asimow (*Law*)
Edward G. Berenson (*History*)
Robert A. Bjork (*Psychology*)
Margaret FitzSimmons (*Urban Planning*)
Kenneth R. Lincoln (*English*)

1992

Bruce L. Baker (*Psychology*)
Paul B. Bergman (*Law*)
Robert B. Goldberg (*Molecular, Cell, and Developmental Biology*)
Peter E. Kollock (*Sociology*)
Eugen Weber (*History*)

1993

Calvin B. Bedient (*English*)
 Richard B. Kaner (*Chemistry and Biochemistry*)
 Katherine C. King (*Classics*)
 William G. Ouchi (*Management*)
 Bruce Schulman (*History*)

1994

David A. Binder (*Law*)
 Jon P. Davidson (*Earth and Space Sciences*)
 Melvin Oliver (*Sociology*)
 Barbara L. Packer (*English*)
 E. Victor Wolfenstein (*Political Science*)

1995

Noriko Akatsuka (*East Asian Languages and Cultures*)
 Douglas Hollan (*Anthropology*)
 V.A. Kolve (*English*)
 Jerome Rabow (*Sociology*)
 Paul V. Reale (*Music*)

1996

Walter Allen (*Sociology*)
 Judith A. Carney (*Geography*)
 William M. Gelbart (*Chemistry and Biochemistry*)
 Phyllis A. Guzé (*Medicine*)
 Peter B. Hammond (*Anthropology*)

1997

Uptal Banerjee (*Molecular, Cell, and Developmental Biology*)
 Christine D. Gutierrez (*Education*)
 Susan McClary (*Musicology*)
 Arnold B. Scheibel (*Neurobiology, Psychiatry and Biobehavioral Sciences*)
 Ivan Szelenyi (*Sociology*)

1998

George W. Bernard (*Dentistry*)
 Verónica Cortínez (*Spanish and Portuguese*)
 Wayne A. Dollase (*Earth and Space Sciences*)
 Jayne E. Lewis (*English*)
 Joshua S.S. Muldavin (*Geography*)

1999

Grace Ganz Blumberg (*Law*)
 Alessandro Duranti (*Anthropology*)
 Richard H. Gold (*Radiological Sciences*)
 N. Katherine Hayles (*English*)
 Bernard Weiner (*Psychology*)

Non-Academic Senate Recipients

In spring of 1985, the Office of Instructional Development began sponsorship of awards to three instructors who are not members of the Academic Senate. This category includes lecturers and adjunct and clinical faculty members. All non-Academic Senate faculty members who are nominated by their departments are eligible. Recipients are selected by the Academic Senate Committee on Teaching, utilizing the same criteria as that used for Academic Senate members.

The Luckman Distinguished Teaching Awards Program was established in late 1991 after receipt of a generous gift from Harriet and Charles Luckman. Awards given for 1992 through 1997 were named the Luckman Distinguished Teaching Awards.

1985

L. Geoffrey Cowan (*Communication Studies*)
 Mary Elizabeth Perry (*History*)
 Linda Diane Venis (*English*)

1986

David Cohen (*Mathematics*)
 Johanna Harris-Heggie (*Music*)
 Paul Von Blum (*Interdisciplinary*)

1987

Carol D. Berkowitz (*Pediatrics*)
 Jeffrey I. Cole (*Communication Studies*)
 Cheryl Giuliano (*Writing Programs*)

1988

Jeanne Gunner (*Writing Programs*)
 Art Huffman (*Physics and Astronomy*)
 David G. Kay (*Computer Science*)

1989

S. Scott Bartchy (*History*)
 Bonnie Lisle (*Writing Programs*)
 Kenneth R. Pfeiffer (*Civil Engineering, Psychology*)

1990

Lisa Gerrard (*Writing Programs*)
 Andres Durstenfeld (*Biology*)
 Dorothy Phillips (*Physiological Science*)

1991

Marde S. Gregory (*Speech*)
 Betty A. Luceigh (*Chemistry and Biochemistry*)
 Cheryl Pfoff (*Writing Programs*)

1992

Janet Goodwin (*Teaching English as a Second Language and Applied Linguistics*)
 Janette Lewis (*Writing Programs*)
 Yihua Wang (*East Asian Languages and Cultures*)

1993

Stephen Dickey (*English*)
 Sondra Hale (*Anthropology*)
 Jutta Landa (*Germanic Languages*)

1994

Steven K. Derian (*Law*)
 Linda Jensen (*Teaching English as a Second Language and Applied Linguistics*)
 Shelby Popham (*Writing Programs*)

1995

Nicholas Collaros (*French*)
 Kristine S. Knaplund (*Law*)
 Christopher Mott (*English*)

1996

Scott Bowman (*Political Science*)
 Timothy Tangherlini (*Scandinavian Section*)
 G. Jennifer Wilson (*Honors and Undergraduate Programs*)

1997

William McDonald (*Film and Television*)
 Stuart Slavin (*Pediatrics*)
 Sung-Ock Sohn (*East Asian Languages and Cultures*)

1998

Paul Frymer (*Political Science*)
 George Gadda (*UCLA Writing Programs*)
 Julie Giese (*English*)

1999

Patricia Gilmore-Jaffe (*UCLA Writing Programs*)
 Emily Schiller (*English*)
 Scott Votey (*UCLA Emergency Medicine Center*)

Gold Shield Faculty Prize

The \$30,000 Gold Shield Faculty Prize, an award for academic excellence, was created by the Gold Shield Alumnae of UCLA in celebration of their fiftieth anniversary in 1986. The prize is funded by an endowment of \$250,000 raised by Gold Shield for this purpose, which has grown to over \$400,000. Guidelines provide that the prize "recognize and reward UCLA faculty members who have demonstrated extraordinary accomplishment in teaching and in research or creative activity...and who have made a significant contribution to undergraduate education." Preference for recipients is given to faculty members in mid-career who do not often receive the extra professional incentives available to distinguished senior faculty.

The Gold Shield Faculty Prize is awarded to each recipient for scholarly use. The awardee is selected every two years by a committee of peers appointed by the Academic Senate. Student and Gold Shield representatives are included. Recipients must come from fields that have undergraduate programs at UCLA.

1986-88

Michael E. Jung (*Chemistry and Biochemistry*)

1988-90

Patricia M. Greenfield (*Psychology*)

1990-92

Jeffrey C. Alexander (*Sociology*)

1992-94

J. William Schopf (*Earth and Space Sciences*)

1994-96

Albert R. Braunmuller (*English*)

1996-98

Peter M. Narins (*Physiological Science*)

1998-00

Robert B. Goldberg (*Molecular, Cell, and Developmental Biology*)

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Admissions, Undergraduate	http://www.saonet.ucla.edu/uars.htm
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Bruin OnLine	http://www.ucla.edu/bruinonline
Campus Calendars	http://www.calendar.ucla.edu/
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Campus Safety	http://www.ucpd.ucla.edu/
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Institutional Facts and Data	http://www.apb.ucla.edu
International Programs	http://www.ucla.edu/home/international.html
My.UCLA	https://my.ucla.edu
Orientation	http://www.college.ucla.edu/up/ORIENTATION/
Parking and Transportation	http://www.transportation.ucla.edu
Registrar's Office	http://www.registrar.ucla.edu
Schedule of Classes	http://www.registrar.ucla.edu/schedule
Subject A	http://www.ucop.edu/sas/sub-a
Summer Sessions	http://www.summer.ucla.edu
UCLA Extension	http://www.unex.ucla.edu/
UCLA Library	http://www.library.ucla.edu/
UCLA Store	http://www.uclastore.ucla.edu/
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