

General Catalog 1995-97

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UCLA

General Catalog

1995-97



View of the newly renovated facade of Powell Library as seen from an arch in Royce Hall.

UCLA Academic Calendars

1995 – 96

Fall Quarter 1995

Quarter begins	September 25
Instruction begins	September 28
Thanksgiving holiday	November 23-24
Instruction ends	December 7
Final examinations	December 9-15
Quarter ends	December 15
Christmas holiday	December 25-26
New Year's holiday	December 29- January 1

Winter Quarter 1996

Quarter begins	January 3
Instruction begins	January 8
Martin Luther King, Jr. holiday	January 15
Presidents' Day holiday	February 19
Instruction ends	March 15
Final examinations	March 16-22
Quarter ends	March 22
Administrative holiday (closed)	March 25

Spring Quarter 1996

Quarter begins	March 27
Instruction begins	April 1
Memorial Day holiday	May 27
Instruction ends	June 7
Final examinations	June 8-14
Quarter ends	June 14
Commencement weekend	June 15-16

1996 – 97

Fall Quarter 1995

Quarter begins	September 23
Instruction begins	September 26
Thanksgiving holiday	November 28-29
Instruction ends	December 5
Final examinations	December 7-13
Quarter ends	December 13
Christmas holiday	December 24-25
New Year's holiday	December 31- January 1

Winter Quarter 1996

Quarter begins	January 2
Instruction begins	January 6
Martin Luther King, Jr. holiday	January 20
Presidents' Day holiday	February 17
Instruction ends	March 14
Final examinations	March 15-21
Quarter ends	March 21
Administrative holiday (closed)	March 24

Spring Quarter 1996

Quarter begins	March 26
Instruction begins	March 31
Memorial Day holiday	May 26
Instruction ends	June 6
Final examinations	June 7-13
Quarter ends	June 13
Commencement weekend	June 14-15

On Line: Consult the quarterly *Schedule of Classes* for detailed information on registration, enrollment, and administrative deadlines. Updates to the academic calendar are available on the internet at <http://www.ucla.edu>.

Academic and administrative information and campus publications are available on the internet at <http://www.ucla.edu>. For additional departmental information see UCLA Academic Department Servers at website <http://www.ucla.edu:80/people/servers/academic.html>.

This catalog is also available at website <http://www.ucla.edu/student/catalog/>

On the Cover: The front cover depicts the facade of Royce Hall and the back cover, Powell Library. The insets are details from Powell.

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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.

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. Further details on graduate programs are available in various Graduate Division publications, including *Program Requirements for UCLA Graduate Degrees* and *Standards and Procedures for Graduate Study at UCLA*.

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About UCLA

Introducing UCLA

Academic Resources and Programs

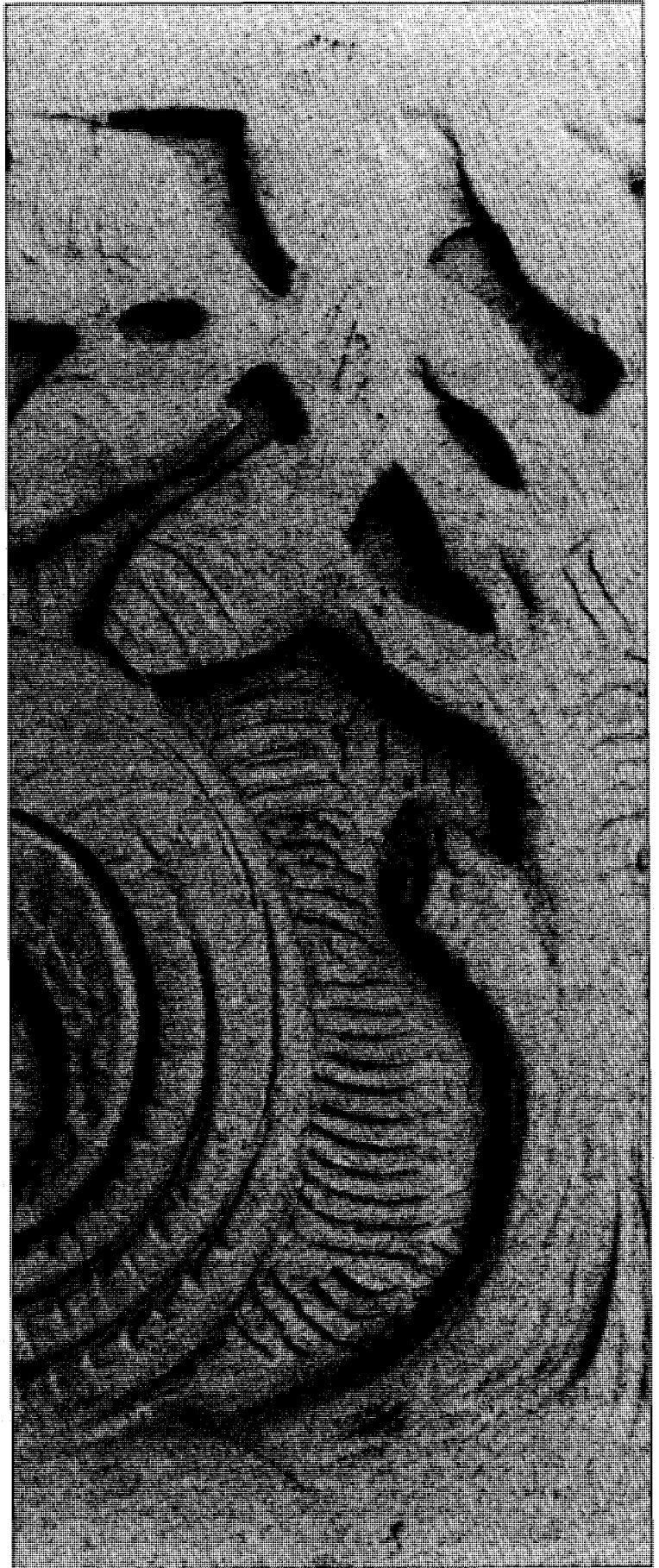
Resources for Research and Study

Supplementary Educational Programs

Student Life

Student Activities

Student Services



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 which 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 Westwood, 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. UCLA's most spectacular period of growth 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 which is now one of the largest and most highly respected in the world.

UCLA Today

UCLA celebrated its seventy-fifth anniversary during the 1994-95 academic year. In just three-quarters of a century — a remarkably brief span — UCLA has joined the elite ranks of the nation's most prestigious universities. This 75-year journey is one of the great success stories in American higher education. Today, UCLA is distinguished as the only campus among the nation's top 10 research universities that was established in the twentieth century.

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 236 buildings on 419 acres house the College of Letters and Science plus 11 professional schools and serve more than 33,550 students. Another major period of campus development is currently nearing completion, providing needed additional space for chemistry, management, and microbiology programs, while several of UCLA's older buildings are now being made earthquake-safe through a broad seismic correction program.

UCLA's top administrative officer is Chancellor Charles E. Young. Now beginning his twenty-eighth year of leadership in that position — more than one third of UCLA's existence — Chancellor Young is one of America's most senior and most respected leaders in higher education today.

Setting

UCLA is cradled in rolling green hills just five miles inland from the ocean, 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 little 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 sculptress Anna Mahler.

UCLA is a place for serious study in a vibrant, dynamic atmosphere. You must visit the campus to appreciate it. If you are thinking of applying to the University as an undergraduate, contact Undergraduate Admissions and Relations with Schools (310-825-8764) to take a tour of the campus specifically tailored to the prospective student. If you are not a student, the Campus Visits Program (310-206-0616), sponsored by the Alumni Association, arranges both individual and group tours of the campus throughout the year. 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 you as a student?

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 you are taught by the people making the discoveries, so you learn the latest findings on every front. You may exchange ideas with faculty members who are authorities in their fields, and even as undergraduates you 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 29,742 students is about equal to that at UC Berkeley, but the UCLA campus is enriched by an additional 3,839 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 you, the student, to feel that you 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 your 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 1993-94 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 and is by far the youngest institution in this select group.

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 112 different disciplines; graduate students may earn one of 84 master's and 103 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, a new School of Public Policy and Social Research has been established, incorporating the existing Departments of Social Welfare and Urban Planning with the new Department of Policy Studies, while the existing Department of Architecture and Urban Design has been moved into the newly renamed School of the Arts and Architecture. In the School of Medicine, the Department of Anatomy and Cell Biology recently was renamed the Department of Neurobiology. Two additional mergers occurred when (1) the Department of Astronomy joined the Department of Physics to become the new Department of Physics and Astronomy and (2) the Department of Dance and the interdepartmental World Arts and Cultures Program combined to form the new Department of World Arts and Cultures. New degree programs last year included the interdepartmental B.A. in Asian American Studies, the B.A. in American Literature and Culture, and the interdepartmental B.A. in European Studies.

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 1987 Nobel prizewinner Donald Cram, 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 1994-95 nine faculty members received Fulbright scholarships to conduct research, lecture, and consult abroad, and four UCLA scientists and scholars were awarded Guggenheim fellowships. Two were elected as fellows of the prestigious American Association for the Advancement of Science (AAAS). With two additional American Academy of Arts and Sciences award winners, one Sloan Foundation fellow, one National Academy of Sciences awardee, and five National Science Foundation Young Investigators, 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 more than 150 American research universities. UCLA was judged second in the nation among public universities, and among the most highly rated overall. Of the 32 disciplines studied, 17 of UCLA's academic departments were ranked among the top 10 in the country.

Research

UCLA is among the six leading research universities in the country, receiving a record \$342 million in 1993-94 in extramural grants and contracts to support its research activities. The University hosts several hundred postdoctoral scholars each year who share its excellent re-

search 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

UCLA's students pride themselves on academic excellence. The Fall Quarter 1994 entering freshman class had an average high school GPA of 3.90, with an average composite score on the Scholastic Assessment Test (SAT) of 1,128 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 64 percent of the undergraduates and 36.2 percent of the graduate student population. And international students and scholars presently number over 6,700, making this one of the most popular American universities for students from abroad.

Numerous Other Factors

With more than six million volumes, UCLA's library is rated among the finest in the country. Its athletic teams have made the University an acknowledged leader in intercollegiate sports. Its Center for the 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 Westwood 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 162,300 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 University 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 which 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 which follows, UCLA's 23 organized research units are listed within five major divisions — health sciences, life sciences, physical sciences and engineering, social sciences, and arts and humanities. 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.

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 institute provides 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 institute. 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 73-369 BRI (310-825-5061).

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 and biochemistry. The imaging domains range from the molecular organization of viruses and cellular subunits to the biological responses 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. 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. There are also faculty and student exchange programs with a number of domestic and foreign universities. Dr. Michael E. Phelps is the director (310-825-6539).

Dental Research Institute

The Dental Research Institute, with principal laboratories on the seventh floor of the School of Dentistry, fosters research related to oral health. Areas of investigation include biomaterials, cancer research, clinical studies, craniofacial biology, immunology/immunogenetics, molecular biology, oral neurology/pain, periodontology, and ultrastructure/cell biology. The Office of the Director is located in 73-017 Center for the Health Sciences (310-206-8045).

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).

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), 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 new research and training programs concentrating on major eye diseases worldwide.

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) and the Center for the Health Sciences, is funded through a contract with the Department of Energy. Research is conducted in biomolecular and cellular science, environmental biology, 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, a cobalt radiation facility, a vivarium, and an advanced structural biology laboratory.

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**. The **Joneson Comprehensive Cancer Center**, one of only 27 comprehensive centers in the nation, is renowned for the breadth and excellence of its cancer research. The **UCLA AIDS Institute** 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**. And the School of Public Health, which recently established the **Southern California Injury Prevention Research Center**, 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.

Life Sciences

Molecular Biology Institute

The Molecular Biology Institute provides research and training resources in molecular biology for faculty from the College of Letters and Science and the School of Medicine, and includes the Parvin Cancer Research Laboratories and the UCLA-DOE Laboratory of Structural Biology and Molecular Medicine. Administrative offices are located in 168 MBI (310-825-1018).

Center for the Study of Women

The Center for the Study of Women, located in 276 Kinsey Hall (310-825-0590), is the only unit of its kind in the UC system which focuses on women and gender and draws on the energies of more than 200 faculty from 11 professional schools and 28 departments. The center's major purpose is to encourage and facilitate faculty research on women and gender. To this end, the center develops and monitors grant proposals, provides UCLA faculty with seed-money through the minigrant competition, offers an affiliation for research and visiting scholars, and organizes public conferences and various lecture series, including the Feminist Research Seminar, Feminist Theory Series, Gender Studies of Science, Technology and Medicine Series, Lunch Series, and Gender and Politics Program. In addition, the center sponsors various working groups, produces an annual calendar of events and a quarterly newsletter, and hosts various programs for graduate students interested in women and gender, as well as an annual graduate student research conference.

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. And the **Center for the Study of Evolution and the Origin of Life** melds the diverse research of more than 100 UCLA faculty members in the study of the emergence and evolution of life on Earth.

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 environmental change, the origin of terrestrial life, the dynamical properties of the sun and solar wind, and the evolution of stellar interiors. 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 branch office is located in 3839 Slichter Hall (310-825-1664).

Institute of Plasma and Fusion Research

The Institute of Plasma and Fusion Research, located in 44-139 Engineering IV (310-825-5090), 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.

White Mountain Research Station

The White Mountain Research Station is a multicampus research unit (MRU) dedicated to high-altitude research. Four separate laboratory sites near Bishop, California, ranging up to 14,250 feet above sea level, include the highest permanent teaching and research facilities in North America. Research includes studies in archaeology and the biological, medical, and physical sciences. The administrative office is located in 6713 Geology (310-825-2093, fax 310-825-1861).

Among other interdisciplinary activities in the physical sciences and engineering at UCLA, the **Center for Clean Technology** 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 a **Manufacturing and Automation Research Center**, funded by the National Science Foundation, is operated jointly by UCLA's engineering school and the University of Southern California (USC).

Social Sciences

Office of International Studies and Overseas Programs

The Office of International Studies and Overseas Programs (ISOP) supports and coordinates international and foreign area studies at UCLA. ISOP and its centers also support several interdepartmental 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) 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 Informa-

tion 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) develops and coordinates teaching and research on Russia and its successor states, as well as the countries of Europe through conferences, lectures, seminars, and academic exchange programs with European and Russian institutions.

The **Latin American Center** (10343 Bunche Hall, 310-825-4571) 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) 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) 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) 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) develops, coordinates, and supports graduate training in Chinese studies, major research projects, and a regional seminar; an **NDEA Joint Center in East Asian Studies** (11266 Bunche Hall, 310-825-0007) 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) 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) 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.

ISOP's dean's office also supports an interdepartmental degree program in development studies. This undergraduate degree program focuses on the 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 (SOC-CIS).

Institute of American Cultures

The Institute of American Cultures 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** (160 Haines Hall, 310-825-7403) 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) serves as an educational and research catalyst and includes a library, master's and postdoctoral fellowship programs, and a publishing unit that produces a number of books and a quarterly journal.

The **Asian American Studies Center** (3230 Campbell Hall, 310-825-2974) 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 a master's program.

The **Chicano Studies Research Center** (180 Haines Hall, 310-825-2363) 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 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, located in A210 Fowler Building (310-206-8934), 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 (1001 Gayley Avenue, Second Floor, 310-825-1964) has an interdisciplinary research program directed toward the study of all aspects of the employment relationship, in-

cluding labor markets, labor law, labor/management relations, equal employment opportunity, occupational safety and health, and related issues. Through the Center for Labor Research 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 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, Interdisciplinary Program in Social Statistics, Survey Research Center, Social Science Data Archive, Organizational Research Program, and Center for Social Theory and Comparative History. Training in survey research methodology is available to students through participation in the annual Southern California Social Survey. The institute publishes the *ISSR Working Papers in the Social Sciences*; it is located in 303 GSEIS Building (310-825-0711).

Other interdisciplinary activities in the social sciences include the nationally respected **Business Forecasting Project** in UCLA's John E. Anderson Graduate School of Management and the **Center for the Study of Evaluation** in the Graduate School of Education and Information Studies which is at the forefront of efforts to improve the quality of schooling in America. In addition, the **Center on the Teaching and Learning of History in Elementary and Secondary Schools** brings K-12 teachers and social studies professors from throughout the country together in an effort to improve history teaching. The **Center for the Study of Urban Poverty** initiates new research on issues related to urban poverty and sponsors seminars in the field. The **Center for the Study of the Environment and Society** researches and addresses such issues as air pollution, water quality, and the public response to environmental concerns. And the **Center for Communication Policy** is a national leader in communications public policy issues such as technological innovations in telecommunications and the social and political impact of these changes.

Arts and Humanities

Center for Medieval and Renaissance Studies

The Center for Medieval and Renaissance Studies 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, or call (310)825-1880, fax (310) 825-0655, or e-mail cmrs@humnet.ucla.edu.

Center for Seventeenth- and Eighteenth-Century Studies

The Center for Seventeenth- and Eighteenth-Century Studies and the Clark Memorial Library are united under the administrative direction of the center and the College of Letters and Science. The center, located in 395 Dodd Hall (310-206-8552), 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 (213-731-8529), is a rare book library specializing in seventeenth- and eighteenth-century British works. It 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**, 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** has opened within UCLA's Fowler Museum of Cultural History to advance the study of past and present cloth and clothing traditions through research, exhibitions, and teaching. And the **Center for Jewish Studies** sponsors lectures, conferences, and visiting scholars and coordinates Jewish studies activities on campus.

Resources for Research and Study

University Library System

Libraries are crucial to both study and research. The University Library on the UCLA campus is one of the country's largest and most renowned academic libraries and consists of the University Research Library, the College Library, and 11 specialized subject libraries. Collectively they contain more than six million volumes and extensive holdings of government publications, pamphlets, manuscripts, maps, microforms, music scores, recordings, photographs, and slides. They regularly receive over 94,000 serial publications.

ORION, the library's on-line information system, provides location and holdings information for most library materials and current information for materials on order or in processing. On-line circulation status information for materials in most libraries is also available. ORION public access terminals are located in many campus libraries, and demonstrations and workshops in using the system are available at the beginning of each term.

Students have access to the stacks in most libraries. A handbook describing the organization, services, and hours of the University libraries is available at all campus libraries.

The **Reprographic Service**, housed in 2081 Engineering I, can duplicate books, periodicals, manuscripts, and maps.

University Research Library

The University Research Library on north campus is a modern six-story building designed primarily as a graduate research library serving the social sciences, humanities, and several professional schools. The building houses over three million volumes arranged in open stacks, as well as the Reference Room, Circulation Department, Graduate Reserve Service, and Periodicals Room. The Microform and Media Service, with some 1,110,000 microcopies of newspapers, books, and periodicals, has a variety of reading and copying equipment. During academic sessions library hours are weekdays 8 a.m. to 11 p.m. (6 p.m. Friday), Saturday 9 a.m. to 5 p.m., Sunday 1 to 10 p.m.

The **Department of Special Collections** in the University Research Library contains rare books and pamphlets, the University Archives, early maps, and files of early California newspapers. Manuscript collections include the literary papers of Henry Miller and Anaïs Nin, as well as the private papers of Jack Benny, Charles Laughton, Carey McWilliams, King Vidor, and Nobel Peace Prize winner Dr. Ralph J. Bunche, a UCLA alumnus. Other significant holdings include the Sadleir Collection of nineteenth-century fiction, generally regarded as the finest of its kind, and the Ahmanson-Murphy Collection of Early Italian Printing (1471-

1550), with a concentration on Aldine imprints. The department also includes UCLA's Oral History Program, a national leader in the field with over 400 interviews with prominent individuals since the program was founded in 1959.

The **Bruman Maps and Government Information Library (MGI)**, also housed in the University Research Library, collects official publications of the U.S. government, the State of California, California counties and cities, selected U.S. state and local governments, foreign nations and selected foreign states and provinces, the United Nations and some of its specialized agencies, and a number of other international organizations. MGI has current English-language, nongovernmental pamphlets on public affairs representing a wide spectrum of political and social opinion, with strong emphasis on social welfare, economic, social, and political conditions, and industrial relations. It also has maps, city plans, nautical charts, and technical books and serials on all aspects of cartography.

College Library

The College Library is designed to meet the instructional and informational needs of most undergraduate students. It is permanently located in the Powell Library Building but is housed in a temporary structure — commonly known as "Towell" — while Powell undergoes seismic renovation. Towell is located at the foot of Janss Steps between the Dance Building and the Men's Gym and houses 200,000 books and periodicals; course reserve materials, including audiocassettes, lecture notes, past examinations, and APS (Academic Publishing Service) readings available for loan; and the Humanities Computing Laboratory with 36 IBM PS/2s, Macintoshes, and printers. During academic sessions library hours are weekdays 8 a.m. to 11 p.m. (6 p.m. Friday), Saturday 9 a.m. to 5 p.m., Sunday 1 to 10 p.m.

Specialized Subject Libraries

The resources of the specialized campus libraries are devoted mainly to subjects of concern to the departments or professional schools which they serve, but their materials are available to all UCLA students and faculty. A recorded message (310-825-8301) provides current hours of service for each library.

The **Arts Library** in Dickson Art Center houses material on art, art history, design, film, television, theater, and architecture. The Belt Library of Vinciana is also located in Dickson Art Center. Arts Special Collections, located in the University Research Library, contain noncirculating materials, including the Princeton Index of Christian Art, the Artists' File, and other special collections such as unpublished radio, film, and television scripts and archival records of major Southern California motion picture studios.

The **Louise Darling Biomedical Library**, in the Center for the Health Sciences, is one of the finest libraries of its kind in the country. Its 500,000 volumes and nearly 6,000 serial subscriptions serve all the UCLA health and life sciences departments/schools and the UCLA Medical Center.

Materials in Chinese, Japanese, and Korean are available in the **Rudolph East Asian Library**, and the **Hugh and Hazel Darling Law Library** has a substantial collection of over 400,000 volumes selected to further the course of instruction in the School of Law and the legal research needs of the UCLA community. The **Rosenfeld Management Library** serves the John E. Anderson Graduate School of Management and the various subjects related to business and management.

The **Rubsamen Music Library** houses historical musicology and ethnomusicology materials, musical scores, recordings, and the personal collections of such composers as Henry Mancini, Alex North, and Ernst Toch. Music Special Collections contain sheet music, anthologies, arrangements for band and orchestra, sound recordings, and manuscripts.

The **Science and Engineering Library (SEL)** covers the fields of engineering, mathematics, and the physical sciences. The SEL collections

are housed in four separate locations. **SEL/Chemistry** includes material on chemistry, biochemistry, and molecular biology; materials for engineering, astronomy, computer science, meteorology, and mathematics are kept in **SEL/Engineering and Mathematical Science**; major subjects covered by **SEL/Geology-Geophysics** include geoscience, invertebrate paleontology, planetary and space science, and hydrology; and **SEL/Physics** covers all aspects of that science, including acoustics and spectroscopy.

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 **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 Pacific American resources. The **Center for African American Studies Library** contains materials reflecting the African American experience in the social sciences, arts, and humanities.

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 (1640-1750). The **English Reading Room** features a noncirculating collection of English and American literature.

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 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 Melnitz Theater which 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. Extended viewing hours are available at the Instructional Media Laboratory.

Art Galleries and Museums

A tour of all the UCLA museums and art galleries will take you 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 also 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 on Saturdays and Sundays, and Thursday evenings. The museum is open Tuesday through Saturday 11 a.m. to 7 p.m. (Thursday to 9 p.m.), Sunday 11 a.m. to 6 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.

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 over 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 by appointment Monday through Friday from 9 a.m. to 5 p.m. (310-443-7076).

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. Administrative offices are located in 1586 Fowler Building (310-825-4361).

Other Campus Resources

The **Office of Academic Computing (OAC)** provides microcomputer and workstation support services through its Microcomputer Support Office (MSO), campus backbone network services through its Campus Network Services (CNS) group, and supercomputer services through its Computing Services group. OAC offers a broad range of services, including an IBM ES/9000 Model 900 supercomputer with vector facilities; IBM SP/2 high-performance parallel processing complex, including a cluster of RS/6000 workstations; public computing facilities; instruction in the use of computer hardware and software through free non-credit classes; professional consulting services; user documentation and *Perspective*, a quarterly journal; assistance to departments in the

selection of microcomputer and workstation hardware and software; and computing assistance to faculty, staff, and students with disabilities.

The **Microcomputer Support Office**, located in 5308A Math Sciences (310-825-7408), provides services enabling departmental computer support coordinators to provide assistance to faculty and students on the use of microcomputers and advanced workstations, as well as special services in computing for faculty, students, and staff with disabilities. MSO services are intended to support the integration of microcomputers and advanced workstations into administrative, instructional, and research programs as well as individual microcomputer acquisition and use. MSO supports local area networks and their connection to the campus backbone network and coordinates campuswide software licenses, user groups, and an electronic newsletter. Most services are available through the Microcomputer Information Center (MIC).

OAC's IBM ES/9000 runs the MVS/ESA operating system and is available to all colleges, schools, and departments within UCLA, as well as to all registered students. OAC maintains a large library of applications software, including statistical, language, and graphics packages. The ES/9000 with its vector facilities and the SP/2 complex are particularly appropriate for numerically intensive computing and data management tasks. In the numerically intensive computing area, OAC provides a code clinic with professional consultants to analyze and improve the efficiency of specialized code in numerically intensive computing applications. In the visualization area, OAC consultants work with users in producing high-quality graphic output necessary for research in many scientific disciplines. OAC is connected to the campus backbone network, enabling access to its services wherever there is a connection to the network. These services include access to ORION, the UCLA on-line library information system; use of BEN, an electronic communication system; and access to the Internet. Information on how to apply for an account to use any of OAC's services is available in the OAC User Relations Office (4302 Math Sciences, 310-825-7548) weekdays from 8 a.m. to 5 p.m.

The **Division of Laboratory Animal Medicine**, located in 1V-211 CHS (310-825-7281), 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 University of California **Natural Reserve System** offers 26 reserves statewide to be used for field studies in unspoiled natural sites and for protected scientific experiments. For more information, contact Robert M. Gibson, 2203 Life Sciences (310-825-6459).

The **Biological Collections** of the Biology Department include marine fishes from the Eastern Pacific and Gulf of California, and birds and mammals primarily from the Western U.S., Mexico, and Central America. The department also maintains a more limited collection of amphibians, reptiles, and fossil vertebrates. For more information, contact Jaap Hillenius, A339 Life Sciences (310-825-1282), or Donald Buth, 1335 Life Sciences (310-206-6084).

Although the UCLA campus as a whole has an attractive, park-like atmosphere, there are two distinctive garden areas worthy of special note. The eight-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. 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).

The **Hannah Carter Japanese Garden** in nearby Bel Air, designed and constructed by Japanese artisans and architects using native plants and artifacts, is an authentic Kyoto-style garden. The terraced two-acre garden contains such traditional and symbolic features as a teahouse, shrine, antique stone water basins, lanterns, waterfalls, and a pond with Japanese carp (koi) swimming among water lilies. The garden, a private gift to UCLA, is used by faculty and students for study and research, by

departments for professional events, and by others seeking a serene setting for meditation and solitude. It is open to groups and individuals by reservation only. Call the Visitors Center at (310) 206-8147.

Supplementary Educational Programs

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

Summer Sessions

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.

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

If you are a regularly enrolled graduate student, you may, with departmental approval, take regular session courses offered in Summer Sessions for credit toward a master's or doctoral degree; consult your 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, you may attend another college institution for credit while you are enrolled in Summer Sessions. Applications and more information are available in 1147 Murphy Hall (310-794-8333).

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 your 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). 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).

Education Abroad Program

Each year more than 1,400 undergraduate and graduate students from UC campuses study at distinguished universities throughout the world. UCLA students remain registered here while overseas and receive UC units and grade points for work completed abroad. Currently, the Education Abroad Program (EAP) offers study opportunities at more than 100 different universities in 32 countries: Australia, Austria, 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, Spain, Sweden, Taiwan, and Thailand. 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, Brazil, Canada, Chile, China, Costa Rica, Denmark, France, Germany, Hungary, India, Indonesia, Israel, Italy, Japan, Korea, Mexico, Netherlands, Russia, Singapore, 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. 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) completed a minimum of 90 quarter units (junior standing) prior to departure, (2) at least a B average (3.0 GPA) overall at the time of application, and (3) the support of the UCLA EAP Selection Committee. Some programs have a language requirement as well.

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 is available to those who qualify. Applications must be filed several months in advance. For more information, contact the EAP Office in 28 Haines Hall (310-825-4889, 825-4995).

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) 825-4621.

The **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, operations research, philosophy, political science, psychology, public health, public planning and policy, sociology, 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 2270 Public Policy Building 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, profes-

sor of economics, political science, and policy studies. For further information, contact the Western Management Science Institute at (310) 825-1581 or 825-4144.

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, contact the Cognitive Science Research Program at (310) 825-0951.

Student Life

Living Accommodations

Where you live while attending UCLA can play an important role in your 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 different housing options available. Decide early which ones you plan to pursue and apply for or follow up on them as soon as possible. If you plan to live off campus, arrive early to make your housing arrangements for the coming academic year.

The **UCLA Community Housing Office**, 350 De Neve Drive (Sproul Hall Annex), Los Angeles, CA 90095-1495, (310) 825-4491, 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 Registration Card or letter of acceptance and a valid photo identification card are *required* for service.

The International Student Center on Gayley Avenue helps international students find housing and may also provide temporary facilities until suitable permanent housing arrangements are made.

UCLA Housing Options and Opportunities: Information and Application, a booklet which covers housing options in much greater detail, is mailed to all students when they are accepted for admission.

On-Campus Housing

Living on campus can add an extra dimension of academic support, enjoyment, and convenience to your UCLA experience. Four residence halls (Dykstra, Hedrick, Rieber, and Sproul Halls), two residential suite complexes (Hitch and Saxon Residential Suites), and Sunset Village accommodate nearly 6,000 undergraduates, while the Hilgard Houses accommodate 165 transfer and upper division students. Hershey Hall houses 334 graduate 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 has one- and two-bedroom units, each with a full bath, shared by two or three students per bedroom. 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. The four residence hall cafeterias and the dining commons in Sunset Village accommodate all on-campus residents and serve 19 meals per week. Residents may also select a 14- or 11-meal plan.

Applications for on-campus housing are contained in the *UCLA Housing Options and Opportunities: Information and Application* booklet, available at the **UCLA Housing Assignment Office**, 270 De Neve Drive, Los Angeles, CA 90095-1381, (310) 825-4271. To apply for on-campus housing, your completed application must be postmarked by the following deadlines:

- March 31 for freshmen (April 10 for current students, May 1 for transfer students, June 1 for graduate students) for Fall Quarter 1995
- October 27 for Winter Quarter 1996
- January 26 for Spring Quarter 1996

Following each of these dates, the Housing Assignment Office randomly designates a number to each application received; the number determines the order in which you 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 on-campus housing.**

The full cost per student for the 1995-96 academic year (Fall, Winter, and Spring Quarters, excluding vacation periods) is \$4,955 (triples) or \$5,755 (doubles) for residence halls, \$6,170 (six persons) or \$6,835 (four persons) for suites and Sunset Village, and \$6,280 (triples) or \$6,950 (doubles) for Sunset Village, plus a \$22.44 membership fee in the On-Campus Housing Student Association. These rates include 19 meals per week.

The **Office of Residential Life**, in the Residential Life Building near Sproul Hall (310-825-3401), is responsible for the conduct of students 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).

University Apartments for Single Graduate and Family Students

UCLA maintains nearly 1,200 off-campus apartments about five miles from campus for married, single-parent, and single graduate students. Unfurnished one-, two-, and three-bedroom units are available. One-bedroom rentals for 1995-96, excluding utilities, are expected to range from \$531 to \$730 per month. Since waiting lists for family student housing are long, *do not wait until you have been accepted to UCLA to apply*. Verification of marriage and/or copies of children's birth certificates (English translation) must accompany your application. Call University Apartments South at (310) 398-4692 for up-to-date information.

University Apartments for Single Students

More than 230 apartments for single 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. Provisional space rates for the 1995-96 academic year, including utilities, range from \$2,210 to \$4,640. All occupants must be full-time UCLA students; rental agreements are for the entire academic year. An application is included in the *UCLA Housing Options and Opportunities: Information and Application* 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 for current availability information. Roommate vacancies in University apartments are also routinely posted in the UCLA Community Housing Office.

Cooperatives/Boarding Houses

There is one student cooperative within walking distance of campus which provides an atmosphere similar to residence halls except that you 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 45 fraternities and sororities at UCLA own chapter houses on the west and east sides of campus respectively. For sororities, you must be a member to live in the house and generally will be able to move in after your first year of active membership. For fraternities, living in the house depends on the number of housing spaces available. Room, board, and dues are about the same as 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).

Apartments

If you would like to rent an apartment off campus, you must carefully consider the kind of living arrangements you can afford. Your financial situation may dictate how close you live to UCLA and whether you 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.

Short-Term Housing

If you need temporary quarters until you 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.

Transportation

Parking Services

A limited number of parking permits are available for the campus. Unfortunately, not all students who request a permit can be offered parking. To maximize your chances of obtaining a permit, you are encouraged to apply for a two-person or three-person carpool. Valid carpool applications received by the deadline are guaranteed a parking permit. You may obtain a parking application and instructions at Parking Services (555 Westwood Plaza, Structure 8, Suite 100, 310-825-9871). To be considered, apply by the deadline dates listed on the Calendar at the beginning of this catalog or in the quarterly *Schedule of Classes*.

The application process for parking includes Parking Services' evaluation of your personal transportation needs. Parking assignments are based on a number of factors, including distance you live from campus, total terms in attendance, employment obligations, and other related factors. Once evaluated, you are notified of your assignment or denial. You must accept and submit the parking offer by the published deadline. If you are not offered a permit for a particular term, you must reapply each term to be reconsidered. For more information, call Parking Services at (310) 825-9871.

Students with permanent or temporary disabilities who have DMV-issued disabled persons' license plates or placards may apply to the Office for Students with Disabilities (310-825-1501) for parking assignments and on-campus transportation assistance. Students with temporary disabilities (usually less than three months) who do not have DMV-issued disabled persons' license plates or placards may obtain authorization for disabled parking through Student Health Service (310-206-8109).

Commuter Assistance-Ridesharing

The Commuter Assistance-Ridesharing (CAR) Office can help you find alternative means of transportation to and from campus other than driving alone in your car.

Many students form or join existing **UCLA carpools and vanpools** to save time and money and make the daily commute more pleasant. A carpool matchlisting service is **free** to all students and can be requested by contacting CAR at (310) 794-RIDE. There are over 125 vanpools serving over 65 communities throughout Southern California. Students can sign up for vanpools on a full-time (month-to-month) or part-time (occasional) basis. To find out whether a vanpool currently operates from your area, call a vanpool coordinator at (310) 794-RIDE.

An Emergency Ride Home (ERH) program has been developed to aid full-time UCLA vanpoolers and qualified part-time vanpoolers in the event of an emergency or other unscheduled need to get home quickly. The service consists of three options — night rider vans which are vanpools that arrive on campus at 9 and 9:30 a.m. and leave at 6 or 7 p.m., overnight rental car service, and emergency carpool matchlist service. For detailed information, contact CAR at (310) 794-RIDE.

Public bus lines connect UCLA to Santa Monica, Culver City, Beverly Hills, and most of the greater Los Angeles area. Bicycles, mopeds, and motorcycles are other popular ways to get to campus; there are special parking areas on campus specifically marked and equipped for these vehicles.

All of these transportation alternatives are described in the *UCLA Commuter Guide*, a brochure which also contains a carpool matchlist form, information on public bus routes, and helpful hints on getting to UCLA without using your car. It is available at the Commuter Assistance-Ridesharing Office (555 Westwood Plaza, Structure 8, Suite 200). CAR is open weekdays from 7:30 a.m. to 6 p.m. (310-794-RIDE).

ASUCLA

Every registered UCLA student is a member of the Associated Students of UCLA (ASUCLA), one of the nation's largest such enterprises in terms of size, scope, and range of programs. The undergraduate and graduate student governments are integral parts of ASUCLA, which supports the following activities and services.

Food Service

ASUCLA operates the food service on the general campus and provides a number of innovative menu options at a variety of locations. Catering for special events is also available. Hours listed are for regular school sessions and vary during the summer and holiday periods.

Bombshelter Deli And Burger Bar. This unique food service in the center of the Court of Sciences offers an assortment of traditional deli sandwiches, snacks, rice bowls, sushi, broiled hamburgers and chicken, and salads at reasonable prices. Hours are weekdays 7:30 a.m. to 5 p.m. (4 p.m. Friday).

Campus Corner is located just across Bruin Walk from Kerckhoff Hall. **Taco Bell Express** is on the north side, while the south side features **Burger Works**. Hours are weekdays 7:30 a.m. to 5 p.m.

Cooperage — On the A Level of Ackerman Union, the Cooperage offers Mexican food, pizza, grill items, gourmet salad bar, pastries, gourmet coffees, soft ice cream, and pocket sandwiches. A stage and sound system for live entertainment and a large-screen TV for major events are available. Hours are weekdays 9:30 a.m. to 10:30 p.m., Saturday 11 a.m. to 10:30 p.m., Sunday 11 a.m. to 10 p.m.

Kerckhoff Coffee House, on the second floor of Kerckhoff Hall, offers Baskin-Robbins ice cream specialties and a variety of teas, coffees, fresh pastries, and potages (hearty soups). Live entertainment is featured Tuesday, Thursday, and Friday nights. Hours are weekdays 7 a.m. to midnight, weekends 10 a.m. to 11 p.m.

Lu Valle Commons, located just north of the School of Law, features deli food, international entrees, hamburgers, and other grilled specialties. Hours are weekdays 7:30 a.m. to 9 p.m. (8 p.m. Friday), Saturday 10 a.m. to 5 p.m., Sunday 11 a.m. to 8 p.m.

Within Lu Valle Commons is **Jimmy's Coffee House**, featuring specialty beverages, cheesecakes, and desserts. Hours are weekdays 7 a.m. to midnight (9 p.m. Friday), Saturday 9 a.m. to 9 p.m., Sunday 10 a.m. to 10 p.m.

North Campus Student Center — This facility, just southwest of the Research Library, offers a variety of Mexican entrees, frozen yogurt, fresh-baked cookies, pizza, deli and garden sandwiches, a wide selection of international-style entrees, hamburgers, and a salad bar. North Campus is open for breakfast, lunch, and dinner. Hours are weekdays 7 a.m. to 10 p.m. (8 p.m. Friday).

Treehouse — Located on the first floor of Ackerman Union, the Treehouse offers a wide variety of choices. **Etc. Etc. Etc.** has frozen yogurt and fresh-baked cookies. **Panda Express** features quick-serve Asian specialties. Hansen's fresh fruit juices and smoothies are served at the **Tropix** beverage bar. On the east side of the dining room, the servery offers entrees and sandwiches, including ranch-fried chicken, chili, Italian-style dishes, deli salads, and traditional American favorites. The Treehouse servery is open weekdays 7 a.m. to 3 p.m. Hours vary for Etc. Etc. Etc., Tropix, and Panda Express; they generally are open later than the servery and on weekends.

Students' Store

The ASUCLA Students' Store, the largest on-campus retail store in the nation, operates five campus locations. The oldest location, the **Ackerman Union Students' Store** (B Level of Ackerman Union, 310-825-7711), is undergoing seismic renovation, so some store departments are operating out of temporary quarters this year. Textbooks for most undergraduate and graduate programs are located in the Plaza Building, diagonally across from Ackerman Union. Other books, including reference, fiction, technical, and study aids, are stocked in the **Bookzone** on the A Level of Ackerman Union. Still on B Level are school and art supplies, calculators and other electronic items, UCLA insignia merchandise (Bearwear), men's and women's sportswear, and convenience store items. The Computer Store (on B Level) administers the University's computer purchase program; Macintosh and IBM computers are available to students, faculty, and staff at discounts up to 40 percent. Educational editions of software are discounted as much as 75 percent off retail prices. Some departments may be relocated during the 1995-96 academic year, depending on construction schedules. Hours during regular school sessions are weekdays 7:45 a.m. to 7:30 p.m. (6 p.m. Friday), Saturday 10 a.m. to 5 p.m., Sunday noon to 5 p.m.

The **Health Sciences Store** on the first floor of the hospital (13-126 CHS, 310-825-7721) specializes in books and supplies for students in dentistry, medicine, public health, and related areas. The **Lu Valle Commons Students' Store** (just north of the School of Law, 310-825-7238) carries convenience items, magazines, and books, as well as textbooks for selected graduate programs (law, management, architecture, urban planning, social welfare). A dry cleaning service and copy center are also available. The **North Campus Shop** (in the North Campus Student Center, 310-206-0751) is a small convenience store offering snacks and stationery items. The **Hill Top Shop** (in Delta Terrace, Sunset Village, 310-206-4306) carries items specifically for dorm residents, including laundry detergent, closet organizers, and groceries. A Wells Fargo Bank automatic teller machine and photocopier are also available.

Lecture Notes/Academic Publishing Service

Lecture Notes is a subscription service that publishes concise weekly summaries of about 130 of UCLA's large lecture classes. Notes can be picked up in the Ackerman Union Students' Store (B Level of Ackerman Union, 310-206-0882). **Academic Publishing Service** (second floor of Ackerman Union with Graphic Services, 310-825-2831) reproduces

course materials for professors, obtaining 5,000 copyright authorizations each year.

Job Opportunities on Campus

ASUCLA reserves more than 2,500 part-time jobs for UCLA students in food service, the students' stores, Graphic Services, Travel Service, the student union, and other departments. Listings are posted outside the Personnel Office, 205 Kerckhoff Hall (310-825-7055).

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

Campus Photo Studio

Yearbook portraits, portrait photography, and passport photographs are available from the Campus Photo Studio (second floor of Ackerman Union, 310-206-0889), as are film, darkroom supplies, and discount photofinishing. Hours are weekdays 8:30 a.m. to 5:30 p.m. The studio is scheduled to move to the A Level of Ackerman Union during Spring Quarter 1996.

Check Cashing/Banking

Cash is available via on-campus automatic tellers. On the A Level of Ackerman Union are automatic tellers for Bank of America, Westwood Student Federal Credit Union, First Interstate Bank, and Wells Fargo Bank. Great Western Bank and Bank of America have automatic tellers on the patio between Campbell Hall and the North Campus Student Center. The Hill Top Shop in Delta Terrace has a Wells Fargo Bank automatic teller, and there is a First Interstate Bank automatic teller at the Health Sciences Store. Automatic tellers give access to the Star, Plus, or Cirrus network, but most banks charge fees for network access.

Students, faculty, and staff with current UCLA identification may also write checks for \$20 over the amount of purchase at all Students' Store locations; a \$2 minimum purchase is required.

Bruin Gold

Bruin Gold is a program that lets UCLA students use their official photo Student I.D. Cards as debit cards. You make a deposit (\$20 minimum) into a Bruin Gold account linked to your photo I.D. Then your photo I.D. can be used for payment at virtually all ASUCLA locations — Students' Stores, Food Service, Travel Service, and Graphic Services. Thousands of students use Bruin Gold instead of credit cards or checks. Unlike credit cards, Bruin Gold helps you keep track of expenses — the current balance shows on the card reader after each transaction. Unlike checks, Bruin Gold can be used for small purchases, even those under \$1. For complete information, contact the Bruin Gold Office on the first floor of Ackerman Union, (310) 825-2336.

Graduation Et Cetera

Caps and gowns may be purchased (bachelor's degree) or rented (advanced degrees) at Graduation Et Cetera in the Ackerman Union Students' Store (B Level of Ackerman Union, 310-825-2587). Graduation announcements, diploma mounting, and other services are also offered. Hours during regular school sessions are weekdays 7:45 a.m. to 7:30 p.m. (6 p.m. Friday), Saturday 10 a.m. to 5 p.m., Sunday noon to 5 p.m.

Graphic Services

ASUCLA Graphic Services (second floor of Ackerman Union, 310-206-0894) is the campus center for printing, copying, typesetting, and other graphic services. Hours are weekdays 8:30 a.m. to 5:30 p.m. A smaller Graphic Services Center is located downstairs in Lu Valle Commons (310-825-7568).

The Graphic Services Ackerman Union office features a public fax machine and the Computer and Laser Rental Service (310-206-8454). Macintoshes and an IBM-compatible computer are available for hourly rental; term papers, newsletters, and flyers may be output on Postscript laser printers. A Linotronic 500 imagesetter for high-resolution work and a color thermal printer are also available.

Meeting Rooms

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

Shipping

The ASUCLA Service Center (211 Plaza Building, 310-825-2423) offers shipping via UPS and Federal Express. Hours are weekdays 9 a.m. to 4:30 p.m.

Travel Service

The ASUCLA Travel Service, located on the A Level of Ackerman Union (310-825-9131), offers a wide range of domestic and international airline flights and rail tickets, land arrangements and charter packages, student tours, and other travel-related services. Students may call UCLA-FLY (310-825-2359) for reservations. Hours are weekdays 8:30 a.m. to 6 p.m., Saturday noon to 4 p.m.

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 you can get involved in campus life and expand your horizons beyond classroom learning.

Student Government

In addition to its **Services and Enterprises** division, which is responsible for the services described above, 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 you may not find in other aspects of your university experience.

Undergraduate Student Government — The Undergraduate Students Association (USA), with offices in Kerckhoff Hall (310-825-7068), is governed by the Undergraduate Students Association Council. USAC administers the association's 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) serves Los Angeles through more than 20 programs such as Amigos del Barrio, offering academic and emotional support for Latina/Latino students; the UCLA Prison Coalition, providing tutoring for inmates of juvenile correctional institutions; and the UCLA Special Olympics, 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) and the 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, the Ackerman Film Program, and Mardi Gras. 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) houses materials related to students and campus governance and aims to enhance understanding among students about University issues and to increase student involvement within the UCLA community.

Graduate Student Government — The Graduate Students Association 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 listserver for graduate student government bulletins, agendas, and general graduate student information. The GSA Office is located in 301 Kerckhoff Hall (310-206-8512; e-mail: gsa@asucla.ucla.edu).

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 you will find 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 your own if you can't find one that suits your 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). For a full listing of registered organizations, contact the **Center for Student Programming (CSP)**, 337 Plaza Building (310-825-7041). This office can help you 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 337 Plaza Building (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 (337 Plaza Building), Student and Campus Life (1104 Murphy Hall), or the Office of the Dean Students (1206 Murphy Hall).

Fraternities and Sororities

The 45 Greek letter social organizations and their four governing councils — Asian Greek Council (AGC, 310-206-1285), Interfraternity Council (IFC, 310-825-7878), National Pan-Hellenic Council (NPHC, 310-206-1868), and Panhellenic Council (PHC, 310-206-5499) — are sponsored by a component of the Center for Student Programming —

Fraternity and Sorority Relations (FSR), 118 Men's Gym (310-825-6322).

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 philanthropic activity.

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 will 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). More than 3,000 UCLA students participate in "Greek life."

Fraternities

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

Sororities

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

Mardi Gras

UCLA's annual Mardi Gras is the world's largest student-operated collegiate activity. Each Spring Quarter more than 5,000 Bruins from all types of campus organizations help to prepare and present this carnival. Students design and operate more than 70 booths featuring games, food, and live entertainment. There are celebrity judges, carnival rides, clowns, balloons, fireworks, and much more. Mardi Gras is open to the campus community on Friday evening; the public is invited on Saturday and Sunday.

The event generates about \$50,000 annually for UCLA's official charity, UniCamp, a summer camp for underprivileged Los Angeles children. For more information, contact the Mardi Gras Committee in 346 Plaza

Building (310-825-8001) or the Campus Events Commission in 300A Kerckhoff Hall (310-825-1958).

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 Johnny Carson, David Letterman, Whoopie Goldberg, John Cleese, Robin Williams, Jessica Lange, James Stewart, Spike Lee, 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, and Hammer to UCLA for free and affordably priced concerts at noon in Westwood Plaza and at night in the Cooperage and Ackerman Grand Ballroom.

Publications and Broadcast Media

UCLA's publications and broadcast media, operated by the ASUCLA Communications Board, 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 the Alumni Lounge (225 Kerckhoff Hall, 310-825-9898).

Seven newsmagazines reflecting the diversity of the campus community are published twice each term. *Al-Talib* is a publication devoted to Muslim 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; *TenPercent* covers gay, lesbian, and bisexual issues; and *Together* reports on women's 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 210 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. If you would like to participate, contact the yearbook staff in 212K 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 carrier current signal is sent to the residence halls and parts of Ackerman Union and Kerckhoff Hall on 530 AM and to many parts of the Los Angeles area on 99.9 Century Cable FM. The studios are located at the rear of the Grand Ballroom in 2400A Ackerman Union (310-825-9107; request line: 310-825-9999). All positions, including on-air, news staff, and advertising representatives, are open to students.

Performing Arts

UCLA offers a rich variety of concerts, dance recitals, and theater productions as an integral part of University life. A full calendar of excep-

tional programs by the Music, Ethnomusicology and Systematic Musicology, and World Arts and Cultures Departments 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** offers more than 15 performance organizations. Instrumentalists are invited to play with one of seven different bands and orchestras. Campus choral organizations include the UCLA Chorale, Chamber Singers, Women's Chorus, Men's Glee Club, and the Collegiate Chorus which, with 120 members, is the largest of the groups.

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

The **World Arts and Cultures Department** presents afternoon and evening modern dance concerts and demonstrations both on and off campus, and folk and ethnic performing groups meet regularly. Students concentrating in dance have the opportunity to design and choreograph as well as perform.

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, the **UCLA Center for the Performing Arts** has served as the premier West Coast showcase for world-class performers and innovative new work in dance, music, theater, and performance art. The center stages more than 250 public concerts and events each year, often sponsoring debut performances of new works by major artists. Through the center, UCLA hosts a varied and active performance program, ranging from regular concerts by the Los Angeles Chamber Orchestra to special appearances by Luciano Pavarotti, Marcel Marceau, Isaac Stern, performance artist Karen Finley, Kathleen Battle, Bella Lewitzky Dance, and Branford Marsalis. Discount tickets for students, faculty, and staff are available to all events.

Sports and Athletics

Athletics 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. In 1994-95 the UCLA athletic programs (men and women) placed third 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 past nine years. UCLA is the only university in the country to win five National Collegiate Athletic Association (NCAA) men's and women's championships in a single year (1981-82).

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 58 NCAA men's championships — second highest in the nation — including 15 in tennis, 15 in volleyball, 11 in basketball, eight in track and field, and one in soccer. You 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 — third highest in the nation — including eight in softball, two in track and field, three in volleyball, and one in golf. Other nationally ranked teams are those in basketball, swimming, tennis, cross-country, soccer, gymnastics, and water polo. For more information, contact the Athletic Office at (310) 825-8699.

Intercollegiate Athletic Facilities

UCLA's major indoor arena 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 **Robinson Stadium** for varsity baseball and the renowned **Rose Bowl** in Pasadena, home of the UCLA football team.

Campus Recreation

UCLA offers a wide 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), serves as the administrative center for the coordination of programming, facilities, and equipment and supervision of campus recreational activities and services.

Intramural/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 you 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, martial arts, rowing, waterskiing, sailing, snow skiing, and surfing.

Recreation Clubs

Students with special interests in activities that are primarily instructional or social in nature have the opportunity to pursue their interests through clubs such as amateur radio, chess, snow skiing, and martial arts.

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. You 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.

Youth and Family Programs

Youth and Family Programs (formerly Bruin Kids) is an exciting schedule of year-round activities for children 18 months to 17 years is offered. 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.

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 gymnasiums, 10 racquetball/handball courts, two squash courts, a weight training facility, 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, and rowing classes and activities, as well as the opportunity to sail, kayak, canoe, or row on your own. 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.

Student Services

UCLA students enjoy an extremely broad range of benefits and support services which enrich their college careers and help them attain their 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.

Placement and Career Planning Center

The Placement and Career Planning Center (PCPC) offers career planning and employment assistance free to UCLA students. Services are located in the PCPC Building (310-825-2981) and in two satellite locations: EXPO Center in 311 Plaza Building (specializing in local, national, and international internships, 310-825-0831) and Engineering and Science Career Planning Office in 5289 Boelter Hall (specializing in engineering and the physical sciences, 310-825-4606).

Career Planning and Exploration

Career advisers and counselors provide assistance in selecting your 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 and cooperative education programs can assist you in exploring different career possibilities, making important professional contacts, and obtaining valuable on-the-job experience. The Career Resources Library offers a collection of over

3,000 career-related books and directories, videos, periodicals, and other materials. In addition, PCPC offers workshops, seminars, and group meetings on a variety of career-related topics; many are repeated several times each term.

Employment Assistance

If you need extra money to finance your college degree, you will find a large volume of part-time, temporary, and seasonal employment leads at PCPC. 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 on-campus interviews for positions in corporations, government, not-for-profit organizations, elementary and secondary schools, community colleges, and four-year academic institutions.

Student Health Service

The Student Health Service (SHS) is an outpatient clinic designed especially for UCLA students. Because it is supported by your registration fees, your current Registration Card and a photo I.D. are required for service. Most services are prepaid by your registration fees, and you may be seen by appointment or on a walk-in basis. Call (310) 825-4073 for the most up-to-date fee information. Core (prepaid) services include visits, most procedures, X rays, and some laboratory procedures. Non-core (fee) services, such as pharmaceuticals, injections, orthopedic devices, and some laboratory procedures, are less costly than elsewhere. If you withdraw during a school term, all SHS services will continue to be available on a fee basis for the remainder of that term, effective from your date of withdrawal.

The cost of services received outside of SHS (e.g., the Emergency Room) is *your* financial responsibility. You 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 SHS, call (310) 825-4073.

Location and Hours. General and emergency SHS care is available in A2-130 Center for the Health Sciences. Office hours weekdays are 8 a.m. to 5 p.m. except Tuesday, when service begins at 9 a.m. A satellite clinic is located along Bruin Walk between Gates 10 and 11 in Pauley Pavilion (310-825-5704). For emergency care when SHS is closed, you may obtain treatment at the UCLA Medical Center Emergency Room or UCLA Family Practice on a fee-for-service basis.

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

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

Women's Health Service 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.

Men's Health Clinic 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.

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

Health Education offers many types of services and programs that will interest, inform, and help you to lead a healthier lifestyle. Outreach programs, such as the Peer Health Counselor and Student Health Advocate Programs, 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.

Supplemental Medical Insurance. UCLA offers a student Medical Insurance Plan (MIP) which is available as a supplement to the services offered in SHS. MIP provides benefits for certain major medical expenses not covered by SHS, 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 medical insurance requirement. For graduate students the MIP fee is included each term in the amount due on the UCLA Billing Statement. For undergraduates the MIP fee appears as a voluntary option to be added each term to the amount due on the UCLA Billing Statement. This is the only method by which 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 and Enrollment 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 SHS Insurance Office at (310) 825-1856.

Student Psychological Services

Student Psychological Services (SPS) 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 the most 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).

Helpline

UCLA Peer Helpline (310-825-HELP) is a crisis intervention and referral hot line staffed by UCLA students and staff members. You 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 your mind. Hours are weekdays 5 p.m. to midnight, Saturday and 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, located in 1206 Murphy Hall (310-825-3871), exists to help you, either directly or by referral, with whatever needs you might have. Direct services include general counseling; sending emergency messages to students; and assisting in under-

standing 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 which you are expected to follow at UCLA. Those 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: Violation of University Policies in the Appendix for more information.

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 (i.e., students, staff, faculty, 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 PCPC Building (310-825-7627); 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).

Established through the Campus Ombuds Office, the **Conflict Mediation Program (CMP), etc.** is composed of a select group of student, faculty, and staff volunteers trained specifically to address diversity-related disputes. CMP, etc. mediators specialize in conflicts dealing with issues of race, ethnicity, culture, sexual orientation, disability, and gender. The variety of conflict management services offered seeks to promote constructive interaction and dialogue through a culturally relevant, need-based, and community-centered approach. Services include designing and/or facilitating forums on topics of concern, serving as discussion facilitators, intervening as mediators in designated disputes, offering educational and skills-oriented workshops, providing conflict management assessment, and offering informational presentations on CMP, etc. Services are neutral, independent of the administration, confidential, and free. For more information, call (310) 825-9840.

Student Legal Services

If you are a currently registered and enrolled student with a legal problem, you can get assistance from attorneys or law students under direct supervision of attorneys. They will help you solve legal problems, including those related to landlord/tenant relations, domestic relations, accident and injury problems, criminal matters, and contract and debt problems. Assistance is available by appointment only from 9 a.m. to 5 p.m. weekdays in 70 Dodd Hall (310-825-9894).

Central Ticket Office

Tickets for all UCLA events are available at the Central Ticket Office (CTO) in the West Alumni Center (310-825-2101).

CTO also offers student *discount* tickets to campus athletic and cultural events and local motion picture theaters (current Registration and UCLA Student I.D. Cards must be presented at the time of purchase). You may also purchase tickets to off-campus events through Ticketmaster, as well as student discount tickets for RTD buses and tokens for the Santa Monica and Culver City bus systems.

Services for International Students

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

The OISS staff, located in #05 Men's Gym (310-825-1681), includes professional and peer counselors specially prepared to assist you 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).

OISS also provides visa assistance for faculty, researchers, and post-doctoral scholars.

The International Student Center, 1045 Gayley Avenue, Suite 200 (310-794-8138), 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 ISC 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 or TDD 310-206-6083), provides a wide range of academic support services to students with 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.

The **Disabilities and Computing Program (DCP)** offers consulting and training on adapted computer equipment to assist students with disabilities in their academic work. Special equipment includes reading machines, voice recognition, large print software, and more. For further information, call Voice (310) 206-7133 or TDD (310) 206-5155.

Veterans' and Social Security Services

Academic Record Services, 1134 Murphy Hall, provides information for veterans and eligible dependents about veterans' educational benefits, tutorial assistance, the work-study program, and emergency loans; 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 women's needs.

The center presents workshops and support groups on many topics, including child care, self-defense, assertiveness training, rape prevention and education, career development, single parenting, health, returning to school, and personal relationships. It also offers referrals for medical,

legal, career planning, personal counseling, and other services both on and off campus. A library includes specialized publications on women's issues. In addition, rape services consultants (RSCs) — individuals who provide information, support, and resources for UCLA students 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).

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

Child Care Services

Two **Child Care Centers** provide full- and part-time care for children two months to five years old. Fees range from \$240 to \$775 per month depending on the age of the child and the site chosen. A limited number of grants are available at the Bellagio center for eligible student families. The Bellagio center is located in the northwest corner of campus at Sunset Boulevard and Bellagio Drive; the Fernald center is located at the corner of Stone Canyon Drive and Circle Drive North. A satellite day-care center for children two to five years old is located in the Colina Glen faculty housing area; priority is given to Colina Glen residents. Call (310) 825-5086 for more information.

The **Outreach Program** helps parents make off-campus child care arrangements. The program coordinator meets parents each Monday from noon to 1 p.m. in 2 Dodd Hall. For more information, call (310) 825-8474.

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. Part-time morning spaces are available (the morning program ends at 12:30 p.m.). The nursery school is located in the UCLA Family Student Housing Community Center, 3327 South Sepulveda Boulevard (310-397-2735).

Safety and Security

Emergency (Police, Fire, or Medical). Dial 911 from any campus phone (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).

Campus Escort Service. The UCLA Police Department provides a free 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 you need one.

Evening Van Service. The free service provides a safe 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.

UCLA Rape Prevention and Education Services are cosponsored by the Women's Resource Center and the UCLA Police Department. 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 and sexual assault. For more information, call (310) 206-8240 or the Crime Prevention Unit at (310) 825-7661.

CPR and Basic Emergency Care Courses. The Center for Prehospital Care offers medical education programs in basic emergency care and American Heart Association cardiopulmonary resuscitation (CPR) which can be organized most days and times. For more information or to schedule a course, call (310) 206-0176.

The **Office of Environment, Health, and Safety (EH&S)** provides for the health and safety of all UCLA faculty, staff, students, and visitors and ensures that UCLA operations do not have an adverse impact on the environment. In addition, EH&S promotes the University's compliance with applicable health, safety, and environmental regulations. For further information, call (310) 825-5689.

Important Telephone Numbers

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

UCLA Alumni Association

Celebrating more than 60 years of serving the UCLA community, the UCLA Alumni Association has nearly 64,000 members, making it one of the largest alumni groups in the nation. Whether you are 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 Homecoming Week, 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).

Undergraduate Study

Undergraduate Admission

Undergraduate Registration and Enrollment

Undergraduate Fees and Financial Support

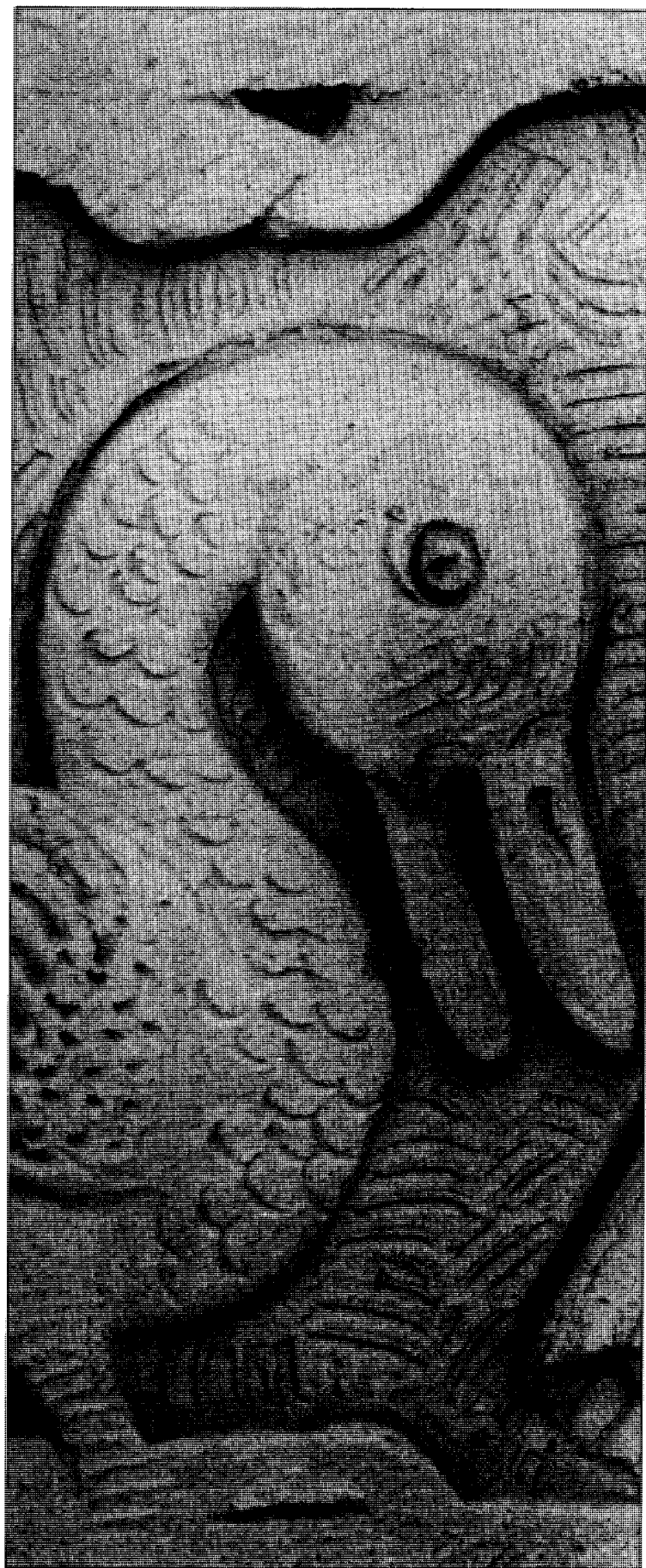
Getting Your Bachelor's Degree

Academic Resources

Advising and Academic Assistance

Academic Excellence

Undergraduate Majors and Degrees



Undergraduate Admission

Undergraduate Admissions and Relations with Schools (UARS)
1147 Murphy Hall
(310) 825-3101

The Office of Undergraduate Admissions and Relations with Schools (UARS) invites you to visit UCLA to discuss your prospects as a student and to 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. during the academic year; reservations are required. Call (310) 825-8764 for tour reservations; (310) 825-3101 for general UCLA admission information.

Applying for Admission

The first step in applying for admission is to obtain the *UC Application for Undergraduate Admission and Scholarships* containing all necessary forms and instructions from your 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. You apply to one UC campus for the basic \$40 application fee; for each additional campus you select, you must pay an additional \$40 fee.

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

If you are in high school when you apply (freshman applicant), your self-reported application information is used to make preliminary admission decisions. Do not send your sixth and/or seventh semester high school transcripts. Once admitted, you must submit a final transcript, including a statement of graduation or proficiency, which will be used to verify your application information. You 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; request that test results be sent directly to UCLA when you take each test. You should take these tests by the December test date, as they are part of the review process for admission.

If you have attended or are attending another college when you apply (transfer applicant), your self-reported application information is used to make preliminary admission decisions. Once admitted, you must submit official transcripts from all colleges and universities attended (high school transcripts may also be required), which will be used to verify your application information. Transcripts and other documents cannot be returned or forwarded to other institutions.

When to Apply

The filing periods for applications are as follows:

- Winter Quarter 1996 — Closed to new applicants
- Spring Quarter 1996 — File October 1-31, 1995
(If open to new applicants, junior-level applicants only.)
- Fall Quarter 1996 — File November 1-30, 1995
(Freshmen and transfers)

Note: Applications for admission to Fall Quarter 1995 were accepted only during November 1994.

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

You will be mailed a notice from the UC Undergraduate Application Processing Service acknowledging receipt of your application. Later, you will 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 beginning March 1; Spring Quarter applicants are notified in mid-December.

If you are accepted for admission, you will be 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, will be applied to your University registration fee as long as you register in the term to which you 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 you to begin University work and choose a general field of study. Further, the grades you earn in these courses indicate whether you will be successful in college-level courses.

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

In addition to the primary criteria for admission selection, other elements are considered to ensure a diverse student body which serves the interests of California. If you present evidence of educational and economic disadvantage or a disability, that will be taken into account. If you belong to an ethnic group which has low UC eligibility rates and historically low participation in higher education, that will also be taken into account. California residency is another factor. While these elements are given consideration, academic performance remains the key factor for admission to UCLA.

Admission as a Freshman

You are considered a freshman applicant if you 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, you 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.

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 your last two years in high school. These are the **minimum** courses required for admission; you are encouraged to exceed these requirements whenever possible.

- (1) **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.
- (2) **English** — Four years of college preparatory English that include frequent and regular writing, and reading of classic and modern litera-

ture. No more than two semesters of ninth-grade English can be used to meet this requirement.

(3) **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 your high school accepts them as equivalent to its own courses.

(4) **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 prerequisites 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.

(5) **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.

(6) **College Preparatory Electives** — Two units, 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 your grade-point average (GPA) in the academic subject requirements and your American College Test (ACT) or Scholastic Assessment Test (SAT) scores. For detailed scholarship information, see the UC publication *Introducing the University* or contact Undergraduate Admissions and Relations with Schools (UARS).

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, 1C, or 2C, AND
 - (c) One additional test (either English literature, foreign language, science, or social studies).

You should take these tests by the December test date, as they are part of the review process. Request that test results be sent directly to UCLA when you 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 your entire high school program, including your senior year, and (4) number of and performance in honors and advanced placement (AP) courses.

You 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

You are considered a transfer applicant if you 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.) You **may not disregard** your college record and apply for admission as a freshman. Priority is given to junior-level applicants. If you wish to transfer to UCLA, you 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, UCLA gives first preference 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 will 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). If you have attended another UC campus and wish to be considered for admission to UCLA, you must have been in good standing when you left that campus. Intercampus transfers are not automatic; you 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 your eligibility for admission. (To convert semester units into quarter units, multiply the semester units by 1.5 — e.g., 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

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.

Your 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 will allow time for the necessary correspondence and, if you are admitted, to obtain your passport visa.

Students whose native language is not English must have sufficient command of English to benefit from instruction at UCLA. To demonstrate that command, you are required to take the UCLA English as a Second Language Placement Examination (ESLPE) before the term in which you are to register. Depending on your ESLPE results, you may be required to complete one or more English as a second language courses with a grade of C or better. In addition, you are advised to take the Test of English as a Foreign Language (TOEFL) as a preliminary means of testing your ability. Make arrangements for this test by contacting TOEFL/TSE Publications, P.O. Box 6154, Princeton, NJ 08541-6154 (609-771-7760). Have your 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 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 and Enrollment later in this section for a description of what constitutes adequate medical insurance. Most travel insurance plans are NOT acceptable; medical insurance plans from foreign countries (including Canada) also are NOT acceptable.

UCLA offers a student Medical Insurance Plan (MIP) which fulfills the requirement. For undergraduates the MIP fee appears as a voluntary option to be added each term to the amount due on the UCLA Billing Statement. This is the only method by which MIP can be purchased.

You are required to provide written proof of adequate medical insurance coverage in response to an annual written notice from the Student Health Service (SHS) Insurance Office. For further information on MIP or adequate medical insurance requirements, call the SHS Insurance Office at (310) 825-1856.

Readmission

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

If you are absent for two or more consecutive terms, you must complete an Undergraduate Application for Readmission form and file it with the Registrar. During the 1995-96 academic year, all such students returning in the same standing (undergraduate) must file readmission applications as follows:

- August 15 for Fall Quarter 1995
- November 27 for Winter Quarter 1996
- February 26 for Spring Quarter 1996

Application forms are available at 1113 Murphy Hall. Your completed application must be accompanied by a \$40 application fee (nonrefund-

able) and transcripts of records from any other institutions (including UCLA Extension) you attended during your absence. The paper records of nonregistered students, including transcripts submitted for transfer credit, are retained for five academic years by the Registrar's Office. If you were admitted prior to Fall Quarter 1988 and have not been registered for the last five years, you must resubmit official transcripts of all work completed outside UCLA. Readmission is generally approved if you were in good academic standing (2.0 grade-point average) when you left the University, if coursework completed elsewhere in the interim is satisfactory, and if readmission applications are filed on time. Your 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 and Enrollment

Registration/Enrollment Office
1113 Murphy Hall
(310) 825-1091

Detailed information on registration (fee payment) and enrollment procedures is contained in the quarterly *Schedule of Classes*, available for purchase at the Students' Store several weeks before the beginning of each term. To obtain a copy by mail, write to ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, CA 90024-1645, Attn: Mail Out. Include a check or money order payable to ASUCLA for \$5 (Fall Quarter) or \$4.50 each (Winter and Spring Quarters).

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

Payment is required of all eligible students by the applicable deadlines. Payments may be mailed or deposited in the Main Cashier's Drop Slot (1125 Murphy Hall). Payments submitted after the published deadline must be made in person at 1125 Murphy Hall and will be assessed an additional \$50 late payment fee. Students on financial aid may be eligible for a waiver of the \$50 fee if funds are delayed by the University.

Registration Fee Payment Deadlines

- September 20 for Fall Quarter 1995
- December 20 for Winter Quarter 1996
- March 20 for Spring Quarter 1996

Classes Dropped for Failure to Pay Registration Fees

- October 6 for Fall Quarter 1995
- January 12 for Winter Quarter 1996
- April 5 for Spring Quarter 1996

Mandatory Medical Insurance Requirement for International Students

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

UCLA offers a student Medical Insurance Plan (MIP) which fulfills the requirement. For undergraduates the MIP fee appears as a voluntary

option to be added each term to the amount due on the UCLA Billing Statement. This is the only method by which MIP can be purchased.

You are required to provide written proof of adequate medical insurance coverage in response to an annual written notice from the Student Health Service (SHS) Insurance Office.

If you do not purchase the UCLA Medical Insurance Plan, **you must have an adequate private medical insurance plan that provides all of the following minimum benefits:**

- (1) A minimum of \$50,000 in "Lifetime Maximum" benefits.
- (2) At least 75 percent of the cost for eligible medical expenses, with no more than a 25 percent out-of-pocket cost to you (patient copayment).
- (3) A claims representative located in the U.S. In addition, you must be provided with an identification card (or reasonable alternative) written in English, which includes payment provisions listed in U.S. dollars and the U.S. telephone number of the U.S. claims representative.

If your private medical insurance plan does not meet all of the above requirements, you must purchase MIP. For further information on MIP or adequate medical insurance requirements, call the SHS Insurance Office at (310) 825-1856.

Enrollment 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 your school or college advisers, you can assemble a program of courses (see Choosing Your Major and Planning a Program later in this section).

You should plan two or three alternate programs in case your first choice of courses is not available. You 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 (URSA)

URSA (310-208-0425) enables all UCLA students to acquire information via a touch-tone telephone from their University academic records stored on the Registrar's Student Records System computer database.

URSA allows you to process your class enrollment, to obtain course confirmation (i.e., a reading of your Study List, including day/time, location, examination code, instructor name), UCLA grades for any completed term, GPA, completed units, and outstanding holds (i.e., restrictions from receiving services), to confirm registration fee payment and Registration Card mailing, to update or review selected student information ("degree expected term," telephone number, residence hall address, privacy release, ethnic-based mailing option, and ethnic background), and to change the security code used to access URSA.

URSA is operational Monday through Saturday from 5 a.m. to midnight, including holidays. You may access the system for grades, GPA, units, and holds information for up to 10 years after your graduation or your last term of attendance. If you have outstanding holds, you will be informed at the beginning of your call.

Telephone Enrollment

By using URSA, you can enroll in classes, add, drop, or exchange classes/sections, put yourself on the wait list for a class, add a class using a PTE Authorization Number, change the grading basis for a class (i.e., Passed/Not Passed), obtain a reading of your Study List, check your wait-list position, and obtain instructor names for all courses. You enroll during your assigned appointment periods, which you also obtain by calling URSA. Consult the *Schedule of Classes* for full enrollment details.

In-Person Enrollment

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

Study Lists

At 7 p.m. on Friday of the second week of instruction the Study List of enrolled courses becomes "official," and all wait lists are eliminated. You should obtain a reading of your Study List through URSA after all enrollment transactions. **You are responsible for all courses and the grading basis as listed on URSA, and you cannot receive credit for courses not listed.** Errors or omissions should be corrected before your academic dean's deadline for changes by petition. Unapproved withdrawal from or neglect of a course entered on the Study List will result in a failing grade.

Beginning with the third week of instruction, changes to your Official Study List require an Enrollment Petition which is available for purchase in the school supplies section at any ASUCLA Students' Store. Approval signatures are required before processing. If you add a special studies (199) course, you 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 will appear on the official transcript.

Change of College/School or Major

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

Undergraduate Fees and Financial Support

Fees

Although the exact cost of attending UCLA will vary 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 tuition of \$2,566 per term (for a full definition of residence and nonresidence, see the Appendix of this catalog).

At the time of registration each term, all undergraduates must pay the following fixed fees. **Fees for Fall Quarter 1995 are current as of publication date but are subject to change without notice by The Regents.**

Term Expenses for Fall 1995

University registration fee	\$ 237.00
Educational fee	1,028.00
Ackerman Student Union fee	2.50
Undergraduate Students Association fee	18.00
Wooden Recreation Center fee	11.00
Total for California residents	\$1,296.50
Nonresident tuition fee	\$2,566.00
Total for nonresidents	\$3,862.50

The registration fee covers certain student expenses for counseling service, all laboratory and course fees, athletic and gymnasium facilities

and equipment, lockers, registration, graduation, and care and treatment on campus by the Student Health Service. This fee is charged whether or not you make use of these services. A duplicate degree fee of \$2,000 per term is assessed to students admitted for a second baccalaureate degree program.

Other Fees

Miscellaneous fees charged to UCLA undergraduates 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 UCLA Billing Statement has an unpaid balance in excess of \$25. A \$60 fine will be assessed if any check for registration fee payment is returned by a bank (i.e., stopped payment, insufficient funds, etc.). 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 during the first five weeks of instruction may receive partial refunds of fees. For the refund schedule and more information, see Withdrawal in Academics section of this catalog or consult the *Schedule of Classes* for policy details and specific refund dates for each term.

Reduced Fee Programs

UCLA recognizes the need for undergraduate part-time study in special circumstances. If you have ongoing family or employment responsibilities or health problems which preclude full-time study, you may qualify for part-time enrollment.

If you have approval from your college or school to enroll in 10 units or less, you may qualify for a fee reduction. Nonresident students pay only half the nonresident tuition fee; residents pay half the educational fee. You must file the Request for Fee Reduction form with your 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. If you receive the part-time fee reduction from your academic dean, you may not also use the UC employee reduction; you must use one or the other.

Nonresidents must add the \$7,699 annual tuition fee to their total expenses for an accurate estimate. Expenses cover the three regular session terms of the 1995-96 academic year and do not include Summer Sessions. The budgets are designed to serve as a guide and are subject to change.

Estimated Annual Budgets for Undergraduate California Residents

The budgets are designed to serve as a guide and are subject to change. Expenses cover the three regular session terms of the 1995-96 academic year and do not include Summer Sessions. Nonresidents must add the \$7,699 annual tuition fee to their total expenses for an accurate estimate.

	Commuter Living at Home	On-Campus Housing	Off-Campus Housing
University fees	\$3,893.50	\$3,893.50	\$3,893.50
Books and supplies	874.00	874.00	874.00
Food and rent	1,324.00	5,859.00	6,560.00
Transportation	2,660.00	165.00	1,922.00
Personal	<u>1,739.00</u>	<u>1,131.00</u>	<u>906.00</u>
Total Budget	\$10,490.50	\$11,922.50	\$14,155.50

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

It is not required that you come from a low-income family in order to qualify for financial aid. You must, however, demonstrate "financial need," which is defined as the difference between the cost of attending UCLA and the amount that you and your family should be able to contribute. The University expects that students and their families will bear as much of the necessary cost of a student's education as their circumstances will permit.

The Financial Aid Office publishes a *Financial Aid Handbook* which provides more complete information than this catalog can give. You can get a copy free of charge from the Financial Aid Office, A129J Murphy Hall, UCLA, Los Angeles, CA 90095-1435.

Applying for Financial Aid

The deadline for filing all undergraduate financial aid applications for academic year 1996-97 is **March 2, 1996** (applications for 1995-96 would have had to be filed by March 1995). Because of the limits being placed on financial aid funding, meeting deadlines is more crucial than ever. Applications received after the deadline will be 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). You 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 you are financially independent according to financial aid guidelines, your own financial circumstances are analyzed rather than those of your 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.

Continuing students may obtain UCLA Scholarship and 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 will have to be paid back or earned through employment.

Unless otherwise stated, you must demonstrate financial need to qualify for aid, and you must be making normal academic progress as defined by your college or school, your 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 promise 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 prerequisite 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. You must re-apply 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 of \$500 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 you 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 backgrounds. 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 will 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. 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. Three- and two-year scholarship applications may be obtained from the appropriate UCLA department and must be submitted prior to February 1.

Grants

Grants are funds that do not have to be repaid and are based solely on need. Whenever awarding policies and funds permit, your financial aid package will include 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 1995-96 range from \$400 to \$2,340, depending on federal funding, and are determined by your financial resources and your 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 1995 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 \$3,900. 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 \$3,900. Recipients must be U.S. citizens or eligible noncitizens.

Loans

Loans allow you to postpone paying some of the costs of your education until you 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, you should assess your total educational debt and your ability to repay following graduation. The University will make every effort to assist you during the repayment of your obligation, but University services, including registration and the release of official transcripts, will be withheld if your loan becomes delinquent. Seriously delinquent accounts are referred to a professional collection agency for action.

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 will help you understand your loan agreement and your rights and responsibilities. If you fail to participate in an exit interview, the University will place a hold on your academic records and registration materials. Call (310) 825-9864 for an interview appointment before graduating, transferring, or withdrawing from UCLA.

Federal Perkins Loans

These low-interest loans are available to all students who are U.S. citizens or eligible noncitizens. Repayment begins six or nine months after you terminate at least half-time study. 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, you must be a U.S. citizen or eligible noncitizen and a student in the School of Nursing. Up to \$2,000 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

You need not be receiving financial aid to apply for emergency loans. You may borrow up to \$100 for immediate emergency needs; this amount is repayable within five weeks. To qualify, you must be a registered UCLA student with a satisfactory loan repayment record. 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. You must first apply for a Federal Stafford Loan to be considered for this program.

Federal Parent Loans for Undergraduate Students (PLUS) — Through this program your parents may be eligible to borrow up to the cost of your education for the academic year minus any estimated financial aid.

Work-Study Programs

Work-study is a need-based program designed to expand part-time job opportunities for students. The program allows you 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 your gross earnings may not exceed the amount awarded to you.

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

Off-campus community service positions are also available in nonprofit organizations and governmental agencies. If you are placed in these positions, you 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, you must maintain full-time enrollment (12 units for undergraduates, eight units for graduate students) to be exempt from Social Security and Medicare taxation.

Getting Your 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 (e.g., Master of Business Administration, Doctor of Education, Master of Public Health). UCLA has 11 professional schools, four of which offer undergraduate degree pro-

grams: 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 you attend UCLA, you are enrolled not only at the University of California, Los Angeles campus, but in a specific college or school within the University. Your academic life is governed by the college or school which houses your 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 which you may complete as an adjunct to your major. The bachelor's degree (you may earn only one) is the culmination of your undergraduate work; master's and doctoral degrees are earned in graduate study.

Knowing Your Responsibilities

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

Choosing Your Major

One of the most important decisions you will have to make in college is your choice of major — the field of study which represents your principal academic interest and which possibly will contribute toward your 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.

If you are in the College of Letters and Science, you do not need to declare your major in your freshman year. The college allows you to attend with an undeclared major until the end of your sophomore year. In fact, if you are not certain of your 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 you choose. To narrow your choices further, 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 your interests and plans with a departmental counselor or faculty adviser, a college counselor, or advisers in the Placement and Career Planning Center.

A few words of caution: certain majors, especially in the arts, theater, film, television, engineering, and the sciences, require early declaration. Some have enrollment quotas and will allow application by new majors only during a specified term. Check with the departmental adviser for the majors that interest you.

In addition, each UCLA undergraduate is 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 you wait to declare a major, don't wait too long. In any case, you must declare a major by the beginning of your junior year (90 quarter units).

When you are ready to declare your major, or if you wish to change from one major to another, pick up a Petition for Change of Major at the college or school office. There is no fee for this petition.

Planning a Program

Every new student 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, you 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 will take you through a step-by-step process designed to insure you enroll in an effective program (see Orientation later in this section). If you cannot attend Orientation, see your college or school adviser or, if you have selected a major, make an appointment with your major department adviser before enrolling in classes.

Undergraduate Degree Requirements

In all campus units except the School of Engineering and Applied Science, you 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 the Arts and Architecture, School of Nursing, and School of Theater, Film, and Television; in the 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 you work toward a bachelor's degree, be aware that in addition to unit requirements there are three types of requirements which you must satisfy. The first type consists of Universitywide requirements which all undergraduates must satisfy; the rest vary depending on your major and the college or school which 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 which all undergraduates must satisfy in order to graduate: Subject A or English as a Second Language (ESL), and American History and Institutions. It is your 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 you must satisfy before entering UCLA or during your first year in residence. You 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 600 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 in May 1995; others will take an examination at UCLA early in their first term.

If you do not meet the requirement in one of the ways described above, Academic Senate regulations require you to enroll in either English A or 2 (determined by performance on the Subject A Examination) as early as possible during your first year in residence. Each course must be taken for a letter grade and passed with a grade of C or better. If you receive a final grade of C- or less, you must repeat the course during your next term in residence. Satisfaction of the Subject A requirement is a prerequisite to English 3 and all subsequent English courses.

English as a Second Language (ESL)

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.

First-Year Students — Nonnative-speaking students who have taken the Subject A Examination are evaluated on the basis of their Subject A composition and informed if they need to sit for the ESLPE before the term in which they are to register. Results of both examinations are reviewed to determine which track (Subject A or ESL) is a more appropriate placement. If you are placed in the Subject A track, you may satisfy the Subject A requirement by following the guidelines listed above. If you are placed in the ESL track, you must complete the requirement by taking the designated courses through the ESL track.

Transfer Students — Nonnative-speaking students with a grade of B or better in the English 3 and 4 equivalent courses at their transfer institution are exempt from the ESL requirement. Other students are notified that they must sit for 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, you are placed in one or more of the credit-bearing courses — English as a Second Language 33A, 33B, 33C, and 35. You must begin taking courses during your first term in residence at UCLA and must complete the courses in sequence with a grade 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

This 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, M158A, M158B, M158C

Asian American Studies M153

Chicana and Chicano Studies M159A, M159B

Economics 183

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

Geography 136

History 6A, 6B, 6C, 7A, 7B, 145A, 145B, 146A, 146B, 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, 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 7A, 7B, 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, you must earn at least a C (2.0) average in all courses taken at any University of California campus. If you fail to maintain this level, you may be placed on academic probation or may become subject to dismissal.

Petitions

A petition is a piece of paper representing your need or desire to be exempted from any standard rule or regulation in 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 your 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 you, your college or school and, in some cases, the department chair, granting you an exception from the existing regulations.

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

Academic Probation

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

Your probation will end at the close of a regular term if you have attained a C (2.0) average for the term and a cumulative C average in all University work. If you do not end probation within two terms, you will become subject to dismissal.

Academic Dismissal

You will be subject to dismissal from the University under any of the following conditions:

(1) If your grade-point average in any one term is less than 1.5 OR

(2) If you do not earn at least a C (2.0) average in any term when you are on probation OR

(3) If you do not end probation within two terms.

If you are subject to dismissal, your transcript will carry that notation. You should make an appointment with your college or school counselor. Depending on your situation, you will be given conditions for continuation, or you will be dismissed from the University.

Your college or school counselor can explain the conditions for readmission if you 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, you 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, you should plan to complete 45 units per year, in an arrangement of courses appropriate to your needs. Consult your college or school counselor if you have questions or need advice.

Each college and school enforces minimum enrollment or minimum progress regulations. You may be subject to disqualification for failing to meet minimum progress requirements. Check with your 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 special studies (199) course limitations.

Academic Resources

Alternative Academics

UCLA has a broad range of options that can lend an added dimension to your undergraduate academic program. You will find other services and programs available to both graduate students and undergraduates 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 pub-

lic 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 310 GSEIS Building (310-206-3109).

Council on Educational Development

The Council on Educational Development (CED) offers special courses and programs that encourage educational diversity and enrichment for undergraduates. CED works closely with the college, schools, and research centers on campus to support new academic programs and courses. Many of these courses cover socially important issues which, because they are new, are not addressed in existing academic departments. Many involve nontraditional educational concepts, interdisciplinary topics, and subjects on the leading edge of faculty interest.

Each year several courses focus on medicine, law, and human values. Students analyze ethical, legal, and scientific values in medical and mental health care issues, such as genetic screening, human experimentation, patients' rights, and medical technology.

For information about CED courses, consult the *Schedule of Classes*. Your college, school, or department can advise you about degree credit for CED courses. The office is located in 80 Powell Library (310-825-5467).

EXPO Center

The Extramural Programs and Opportunities (EXPO) Center offers access to a wide variety of off-campus learning experiences. For more information on any of the programs or services listed below, contact the EXPO Center, 311 Plaza Building (310-825-0831).

UCLA National Internship Program. More than 4,000 UCLA students have learned about the inner workings of government and business while serving in the internship program, the largest of its kind at any university in the nation. Bruins serve full-time internships for one or more terms on the staffs of elected officials, public interest groups, government agencies, and corporate offices in Sacramento and Washington, DC. 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, politics, and television.

International Opportunities. The EXPO Center counsels students on study, travel, volunteer, international internship, and work opportunities outside the U.S., offering information on some 2,400 overseas study programs open to UCLA students. EXPO also maintains a library of current materials related to study, travel, and other opportunities abroad. International Student Identity Cards and Youth Hostel memberships are issued at the center.

Field Studies Development

Field Studies Development, a division of the Office of Instructional Development, helps students, faculty, and academic departments to develop meaningful learning experiences outside the classroom. These may be in the form of internships, field studies or research, or community service. The office is located in 80 Powell Library (310-825-7867).

Departmental Field Studies. Academic field study programs have been developed in Afro-American studies, anthropology, Asian American studies, business and administration, communication studies, edu-

cation, English, film and television, folklore, geography, history, physiological science, psychology, sociology, urban planning, women's studies, and others. Departmental coordinators work with you to develop field projects and find placements.

Independent Field Studies. You may design internships and field study opportunities to meet your specific academic, personal, and career goals. A field studies coordinator assists you with your plans and helps identify faculty sponsors for your field study. Most departments offer independent field study opportunities.

Community Service — Learning Programs. These programs enable students to perform community service while studying topics related to community health sciences, economics, history, sociology, education, urban planning, women's studies, or other subjects.

Sequential Courses. These classes are taken consecutively for two to three terms and provide in-depth analysis of a specific topic (e.g., Community Health Sciences 196A and 196B). In the first term you are introduced to the techniques of public health education; in the second term, you engage in intensive community outreach. Other sequential courses are also available. Consult a Field Studies Development schedule for more information.

Immersion Programs provide an opportunity for intense involvement in a specific area of study and typically require a full-time commitment for one or two terms. Normally the programs are structured around a block of three courses — a theme course, a methodological course, and a field-work or intensive writing course for which you earn 12 to 14 units per term. The **Developmental Disabilities Immersion Program (DDIP)**, one example, is cosponsored by Field Studies Development, the Department of Psychology, and the Department of Psychiatry and Biobehavioral Sciences. DDIP students learn about a variety of developmental disabilities by working with developmentally disabled children and adults in various research and educational facilities. The program is a full two-term sequence offered in Winter and Spring Quarters. Immersion programs are also available through the Sociology and Anthropology Departments. For more information, call (310) 825-7867.

Freshman and Sophomore Programs

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 College of Letters and Science in the College and Schools section of this catalog.

Lower Division/First-Year Seminars

These departmentally sponsored seminars are 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 (PSSP)

This program 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 *Schedule of Classes*). Enrollment is limited to allow students close contact with professional school faculty members; lower division students are preferred. You must satisfy the Subject A requirement before enrolling in these seminars. General education credit is granted for most seminars. For further information, contact the PSSP Office in 80 Powell Library (310-825-5467).

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. Consult your 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. Please refer to the Curricula and Courses section of this catalog for major requirements.

Reserve Officers' Training Corps (ROTC)

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 you to qualify for an officer's commission in the Army, Navy, Air Force, or Marine Corps while completing your 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.

Student Research Program

The Student Research Program (SRP), A265 Murphy Hall, (310) 825-6443 invites undergraduates to become directly and fully involved in the University research community through opportunities to participate in faculty research projects. You gain valuable research experience, acquire in-depth knowledge of a specific field or discipline, and establish a "partnership" with a faculty member. The program is available to all undergraduates on a voluntary basis. You receive transcript notation after completing 60 to 80 hours of research (approximately six to eight hours per week). *There is no required minimum grade-point average.* Consult the *SRP Information and Faculty Directory Handbook* for further information on the enrollment process.

Teaching Careers

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

- (1) **Specialization in Education Program Office**, 1009 Moore Hall, for information regarding this specialization. The program 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) **Placement and Career Planning Center**, for information on employment opportunities in teaching and education.
- (4) **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. You need only to seek it out. This section introduces you 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 you plan your academic program, monitor your progress toward the bachelor's degree, provide information about college and major requirements and requisites, and assist you with academic problems, improving study habits, and program planning. Counseling offices for each undergraduate college and school are listed below.

College of Letters and Science — College Counseling Offices

Letters and Science Counseling, A316 Murphy Hall, (310) 825-1965
Academic Advancement Program, 1209 Campbell Hall, (310) 825-1481
Honors Programs, A311 Murphy Hall, (310) 825-1553

School of the Arts and Architecture — 1100 Dickson Art Center, (310) 206-3564

School of Engineering and Applied Science — 6426 Boelter Hall, (310) 825-2826

School of Nursing — 2-200 Factor Building, (310) 825-7181

School of Theater, Film, and Television — 103 East Melnitz Building, (310) 825-5761 or 206-8441

Counseling Assistants

Counseling assistants (CAs) are UCLA graduate students who have been specially trained to help new and lower division students with the transition into University life. Employed by the Division of Honors and Undergraduate Programs in the College of Letters and Science, they represent a number of academic disciplines in the college. CAs help new and lower division students with program planning and course selection and provide assistance in skill building and personal support. You may make an appointment with a CA at the information window at A316 Murphy Hall. CAs are available at the College Counseling Service in Murphy Hall and at Griffin Commons. For additional information, call (310) 206-6681.

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 your 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.

You can find ASK counselors weekdays when school is in session at these campus locations: Campbell Hall (southwest corner), science quad, and Schoenberg Hall (vending area) from 10 a.m. to 2 p.m.; next to A316 Murphy Hall from 9 a.m. to 1 p.m.; and adjacent to 1105 Murphy Hall from 9 a.m. to 4 p.m.

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 aca-

democratic counseling and educational planning. During Orientation you work in small groups with peer counselors and gain insight into necessary academic skills, learn how to plan and construct your academic program, and become familiar with the educational opportunities, student services, and facilities available at UCLA. Individual counseling sessions help you adjust to University life and fulfill the advising requirements of your college or school. Sessions for parents are also offered.

During the summer, Orientation offers three-day, two-night dormitory live-in programs for first-year students and one-day programs for transfer students. Prior to Winter and Spring Quarters, a one-day on-campus program is offered. There is a fee for participation. For more information, contact the Orientation Office in 201 Griffin Commons (310-206-6685).

College Tutorial Services

College Composition and ESL Tutorials

The College Composition Tutoring Lab, in cooperation with the UCLA Writing Programs, offers individual assistance to students enrolled in English A, 2, and 3 and to students writing papers for other UCLA courses. The lab 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 Lab 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 Labs are located in 228 Griffin Commons and offer free individual tutoring by appointment. For tutoring appointments or further information, call (310) 206-1491.

College Math/Sciences Tutorials

The College Math/Sciences Tutorials, located in 230 Griffin 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 more information, call (310) 206-6965 or 825-7305.

College Tutorials for Student Athletes

The College Tutorials for Student Athletes 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 Griffin Commons. For tutoring appointments and further information, call (310) 825-8699.

Academic Advancement Program

The Academic Advancement Program (AAP), with more than 6,000 students, is the nation's largest undergraduate affirmative action program, a multiracial and multicultural program working to retain and graduate historically underrepresented (African American, Chicano/Latino, Native American, Pacific Islander, and Filipino), first-generation college, and low-income students. AAP's goals include increasing the number of

AAP students who enter graduate and professional schools and developing the academic, political, economic, and community leadership necessary to transform our society in the twenty-first century. AAP encourages and promotes academic excellence by providing its students with support services, academic programs, learning resources, scholarships, and research opportunities.

You are eligible to join AAP, participate in its programs, and use its resources if you are a student who comes from a historically underrepresented population, are the first generation to go to college, or are from a low-income family. All students, except Native Americans, must be California residents. For more information, contact the AAP Office in 1209 Campbell Hall (310-825-1481).

Freshman and Transfer Summer Programs

The six-week Freshman and Transfer Summer Programs 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.

You enroll in two University courses (both meet UCLA's requirements for graduation) and receive close personal attention, in either small groups or individual sessions, from your teaching assistants and tutors. You are encouraged to live on campus so that you can participate in the many cultural and social events, interact with students of diverse backgrounds, build a network of friends, and broaden your life experiences and world outlook.

Counseling Services

AAP counselors work with students to plan their academic programs, monitor progress toward the bachelor's degree, provide information about requirements and prerequisites for different majors, discuss graduate school and career options, and provide support and assistance for students' personal problems. One counselor is responsible for scholarships, housing, and financial aid needs. Upper division AAP peer counselors provide a student perspective on courses, study strategies, educational goals, and stress management to entering students.

Program Leading to Undergraduate Success (PLUS)

PLUS provides retention services such as counseling, tutoring, and a variety of specialized developmental programs for first-generation college students. The PLUS team personalizes the educational process and gives students the opportunity to develop the skills necessary to achieve their academic and career goals.

Tutorial Services

The Tutorial Services unit builds on the premise that critical thinking and intellectual independence are best developed through questioning and active dialogue. Free individual or small group tutoring is offered to all AAP students who wish to improve their critical thinking and analytical reading, composition, quantitative reasoning, and study skills while mastering course materials. AAP provides tutoring for more than 450 courses through its humanities, social sciences, and math/sciences laboratories.

Graduate Mentor Program (GMP)

The primary goal of the Graduate Mentor Program is to increase the number of AAP students who enroll in graduate or professional schools through the encouragement, support, guidance, and advocacy of underrepresented graduate student mentors. Services offered include individual mentoring, meetings with faculty at roundtable discussions, workshops and seminars (on such topics as the graduate application process, financing graduate studies, and GRE preparation), summer undergraduate research stipends, letters of recommendation, and a resource library.

Instructional Media

The **Instructional Media Laboratory** provides individual student access to course-related 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).

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. 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).

The **Language Laboratory** is a full-service audio facility for teaching and learning languages. Students enrolled in foreign language classes are assigned by faculty to practice pronunciation, comprehension, and listening skills in the laboratory, 190 Powell Library (310-206-8855). Audiotape programs which accompany specific texts used in classes and listening, recording, and monitoring equipment are available.

Academic Excellence

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

Dean's Honors List

The College of Letters and Science, 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. 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 your college or school for further information.

Honors at Graduation

Your college or school awards honors according to your overall GPA at graduation. **To be eligible you 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.

Departmental Honors

In the College of Letters and Science, departmental honors and highest honors are awarded at graduation on your major department's recommendation, based on successful completion of a departmental honors program. Consult your 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. If you are interested in becoming a Departmental Scholar, consult your department 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 these national freshman honor societies is based solely on academic achievement during your **freshman year**. To be eligible you must have a 3.5 GPA with 12 graded **University of California** units in the first term of your 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).

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).

Mortar Board

Mortar Board 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, 337 Plaza Building (310-206-5523), 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 GPA considered is 3.65 (for 140 or more UC units); the minimum number of UC units considered is 75 (students at the 75-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. If you are elected, you will be notified by mail. For more information, contact Phi Beta Kappa in the Honors Programs Office, A311 Murphy Hall (310-206-9667).

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 in January and early February, and awards are presented at the annual Alumni Awards Ceremony in May. For more information, contact the UCLA Alumni Association in the West Alumni Center, 325 Westwood Plaza (310-206-0523).

Undergraduate Majors and Degrees

College of Letters and Science

African Studies	—	Special Program (taken jointly with an organized major)
Afro-American Studies	B.A.	
Anthropology	B.A., B.S.	
Computing, Specialization in	—	Special Program (taken jointly with either anthropology major)
Art History	B.A.	
Asian American Studies	B.A.	
Asian American Studies	—	Special Program (taken jointly with an organized major)
Atmospheric Sciences	B.S.	
Biology	B.S.	
Cell and Molecular Biology	B.S.	
Business and Administration	—	Program (taken jointly with an organized major)
Chemistry and Biochemistry		
Biochemistry	B.S.	
Chemistry	B.S.	
General Chemistry	B.S.	
Chemistry/Materials Science	B.S.	
César E. Chávez Interdisciplinary Center for Chicana and Chicano Studies		
Chicana and Chicano Studies	B.A.	
Chicana and Chicano Studies	—	Special Program (taken jointly with an organized major)
Classics		
Classical Civilization	B.A.	
Greek	B.A.	
Greek and Latin	B.A.	
Latin	B.A.	
Communication Studies	B.A.	
Cybernetics	B.S.	
Computing, Specialization in	—	Special Program (taken jointly with the cybernetics major)
Development Studies	B.A.	
Diversified Liberal Arts	—	Certificate Program (taken jointly with an organized major)
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.	
East Asian Studies	B.A.	
Economics	B.A.	
Business Economics	B.A.	
Computing, Specialization in	—	Special Program (taken jointly with any economics major)
Economics/International Area Studies	B.A.	
Economics/System Science	B.S.	Not accepting new students at this time.
Education	—	Special Program (taken jointly with an organized major)
English	B.A.	
American Literature and Culture	B.A.	
English/Greek	B.A.	
English/Latin	B.A.	
European Studies	B.A.	
French	B.A.	
French and Linguistics	B.A.	
Geography	B.A.	
Computing, Specialization in	—	Special Program (taken jointly with either geography major)
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 Relations	—	Special Program (taken jointly with the political science major)
Italian	B.A.	
Italian and Special Fields	B.A.	
Labor and Workplace Studies	—	Special Program (taken jointly with an organized major)
Latin American Studies	B.A.	
Linguistics	B.A.	
African Languages	B.A.	
Computing, Specialization in	—	Special Program (taken jointly with any linguistics major except linguistics and computer science)
Linguistics and Anthropology	B.A.	
Linguistics and Computer Science	B.A.	
Linguistics and East Asian Languages and Cultures	B.A.	

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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	B.S.	
Applied Mathematics	B.S.	
Computing, Specialization in	—	Special Program (taken jointly with any mathematics major except mathematics of computation)
General Mathematics	B.S.	
Mathematics/Applied Science	B.S.	
Mathematics of Computation	B.S.	
Microbiology and Molecular Genetics	B.S.	
Musicology	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.	
Organizational Studies	—	Special Program (taken jointly with an organized major)
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	B.A.	
Cognitive Science	B.S.	
Computing, Specialization in	—	Special Program (taken jointly with any psychology major)
Psychobiology	B.S.	
Religion, Study of	B.A.	
Slavic Languages and Literatures	B.A.	
Russian Language and Literature	B.A.	
Russian Studies	B.A.	
Sociology	B.A.	
Computing, Specialization in	—	Special Program (taken jointly with the sociology major)
Spanish and Portuguese		
Portuguese	B.A.	
Spanish	B.A.	
Spanish and Linguistics	B.A.	
Spanish and Portuguese	B.A.	
Urban Studies	—	Special Program (taken jointly with an organized major)
Women's Studies	B.A.	
Women's Studies	—	Special Program (taken jointly with an organized major)

School of the Arts and Architecture

Art	B.A.
Design	B.A.
Ethnomusicology and Systematic Musicology	
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.

School of Nursing

Nursing	B.S.
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School of Theater, Film, and Television

Motion Picture/Television	B.A.
Theater	B.A.

Graduate Study

Graduate Admission

Graduate Registration and Enrollment

Graduate Fees and Financial Support

Requirements for Graduate Degrees

General Policies and Regulations

**Graduate Majors, Degrees, and Foreign Language
Requirements**



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 scope 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, your education is enriched by the several hundred postdoctoral fellows and visiting scholars from other universities who engage in research and 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 or Juris Doctor, is intended to develop your mastery of a field and prepare you for the practice of a profession. The doctoral degree (Ph.D., Ed.D., etc.) is designed to prepare you 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's Graduate Council for master's, doctoral, and professional degree programs other than those in law, medicine and dentistry. It oversees graduate recruitment and admissions, fellowships, teaching assistantships, graduate student researcher appointments, and other graduate student support, affirmative action, 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 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

After admission to a department, program, or school, each graduate student is assigned a graduate adviser who assists the student in program planning and completing degree requirements. The graduate adviser is available for counseling whenever needed; departments usually require at least one student consultation each term. When the master's or doctoral committee is established, the faculty chair of that committee often assumes the adviser's role.

Graduate Students Association (GSA)

UCLA's Graduate Students Association (GSA) 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.

Graduate Admission

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

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 non-U.S. university or university-level institution. If your examinations have been graded Excellent, Very Good, Good, and Pass, you 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, etc., or a four-year degree, diploma, or higher certificate from a technical, vocational, or post-secondary 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, etc., also do not qualify for graduate admission.

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

Graduate students at UCLA must submit the 1996-97 *Application for Graduate Admission* to Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall, UCLA, Los Angeles, CA 90095-1428. You may obtain this form, in person or by mail, from your prospective school or department.

Applications are generally accepted for Fall, Winter, and Spring Quarters, although some departments limit admission to Fall Quarter due to course sequencing. Such restrictions are stated in this catalog's departmental listings and in the application packet. Enrollment in Summer Sessions courses does not constitute admission to graduate standing.

Applications and supporting papers should be on file by the following dates (if the dates below fall on a weekend or holiday, the next working day applies):

December 15, 1995, for Fall Quarter 1996
October 1, 1996, for Winter Quarter 1997
December 28, 1996, for Spring Quarter 1997
December 15, 1996, for Fall Quarter 1997

Applications postmarked after these dates will be considered only when enrollment and funding limitations permit.

Supporting papers and materials to be submitted, including official transcripts of record and a \$40 nonrefundable application fee, are specified in the application packet. Submitted materials are not returnable.

Graduate Record Examination. If you are applying for admission to a department or school which requires Graduate Record Examination (GRE) scores, you should arrange to take the examination no later than December so your scores arrive on time. **GRE scores should be sent**

directly to your prospective department and not to the Graduate Division.

GRE applications and information are available from offices of the Educational Testing Service, either at P.O. Box 6151, Princeton, NJ 08540-6151, or at 1947 Center Street, Berkeley, CA 94704. For information on GRE Fee Waivers, write to the associate program director at the New Jersey address.

Graduate Record Examination 1995-96 Test Dates

October 14, 1995
December 9, 1995
April 13, 1996

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 your 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 packet.

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 and Enrollment later in this section for a description of what constitutes adequate medical insurance. Most travel insurance plans are **not** acceptable; medical insurance plans from foreign countries (including Canada) also are **not** acceptable.

UCLA offers a student Medical Insurance Plan (MIP) which fulfills the requirement. For graduate students the MIP fee is included each term in the amount due on the UCLA Billing Statement. This is the only method by which MIP can be purchased.

If you decide to waive out of MIP because you have adequate private medical insurance, you must complete the Medical Insurance Waiver Request included each term with the UCLA Billing Statement and submit the form when you pay your registration fees. For further information on MIP or adequate medical insurance requirements, call the Student Health Service Insurance Office at (310) 825-1856.

International Applicants

Applicants who have credentials from universities and colleges in foreign countries should submit applications at least two months before application deadlines. International applicants should have an academic degree or professional title earned at a university and will be evaluated on the basis of grades (marks) and class or rank achieved. You should submit official transcripts of record, in duplicate, for all college and university work. Specific instructions are given in the application packet.

Proficiency in English

Test of English as a Foreign Language (TOEFL). 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 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 6154, Princeton, NJ 08541-6154 (609-771-7760).

UCLA English as a Second Language Placement Examination (ESLPE). If your native language is not English, you are required to take the UCLA ESLPE (in addition to the TOEFL) before the term in which you are to register. Graduate students may take the ESLPE only once in

a given term. They may retest in a subsequent term, and in such cases the most recent examination score is held to be valid. Unauthorized retakes of the examination result in an invalid examination score. Depending on your ESLPE results, you may be required to complete one or more courses in the English as a Second Language 33 series, beginning in your 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. You should expect to spend a longer period of time at the University than would normally be necessary to complete a degree program if you are required to take any English as a second language courses. If you do not achieve a minimum score on the ESLPE, your admission is deferred until you have acquired the necessary proficiency in English. 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.

Test of Spoken English (TSE). If you are an international student and wish an appointment as a teaching assistant, you should take the Test of Spoken English offered at the TOEFL Center in your home country. Individual departments may require international teaching assistant applicants to take the TSE or SPEAK, an institutional version of the TSE offered through UCLA's Office of Instructional Development (OID). Contact the TA Training Program at (310) 825-9269 for more information on SPEAK.

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. All admission to no degree objective (NDO) programs, except for students in official Education Abroad Programs, must be preapproved 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). If you are applying for a second academic degree at the same level or lower than the one you already hold, you 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. If you wish to apply Summer Sessions courses to your subsequent graduate program, you should consult in advance with your departmental adviser. This is also true if you have been readmitted to graduate standing and you wish to resume graduate study in Summer Sessions. Information and applications are available from the Office of Summer Sessions, 1147 Murphy Hall. Also refer to Academic Residence and Transfer of Credit later in this section.

If you take Summer Sessions courses following the award of your bachelor's degree, the grades do not appear on your undergraduate transcript (they are included on a separate transcript). After you are accepted by the Graduate Division, your Summer Sessions grades are included on your graduate transcript and computed in your 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.

If you have registered at any time as a graduate student at UCLA and are returning after an absence (except a formal leave of absence), you 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, 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. (If you are reapplying in a new major, request this form along with the *Application for Graduate Admission*.) Your UCLA graduate transcript must also be submitted.
- (3) Transcripts of all academic work completed since your 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 and Cellular Life Sciences

The life and basic biomedical science departments at UCLA offer a mechanism for a combined recruitment, admission, and first-year program that provides Ph.D. students in the molecular and cellular life sciences with maximal choice and flexibility in selecting a research specialization. Through UCLA ACCESS, you are able to select research projects from 165 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.

UCLA ACCESS is used to recruit and admit students to the following 11 Ph.D. programs: Biochemistry, Biology, Microbiology and Molecular Genetics, Molecular Biology, and Physiological Science in the College of Letters and Science; Anatomy and Cell Biology, Biological Chemistry, Experimental Pathology, 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 to Programs in Molecular and Cellular Life Sciences rather than to an individual department and must have completed an undergraduate major in a life or physical sciences discipline with superior scholastic achievement. You should have preparation in physics, biology, and chemistry, as well as specialized courses within the major which may include cell biology, neurobiology, immunology, structural or computational biology, microbiology, virology, plant molecular biology, developmental biology, gene expression, biochemistry, molecular biology, or the molecular basis of disease. In certain cases, background deficiencies may be remedied concurrently with graduate studies if rec-

ommended by the ACCESS advising committee. In addition to the UCLA *Application for Graduate Admission*, you should submit your 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 your 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 and Cellular Life Sciences, 172 MBI, UCLA, Los Angeles, CA 90095-1570 (310-206-6051).

First-Year Course Requirements

Individual requirements vary based on your background and scientific interest and are determined by your advising committee. In general a formal course of study consists of three lecture courses, three laboratory rotations, and two seminar courses. In addition, you participate in related activities on an informal basis.

Lecture Courses. Three survey 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).

Seminar Courses. You must enroll in two seminars during your first three terms to read and report on current scientific research literature.

Laboratory Rotations. During your first nine months in residence, you rotate for one term each through three laboratories selected from the UCLA ACCESS faculty list. You normally enroll in a 200- or 500-level course for a minimum of six units of credit for each rotation.

Additional Coursework. A course in computer application in molecular biology is required.

Teaching Experience. All departments participating in UCLA ACCESS consider teaching experience to be an integral part of the graduate program. You are required to complete two terms of teaching beginning in your second year. You are also required to complete a course, administered through the program, on approaches and methods for successful teaching.

Transfer to the Degree-Granting Program

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

In the event you are unable to identify a suitable mentor and program by the end of your first year, one additional laboratory rotation approved by your advising committee will be available during the summer quarter. If you are unable to arrange for a laboratory after four rotations, you will be recommended for termination of graduate study or given the opportunity to arrange for a terminal master's degree through one of the participating or affiliated programs.

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 which would not otherwise be available to UCLA students and is in effect only during the regular academic year (not in summer).

If you have completed at least one term of graduate study at UCLA, are in good academic standing, and have obtained the necessary approvals, you may enroll in a 501 course through your department. When you have completed the course at USC, **your grade will be forwarded to UCLA to**

be recorded on your 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 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.

Intercampus Exchange Program

If you have completed one term of graduate study at any campus of the University and are in good academic standing, you may attend another campus as an Intercampus Exchange Graduate Student with the approval of your department chair, the chair of the department or group in which you 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 you are considered to be in residence at your home campus, as an Intercampus Exchange Student you have library, health service, and recreation center privileges at the host campus. Grades are transferred to your home campus and entered on your 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 you 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 Fellows 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 fellow is one who (1) has been awarded a doctoral degree or the foreign equivalent where at least three years of undergraduate study are prerequisite 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 fellow is normally for a period of one to three years and is limited to a period not to exceed five years. 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 fellows in that they are not in training under faculty supervision but rather are themselves peers of our faculty, visiting from other universities and institutions. Visiting scholars ordinarily have adequate support funds from sources outside the University.

Further information on both postdoctoral fellows and visiting scholars is available from Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall.

Graduate Registration and Enrollment

Registration/Enrollment Office
1113 Murphy Hall
(310) 825-1091

Detailed information on registration (fee payment) and enrollment procedures is contained in the quarterly *Schedule of Classes*, available for purchase at the Students' Store several weeks before the beginning of each term. To obtain a copy by mail, write to ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, CA 90024-1645, Attn: Mail Out. Include a check or money order payable to ASUCLA for \$5 (Fall Quarter) or \$4.50 each (Winter and Spring Quarters).

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

Payment is required of all eligible students by the applicable deadlines. Payments may be mailed or deposited in the Main Cashier's Drop Slot (1125 Murphy Hall). Payments submitted after the published deadline must be made in person at 1125 Murphy Hall and will be assessed an additional \$50 late payment fee. Students on financial aid may be eligible for a waiver of the \$50 fee if funds are delayed by the University.

Registration Fee Payment Deadlines

September 20 for Fall Quarter 1995
December 20 for Winter Quarter 1996
March 20 for Spring Quarter 1996

Classes Dropped for Failure to Pay Registration Fees

October 6 for Fall Quarter 1995
January 12 for Winter Quarter 1996
April 5 for Spring Quarter 1996

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.

UCLA offers a student Medical Insurance Plan (MIP) which fulfills the requirement. For graduate students the MIP fee is included each term in the amount due on the UCLA Billing Statement. This is the only method by which MIP can be purchased.

If you decide to waive out of MIP because you have adequate private medical insurance, you must complete the Medical Insurance Waiver Request included each term with the UCLA Billing Statement and submit the form when you pay your registration fees.

An *adequate* private medical insurance plan must provide all of the following *minimum* benefits:

- (1) A *minimum* of \$50,000 in "Lifetime Maximum" benefits.
- (2) At least 75 percent of the cost for eligible medical expenses, with no more than a 25 percent out-of-pocket cost to you (patient copayment).
- (3) A claims representative located in the U.S. In addition, you must be provided with an identification card (or reasonable alternative) written in English, which includes payment provisions listed in U.S. dollars and the U.S. telephone number of the U.S. claims representative.

If your private medical insurance plan does not meet all of the above requirements, you must purchase MIP. For further information on MIP or

adequate medical insurance requirements, call the Student Health Service Insurance Office at (310) 825-1856.

Enrollment 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 your school or college advisers, you can assemble a program of courses.

University Records System Access (URSA)

URSA (310-208-0425) enables all UCLA students to acquire information via a touch-tone telephone from their University academic records stored on the Registrar's Student Records System computer database.

URSA allows you to process your class enrollment, to obtain course confirmation (i.e., a reading of your Study List, including day/time, location, examination code, instructor name), UCLA grades for any completed term, GPA, completed units, and outstanding holds (i.e., restrictions from receiving services), to confirm registration fee payment and Registration Card mailing, to update or review selected student information ("degree expected term," telephone number, residence hall address, privacy release, ethnic-based mailing option, and ethnic background), and to change the security code used to access URSA.

URSA is operational Monday through Saturday from 5 a.m. to midnight, including holidays. You may access the system for grades, GPA, units, and holds information for up to 10 years after your graduation or your last term of attendance. If you have outstanding holds, you will be informed at the beginning of your call.

Telephone Enrollment

By using URSA, you can enroll in classes, add, drop, or exchange classes/sections, put yourself on the wait list for a class, add a class using a PTE Authorization Number, change the grading basis for a class (i.e., Satisfactory/Unsatisfactory), obtain a reading of your Study List, check your wait-list position, and obtain instructor names for all courses. You enroll during your assigned appointment periods, which you also obtain by calling URSA. Consult the *Schedule of Classes* for full enrollment details.

In-Person Enrollment

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

Study Lists

At 7 p.m. on Friday of the second week of instruction the Study List of enrolled courses becomes "official," and all wait lists are eliminated. You should obtain a reading of your Study List through URSA after all enrollment transactions. **You are responsible for all courses and the grading basis as listed on URSA, and you cannot receive credit for courses not listed.** Errors or omissions should be corrected before your academic dean's deadline for changes by petition. Unapproved withdrawal from or neglect of a course entered on the Study List will result in a failing grade.

Beginning with the third week of instruction, changes to your Official Study List can be made with a fee by calling 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 you 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, you will be directed by your department 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 included 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 Academic Record Services, 1134 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. If you are granted a formal leave of absence or are eligible to pay the filing fee for a degree (see below), you are exempt from this requirement. You 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.

If you fail to register or to file for an official leave of absence by the end of the second week of instruction, you are assumed to have withdrawn from UCLA. You will then have to reapply and compete for readmission with all other graduate applicants if you 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 your department.

Employment and Degree Progress

Policy governing the employment of graduate students considers you primarily as a student rather than an employee and emphasizes your need to make timely progress toward your degree. You 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 your employment maximum 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 you (1) make timely progress toward your degree, (2) not be subject to the conflicting roles of student and faculty member, and (3) not be involved in the instruction of your peers.

Registration in the Final Term for Award of the Degree

(1) You must register in the final term in which the degree is to be conferred if you 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 your 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. If you were not continuously registered or on leave of absence and you are required to register to receive your degree, you must apply for readmission.

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

(3) If you were registered in the preceding term and have completed all degree requirements, including final examinations and filing your thesis/dissertation, during the interval between terms and before the first day of instruction, you are not required to register (or pay the filing fee) to receive your degree at the end of the following term.

Filing Fee

If you 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, you 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, please consult *Standards and Procedures for Graduate Study at UCLA*, available in 1255 Murphy Hall or in individual departments.

Health 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 Student Health Service the Health Evaluation forms provided by their departments. For clearance information, call (310) 794-7896.

Graduate Fees and Financial Support

Graduate Student Support
1252 Murphy Hall
(310) 825-1025

Fees

Although the exact cost of attending UCLA will vary according to your 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 tuition of \$2,566 per term (for a full definition of residence and nonresidence, see the Appendix of this catalog).

At the time of registration each term, all graduate students (except those in the Schools of Dentistry, Law, Management M.B.A. program, and Medicine) must pay the following fixed fees. Students in those schools should refer to their individual school announcements for explanation of fees per term. **Fees for Fall Quarter 1995 are current as of publication date but are subject to change without notice by The Regents.**

Term Expenses for Fall 1995

University registration fee	\$ 237.00
Educational fee	1,028.00
Ackerman Student Union fee	2.50
Graduate Students Association fee	5.50
Wooden Recreation Center fee	11.00
Mandatory medical insurance	170.00
Total for California residents	\$1,454.00
Nonresident tuition fee	\$2,566.00
Total for nonresidents	\$4,020.00

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 UCLA Billing Statement has an unpaid balance in excess of \$25; and \$5 or less for most petitions and other special requests. A \$60 fine will be assessed if any check for registration fee payment is returned by a bank (i.e., stopped payment, insufficient funds, etc.). A complete list of fees may be found in the *Schedule of Classes*.

Fee Refunds

Students who formally withdraw from the University during the first five weeks of instruction or take an approved leave of absence by the end of the second week of classes 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.

Nonresident Tuition Fellowships

A limited number of nonresident tuition fellowships are awarded each year to graduate students with distinguished academic records. Details of eligibility are available from your department.

Living Expenses

Printed below are the estimated yearly budgets for graduate California residents. Students admitted in fall 1995 to the D.D.S., J.D., M.B.A., and M.D. degree programs must add the \$2,000 professional school fee, and nonresidents must add the \$7,699 annual tuition fee to their total expenses for an accurate estimate. Expenses cover the three regular session terms of the 1995-96 academic year and do not include Summer Sessions. (Budgets for the Schools of Medicine, Dentistry, and Nursing are higher, reflecting the expense of specialized books and supplies; figures are available from your health professions counselor.) The budgets are designed to serve as a guide and are subject to change.

Estimated Annual Budgets for Graduate California Residents

	Commuter Living at Home	On-Campus Housing	Off-Campus Housing
University fees	\$4,366	\$4,366	\$4,366
Books and supplies	1,147	1,147	1,147
Food and rent	1,324	5,859	8,130
Transportation	2,552	1,771	2,742
Personal	1,733	1,850	906
Total Budget	\$11,122	\$14,993	\$17,291

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

Financial Support

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 request 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 packet 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. Contact your 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.

Graduate Affirmative Action Awards

Graduate Affirmative Affairs Office
1252 Murphy Hall
(310) 206-1280

These programs were established to increase the graduate enrollment and retention of students from groups which have traditionally been underrepresented in graduate education. These groups include American Indians, blacks/African Americans, Chicanos/Mexican Americans, Latinos/Hispanics, Pilipino Americans, and Puerto Ricans. In addition, women in the sciences and engineering, Asian American men in the arts, humanities, and social sciences, and Asian American women in all areas are eligible for many of these awards.

As indicated below, the Graduate Division offers one need-based financial aid program (GAP) and several fellowships to underrepresented students. Students may apply for both financial aid and fellowships simultaneously. All applicants for fellowships must be U.S. residents. For more information on these programs and specific eligibility requirements for each fellowship, contact the Graduate Affirmative Affairs Office, 1252 Murphy Hall (310-206-1280).

(1) **Project 88** — Funded jointly by the UCLA Office of the Chancellor, the Graduate Division, and participating departments and schools, this program awards four-year fellowships on a competitive basis to historically underrepresented students (American Indian/Alaskan native, black/

African American, Chicano/Mexican American, Pilipino, and Puerto Rican) pursuing doctoral degrees. Asian American students pursuing doctoral degrees in the arts, humanities, and social sciences are also eligible.

(2) **Eugene Cota-Robles Fellowship** — This program is funded by the University of California Office of the President for entering Ph.D. students pursuing careers in research and teaching. All applicants must be U.S. citizens or permanent residents who are American Indian/Alaskan native, black/African American, Chicano/Mexican American, Latino/Hispanic, Pilipino, Asian American women (in all disciplines), and Asian American men in the social sciences and humanities. In addition, women in the physical and life sciences and engineering may apply regardless of ethnicity.

(3) **Graduate Opportunity Fellowship Program (GOFP)** — Funded by the University of California, this program provides fellowships to students from groups traditionally underrepresented in graduate programs and to women in fields such as engineering and the physical and life sciences.

(4) **Research Assistantship/Mentorship Program** — Funded by the University of California Office of the President, this program provides research assistantships for underrepresented doctoral students and is designed to encourage a close mentoring relationship between students and faculty members and to enhance research skills. The award provides registration fees, and students are paid a maximum salary of \$12,500 for the academic year.

(5) **Dissertation-Year Fellowship Program** — Funded by the University of California Office of the President, this program supports and encourages University of California underrepresented graduate students to complete the dissertation requirements for the Ph.D. degree and to enhance their qualifications as candidates for faculty teaching and research. The award provides a stipend, registration fees (including mandatory health insurance), and a research allowance.

(6) **Graduate Advancement Program (GAP)** — Awards are made on the basis of need as demonstrated by standard University financial aid criteria. These awards differ from conventional financial aid allocations in that GAP students receive a partial registration fee grant (nonresident tuition is not paid under this program) and a combination of loans and/or work-study.

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 your 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

UCLA offers instruction leading to a broad range of master's and doctoral degrees, both academic and professional. Graduate students earn master's or doctoral degrees through distinguished achievement in study and research. Achievement in study is evaluated by means of the qualifying and comprehensive examinations. Achievement in research is judged by the merits of the thesis or dissertation.

The doctorate, and specifically the Doctor of Philosophy degree, is awarded in recognition of a candidate's in-depth knowledge of a broad field of learning, and for demonstrated ability to make original and distinguished contributions to the field. More generally, the degree is an affidavit of critical aptitude in scholarship, imaginative enterprise in research, and proficiency and style in communication.

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 additional requirements for doctoral degrees according to the demands of the field of study. You are advised to consult the appropriate school announcement or your departmental graduate adviser for details.

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 you are a UCLA Departmental Scholar (see Academic Excellence in the Undergraduate Study section on this catalog). Also, courses taken for any other degree may not be applied toward a master's degree at UCLA unless you are enrolled in a Graduate Council-approved concurrent degree program (see Concurrent and Articulated Degree Programs later in this section).

From Within the University. You 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.

From Outside the University. With approval of the dean of the Graduate Division and your major department, courses completed with a grade 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 — e.g., 12 semester units \times 1.5 = 18 quarter units. To convert quarter units into semester units, multiply the quarter units by .666 — e.g., 12 quarter units \times .666 = 7.99 or 8 semester units.)

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. It is best to consult your departmental graduate adviser about applying Summer Sessions courses to your graduate program.

From UCLA Extension. Extension courses taken after July 1, 1969, 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 a grade 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 your 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 your 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 you 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.

You 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 your program has a language requirement, you should fulfill it either before you 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 you can acquire broad knowledge in your field of study and keep abreast of foreign developments in the field. You are urged to complete language requirements as early as possible in your graduate career. If your department requires two or more foreign languages, you must complete at least one before the University Oral Qualifying Examination (unless your department requires that both be completed before the examination).

Depending on your department's regulations, you may fulfill foreign language requirements either by passing the Graduate School Foreign Language Test (GSFLT) in French, German, Russian, or Spanish or (in languages not offered by GSFLT) by passing examinations given by UCLA language departments. You may register for the examination at the UCLA Extension Cashier's Office, 10995 Le Conte Avenue. UCLA enrollment is not required. Consult UCLA Extension for registration procedures.

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 your native language.

For further details on foreign language requirements, consult your 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 you must consult with your department to

determine the plan for meeting your 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 you 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 have approved the subject for the thesis, work may begin. You 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 your department.

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 you take the University Oral Qualifying Examination. You will determine your 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. You 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 you complete the recommended or required work. Once all departmental and foreign language requirements are met, the department chair consults with you and then nominates a doctoral committee.

University Oral Qualifying Examination

The doctoral committee, consisting of at least four faculty members nominated by your department, is appointed by the dean of the Graduate Division (consult the Graduate Division for details on committee membership). To determine your 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 you have completed approximately half the program for the master's degree (usually at least two terms), you should formally apply for advancement to candidacy. Application forms are available from your department and must be filed there no later than the second week of the

term in which you expect to receive your degree (by the end of the second week of the first Summer Session for a September degree).

You may not be advanced to candidacy until all departmental requirements for advancement, including foreign language examinations, have been satisfied. You then have one year from the date of advancement to complete all requirements for the degree, including your thesis or comprehensive examination. Candidacy expires at the end of one year and reinstatement during the term in which you plan to receive the degree is by petition only.

Doctoral Degree

You 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. You 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. The \$50 advancement to candidacy fee will appear on your next UCLA Billing 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 your 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 your ability for independent investigation. The doctoral committee guides your progress toward its completion. You 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, you 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 you are ready to file it, you 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 will be verified. After final approval by the dean of the Graduate Division, you must file the thesis with the theses and dissertations adviser by the pub-

lished deadline (approximately two weeks before the degree is to be awarded).

Doctoral Dissertation. When all members of the committee have approved the dissertation and you are ready to file it, you must submit the original signature (approval) page and title page to Graduate Admissions/Student and Academic Affairs where completion of degree requirements will be verified. After final approval by the dean of the Graduate Division, you 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).

Deadlines for this academic year are

December 4 for Fall Quarter 1995

March 11 for Winter Quarter 1996

June 3 for Spring Quarter 1996

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 you have prepared the final copy of your 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 your 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 26 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 which 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, contact the chair or graduate adviser of the specific program that interests you.

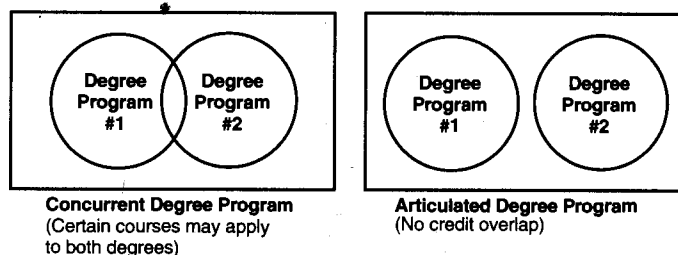
African Area Studies (M.A.)
 Afro-American Studies (M.A.)
 American Indian Studies (M.A.)
 Applied Linguistics (Ph.D.)
 Archaeology (M.A., Ph.D.)
 Asian American Studies (M.A.)
 Comparative Literature (M.A., Ph.D.)
 Environmental Science and Engineering (D.Env.)
 Folklore and Mythology (M.A., Ph.D.)
 Indo-European Studies (Ph.D.)
 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 you to earn two degrees simultaneously by combining two free-standing degree programs into a coordinated course of study. You may petition to design your own articulated program

(with departmental and Graduate Division approval), but you 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, 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:

Education, M.A., Ph.D., M.Ed., or Ed.D. — Law, J.D.
 History, M.A. — Library and Information Science, 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. — Latin American Studies, Interdepartmental M.A.
 Management, M.B.A. — Law, J.D.
 Management, M.B.A. — Library and Information Science, M.L.I.S.
 Management, M.B.A. — Nursing, M.N.
 Management, M.B.A. — Public Health, M.P.H.
 Management, M.B.A. — Urban Planning, M.A.
 Urban Planning, M.A. — Law, J.D.

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. — Library and Information Science, 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. — 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. Contact Graduate Admissions/Student and Academic Affairs for information on designing your own articulated program.

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 any campus of 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 which would otherwise receive a B or better. Grades S and U are not included in calculating grade-point averages.

Scholarship Probation

You are on probation and are subject to dismissal if your 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 your department, determines your eligibility to continue graduate study in probationary status. If you are allowed to continue, you must make timely progress toward improving your grade-point average.

Disqualification and Appeal

If you are subject to disqualification for reasons other than failure to maintain the minimum grade-point average, you will have your records reviewed by the Graduate Division, in consultation with the graduate adviser. If disqualification results, you may submit a written appeal to the dean of the Graduate Division for reconsideration. Contact Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall, for specific details on how to submit an appeal.

Appeals will be 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. Alleged errors in academic judgment or evaluation are not considered appropriate causes for appeal.

In cases of appropriate cause, the dean of the Graduate Division refers the appeal to the Graduate Council's Committee on Degree Programs. You are required to submit a written statement on the basis for your 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.

If you have complaints of a scholastic or professional nature involving faculty, you 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, you should take the matter to the appropriate divisional or school dean. Should the issue not be resolved at that level, you 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 (337 Plaza Building), Student and Campus Life (1104 Murphy Hall), or the Office of the Dean of Students (1206 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, 1252 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 Nondiscrimination, Harassment, and Faculty Code of Conduct sections in the Appendix.

Graduate Majors, Degrees, and Foreign Language Requirements

African Area Studies	M.A.	1 language (African) (Consult the department 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
Anesthesiology	M.S. (Nurse Anesthesia)	None
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
Archaeology	M.A. C.Phil., Ph.D.	1 language (Consult the department concerning additional foreign languages which may be required or recommended.) 2 languages (Consult the department 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 1 language, special proficiency, or proficiency in mathematics and 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 (2 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
Biology	M.A., C.Phil., Ph.D.	None
Biomathematics	M.S., Ph.D.	None
Chemistry and Biochemistry		
Biochemistry	M.S., C.Phil., Ph.D.	None
Chemistry	M.S., C.Phil., Ph.D.	None
Classics	M.A. (Classics, Greek, or Latin) C.Phil., Ph.D. (Classics)	1 language (French or German or Italian by petition) or completion through course 5 with minimum grade of C 2 languages (French or Italian and German) or completion through course 5 with minimum grade of C
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	M.S., Ph.D. (Oral Biology) D.D.S., Postgraduate Certificate Programs	None 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.)
Economics	M.A., C.Phil., Ph.D.	None
Education	M.A., M.Ed., Ed.D., Ph.D. Ph.D. (Special Education, joint with CSULA)	None None

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Engineering and Applied Science		
Aerospace 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
Manufacturing Engineering	M.S.	None
Materials Science and Engineering	M.S., Ph.D.	None
Mechanical Engineering	M.S., Ph.D.	None
Nuclear Engineering	M.S., Ph.D.	None
English	M.A.	Undergraduate foreign language study (required for admission to the graduate program), 1 language
	C.Phil., Ph.D.	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 and Systematic Musicology	M.A. (Ethnomusicology)	1 language (French or German)
	C. Phil., Ph.D. (Ethnomusicology)	2 languages (French and German) and language relevant to dissertation research
Film and Television	M.A., M.F.A.	None
	C.Phil., Ph.D.	1 language
Folklore and Mythology	M.A.	1 language (French, German, Spanish, or other language by petition to department)
	Ph.D.	2 languages (Consult the department concerning additional foreign languages which may be required or recommended.)
French	M.A.	1 language (German, Italian, Latin, or Spanish) (Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	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	M.A. (German)	1 language (French) (Consult the department concerning additional foreign languages which may be required or recommended.)
	M.A. (Scandinavian)	1 language (French or German and Old Icelandic)
	C.Phil., Ph.D.	2 languages
History	M.A.	1 language
	C.Phil., Ph.D.	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.)
Indo-European Studies	C.Phil., Ph.D.	2 languages (French and German)
Islamic Studies	M.A.	1 language (French or German) (Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	2 languages (French and German) (Consult the department concerning additional foreign languages which may be required or recommended.)
Italian	M.A.	1 language (French or German) (Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	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 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.)
Law	J.D., LL.M.	None

Library and Information Science	M.L.I.S., Ph.D.	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.)
	Certificate (Specialization in Library and Information Science)	None
Linguistics	M.A.	1 language (French, German, Italian, Japanese, Russian, Spanish, or, with departmental approval, a contact language for field research)
	C.Phil., Ph.D.	2 languages (French, German, Italian, Japanese, Russian, Spanish, or, with departmental approval, a contact language for field research)
Management	M.S., M.B.A., C.Phil., Ph.D.	None
Mathematics	M.A., M.A.T.	None
	C.Phil., Ph.D.	1 language (French, German, or Russian) (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 Biology	Ph.D.	None
Molecular and Medical Pharmacology	M.S., Ph.D. (Pharmacology)	None
Music	M.A.	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
	M.F.A.	1 language (French, German, or Italian) (Not admitting new students at this time.)
	M.M.	1 language — voice and choral conducting (French, German, Italian, or Spanish)
	D.M.A.	1 language (French, German, or Italian) 2 languages — voice and choral conducting (French, German, Italian)
	C.Phil., Ph.D.	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.	1 language (French, German, Italian, Latin, or Spanish) (Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	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.	1 major Western foreign language (English may be offered by international students Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	2 major Western foreign language (English may be offered by international students Consult the department concerning additional foreign languages which may be required or recommended.)
Neurobiology	M.S., C. Phil., Ph.D. (Anatomy and Cell Biology)	None
Neuroscience	Ph.D.	None
Nursing	M.N., D.N.Sc.	None
Pathology and Laboratory Medicine	M.S., Ph.D. (Experimental Pathology)	None
Philosophy	M.A.	1 language (French, German, Greek, Latin or with departmental approval, a program of courses or other work may be substituted for a language)
	C.Phil., Ph.D.	1 language (French, German, Greek, or Latin), special proficiency (Consult the department concerning additional foreign languages which may be required or recommended.)

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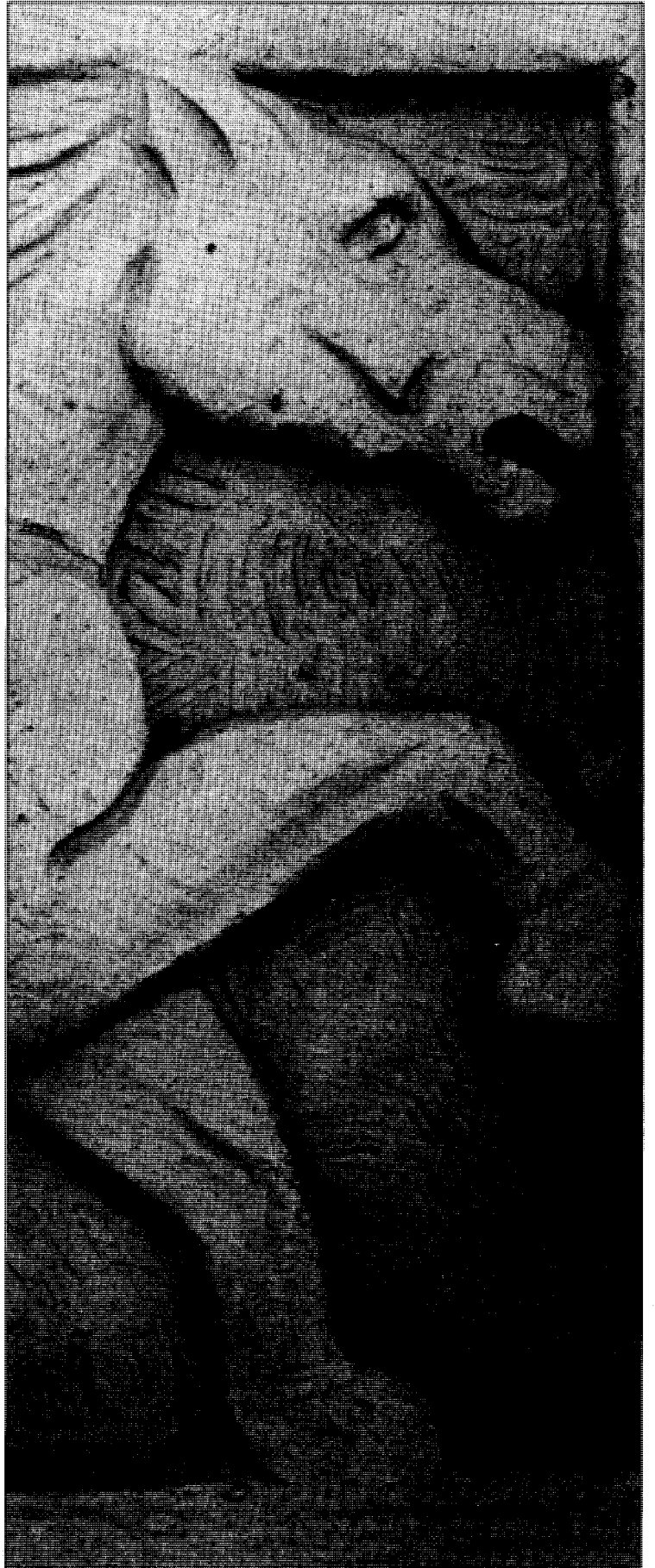
Physics and Astronomy		
Astronomy	M.S., M.A.T., Ph.D.	None (M.A.T. not admitting new students at this time.)
Physics	M.S., M.A.T., Ph.D.	None
Physiological Science	M.S., Ph.D.	None
Physiology	M.S., Ph.D.	None
Political Science	M.A.	None
	M.P.A. (Public Administration)	None (Not admitting new students at this time.)
	C.Phil., Ph.D.	1 language, examination arranged through a foreign language department or substitute program of proficiency in a research methodology
Psychiatry and Biobehavioral Services	Certificate Program in Clinical Psychology Internship	None
Psychology	M.A., C.Phil., Ph.D.	None
Public Health		
Biostatistics	M.S., Ph.D.	None
Environmental Health Sciences	M.S., Ph.D.	None
Epidemiology	M.S., Ph.D.	None
Health Services	M.S., Ph.D.	None
Public Health	M.P.H., M.S., Dr.P.H., Ph.D.	None (Not admitting new students at this time to M.S. Preventive Medicine and Public Health.)
Radiological Sciences	M.S., Ph.D. (Biomedical Physics)	None
Romance Linguistics and Literature	M.A.	1 Romance language (Required for admission to the graduate program. Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	2 languages (Consult the department concerning additional foreign languages which may be required or recommended.)
Slavic Languages and Literatures	M.A.	1 language (French or German) (Consult the department concerning additional foreign languages which may be required or recommended.)
	C.Phil., Ph.D.	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	M.A. (Portuguese)	1 language
	M.A. (Spanish)	1 language
	C.Phil., Ph.D. (Hispanic Languages and Literatures)	2 languages
Teaching English as a Second Language and Applied Linguistics	M.A. (TESL) Certificate Program	For students whose native language is English — program of language courses
Theater	M.A., M.F.A.	None
	C.Phil., Ph.D.	1 language
Urban Planning	M.A., Ph.D.	None
World Arts and Cultures	M.A., M.F.A. (Dance)	None
	M.A. (Dance/Movement Therapy)	None

Academics

Units and Grading Policy

Other Academic Policies

Leaving UCLA



Academic Policies

Units and Grading Policy

UCLA students 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 will prevail 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	Graduate Students
A+= Extraordinary	A = Superior Achievement
A = Superior	B = Satisfactorily demonstrates potential for professional achievement
B = Good	C = Passed but work does not indicate potential for professional achievement
C = Fair	F = Failure
D = Poor	S = Satisfactory (achievement at grade B level or better)
F = Failure	U = Unsatisfactory
P = Passed (achievement at grade C level or better)	I = Incomplete
NP= Not Passed	IP = In Progress
I = Incomplete	DR= Deferred Report
IP = In Progress	
DR= Deferred Report	

For Undergraduate Students. The grades A, B, C, and D may be modified by a plus (+) or minus (-) suffix, to either raise or lower your grade-point average. The A+ grade will **not** raise your grade-point average 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 you to remain in good academic standing. An F grade yields no unit or course credit.

For Graduate Students. 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 you to remain in good academic standing. Courses in which a C grade is received, however, may be applied toward graduate degrees.

The Schools of Dentistry, Medicine, and Law maintain their own grading codes. If you are interested in programs in any of these schools, 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 (e.g., one-half course is equal to two units).

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

A+ = 4.0	C+ = 2.3
A = 4.0	C = 2.0
A- = 3.7	C- = 1.7
B+ = 3.3	D+ = 1.3
B = 3.0	D = 1.0
B- = 2.7	D- = 0.7
	F, NP, U = 0

Courses in which you 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 your grade-point average. (If an I grade is later removed and a letter grade assigned, units and grade points are included in subsequent grade-point averages.) NR indicates that no grade was received from the instructor.

Computing Grade-Point Average

Your grade-point average, or GPA, 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 you take three four-unit courses and receive grades of A-, B-, and C+.

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

Grade Points x Course Units = Total Grade Points

A- = 3.7	4	14.8
B- = 2.7	4	10.8
C+ = 2.3	4	9.2
	12	34.8

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 Letters and Science 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 your GPA.

Other schools and agencies may calculate grade-point averages differently from the University when evaluating your records for admission to graduate and professional school programs. You should contact them about their policies in this regard.

Passed/Not Passed (P/NP) 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 basis.

By alleviating grading pressures, this option allows you to explore areas in which you 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 your GPA. You will receive neither units nor course credit for an NP grade.

You may enroll in one course each term on a P/NP basis (two courses if you have not elected the P/NP option in the preceding term). You may not elect this option for Summer Sessions courses without an approved petition. Your department or school may require that you take some or all courses in your major for a letter grade. Certain other courses or programs may also be exempt from the P/NP option; consult your college or school for details.

You 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 ASUCLA Students' Store).

Certain undergraduate courses are offered only on a Passed/Not Passed basis and are designated PN in the *Schedule of Classes*.

Satisfactory/Unsatisfactory (S/U) Grades

Graduate students in good standing (minimum 3.0 GPA) may enroll for 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 will not be counted in computing the GPA. You will receive neither units nor degree credit for a U grade. You 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 ASUCLA Students' Store).

Certain graduate courses are offered only on a Satisfactory/Unsatisfactory basis and are designated SU in the *Schedule of Classes*.

Incomplete (I) Grades

Once an I grade is assigned, it remains on your transcript along with the passing grade you may later receive for the course. Your instructor may assign the I grade when your work is of passing quality but is incomplete for a good cause (i.e., illness or other serious problems). It is your 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, you may receive unit credit and grade points by satisfactorily completing the coursework as specified by the instructor. Do not reenroll in the course; if you do, it will be recorded twice on your transcript. If the work is not completed by the end of the next full term in residence, the I grade will lapse to an F, NP, or U as appropriate. Your college or school may extend this deadline in unusual cases (not applicable to graduate students).

Consult the *Schedule of Classes* for procedure instructions.

In Progress (IP) 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 IP are assigned in the intervening term(s) and are replaced with the final grade when you complete the full sequence. The school or college faculty or the Graduate Council will determine credit if you do not complete the full sequence and petition for partial credit.

Deferred Report (DR) Grades

You may receive a DR grade when the instructor believes your work to be complete but cannot assign a grade because of disciplinary proceedings or other problems. If you are given a disciplinary DR grade, the Office of the Dean of Students will assist you in resolving the problem. For graduate students, the dean of the Graduate Division will set a deadline by which the DR will lapse to an F if the problem is not resolved and a grade assigned. The DR will be changed to a grade, or perhaps to an Incomplete, when the instructor provides written confirmation that you have resolved the situation. The DR grade is not included in determining your 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 your grade-point average, you may repeat only those courses in which you receive a grade of C- or lower; NP or U grades may be repeated to gain unit credit. Courses in which you received a letter grade 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 your college or school or the dean of the Graduate Division, and is granted only under extraordinary circumstances.

(3) Degree credit for a course will be given only once, but the grade assigned each time you take the course will be permanently recorded on your transcript.

(4) For undergraduates who repeat a total of 16 units or less, only the most recently earned letter grades and grade points will be computed in the grade-point average. After repeating 16 units, however, your GPA will be 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, will be used in computing the grade-point average.

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 your 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.

You will need approval from the appropriate instructors, the department, and your 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. If you are dissatisfied with a grade, you should review your work with the instructor and receive an explanation of the grade assigned. All grade changes are recorded on your 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 - 44.9
Sophomore	4 - 89.9
Junior	90 - 34.9
Senior	135 or more

In all campus units except the School of Engineering and Applied Science, you 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 the Arts and Architecture, School of Nursing, and School of Theater, Film, and Television; in the 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 you ex-

ceed the maximum, you may not be allowed to continue, except in rare cases approved by your college or school. See the degree requirements under each college and school for further details.

Graduate classification is based on your degree objective and whether or not you 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 will be given for courses taken concurrently elsewhere** without the approval of your college or school. This does not apply to UCLA Summer Sessions.

Undergraduate Students

During the summer or during a term when you are not registered at UCLA, you 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 your responsibility to select courses with catalog descriptions similar to courses offered in regular session at UCLA. You should avoid courses that are closely related to those you have already taken, as you cannot receive credit twice for the same or similar courses. If you wish to apply a specific course from another college toward satisfaction of degree requirements at UCLA, consult your 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 and grades earned by Letters and Science students in UCLA Extension courses prefixed by XLC are computed in the UCLA grade-point average. You may, however, receive unit credit and satisfy course requirements with transferable work taken elsewhere. When you have completed the work, you must have the other college send a copy of your transcript to the UCLA Office of Undergraduate Admissions and Relations with Schools (UARS); you must also fill out a Transfer Credit Evaluation Request form at UARS, 1147 Murphy Hall.

UCLA Extension. If you wish to receive degree credit for work taken through UCLA Extension, you 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 Letters and Science 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.

Community College. 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 will not grant transfer credit for community college courses beyond 105 quarter units, but you may still receive subject credit for this coursework to satisfy lower division requirements. Consult your college or school counselors for possible further limitations. (To convert semester units into quarter units, multiply the semester units by 1.5 — e.g., 12 semester units \times 1.5 = 18 quarter units. To convert quarter units into semester units, multiply the quarter units by .666 — e.g., 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.

Transcript of Record

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 your last date of attendance. You may view your documents in Academic Record Services, 1134 Murphy Hall, by calling (310) 206-4082 to make an appointment. Advance notice of 24 hours is required for viewing.

Your permanent record is your transcript, which reflects all undergraduate and graduate work completed in UCLA regular session and Summer Sessions. It lists chronologically your courses, units, grades, cumulative grade-point average, transfer credits, and total units.

The University Records System Access (URSA) allows all UCLA students via a touch-tone telephone to obtain course confirmation, UCLA grades for any completed term, GPA, completed units, and outstanding holds (i.e., restrictions from receiving services), to confirm registration fee payment and Registration Card mailing, to update and review selected student information, and to change the security code used to access URSA. Presently you can call URSA at (310) 208-0425 Monday through Saturday from 5 a.m. to midnight, including holidays (hours are subject to change). You can call as often as you wish. Access is given based on your nine-digit UCLA student I.D. number and your four-digit security code. The system is easy to use, explaining what to do at each step. A time limit is announced at the beginning of each call. If you exceed the limit, you will be disconnected. You may access the system for up to 10 years after your graduation or your last term of attendance. For additional information, consult the *Schedule of Classes*.

As needed, you may obtain a free printout of your grades for the most recent graded term at Academic Record Services, 1134 Murphy Hall, by presenting your valid current-term Registration Card and a photo I.D.

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, 1134 Murphy Hall, UCLA, Los Angeles, CA 90095-1429. Requests must include your name while in attendance at UCLA, your Social Security number and/or student I.D. number, your dates of attendance, and your signature for release.

Each transcript costs \$5; additional fees apply for transcripts requiring special delivery services. Although fax services are available, transcripts that are faxed are not considered official. Continuing students and former students with Student Billing and Receivables (SBAR) 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 will not be processed if you 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 90095.

Verification of Student Status

The Registrar verifies registration (fee payment) and enrollment status as a student is eligible. Verification cannot be issued if registration fees for the term have not been paid.

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 enroll-

ment 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).

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 will be forwarded to the clearinghouse by Academic Record Services.

Certificate of Resident Study for International Students

An international student 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 to a student if the studies involved are covered by a diploma or other certificate. The chair of your 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, you must have completed a program of at least nine courses with a minimum 2.0 grade-point average (2.5 for Graduate Division students) and have satisfactorily completed a research project over a period of nine months or more.

Registration Card

Your valid Registration Card (Reg Card) is your official student identification and is required, along with your UCLA Student I.D. Card, for all University services and student activities. Carry it with you as you will be asked to show it for student health services, library privileges, athletic and cultural student ticket rates, recreation center, check cashing, and many other campus services.

If you lose or do not receive your Reg Card, a temporary verification card (good for seven days) will be issued without fee at 1113 Murphy Hall after the fee deadline for the term. After the term begins, you may replace lost, destroyed, or mutilated cards at 1113 Murphy Hall for a \$3 fee. You must show proof of identity for verification or replacement cards.

If you have outstanding obligations (holds), proof of registration cannot be issued. For details on outstanding holds and initiating offices, call URSA at (310) 208-0425.

UCLA Student (Photo) I.D. Card

This card with photo is issued without charge to new or reentrant students from the beginning to the end of the first academic term and is valid with the current Reg Card. Both the Student I.D. Card and the current-term Reg Card are required for all University services and student activities.

You will need a current Reg Card and other valid identification (driver's license, passport, or California DMV I.D. card) to obtain your Student I.D. Card. There is a fee for issuing the card after your first academic term in attendance, for replacing lost or destroyed cards, and for issuing cards because of a name change affecting your University records.

Change of Name or Address

If you wish to change your name on your official University record, 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 your transcript. If you change your address, notify the Registration/Enrollment Office 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 UCLA Office of Undergraduate Admissions and Relations with Schools, 1147 Murphy Hall, Los Angeles, CA 90095-1436, other University of California Undergraduate Admissions Offices, or your 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

If you have to be absent from classes temporarily for reasons beyond your control, you should notify your instructors. Regardless of the reasons for absence, you are required to complete all coursework. If you cannot complete the work on time because your absence is late in the term or prolonged, you 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. If you plan to attend another institution (including UCLA Extension) during your absence, you should consult your college or school counselor before enrolling elsewhere (see Concurrent Enrollment and Transfer of Credit earlier in this section). If you are absent for two or more consecutive terms, you are no longer considered a continuing student 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. Leaves, which may be extended for a total of two years at the discretion of your department and with approval of the Graduate Division, 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, you may cancel registration by mailing a written notice to the Registration/Enrollment Office, Attn: Cancellation Clerk, 1113 Murphy Hall, Los Angeles, CA 90095-1429. A \$10 service charge will be deducted from your fee refund.

Undergraduates who return to the University for the following term are considered continuing students. If you are absent longer than one term, you must apply for readmission (see Readmission in the Undergraduate Study section of this catalog for procedures and deadlines). If you cancel in your first term at UCLA, you 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 you are enrolled. If you withdraw during a term, you need to file a Notice of Withdrawal, available from your academic dean's office (undergraduates) or departmental office (graduate students).

When you withdraw officially during the first five weeks of instruction (calendar days 1 to 35, beginning with the first day of instruction), a percentage of your registration fee will be refunded as follows:

- First and second weeks of instruction: 80% refund
- Third week of instruction: 60% refund
- Fourth week of instruction: 40% refund
- Fifth week of instruction: 20% refund
- After fifth week of instruction: no refund

If instruction begins in midweek, refund percentages may also change in midweek. Claims for refund must be presented within the academic (fiscal) year to which the claim is applicable. Consult the current *Schedule of Classes* for policy details and specific refund dates.

You may withdraw only if you have not taken any final examinations or otherwise completed the work in any of your classes. For undergraduates, one withdrawal places no restriction on readmission or continuation if you started the term in good academic standing. If you withdraw after one or more previous withdrawals or while in academic difficulty, a restriction may be placed on your continuance in undergraduate standing. Before withdrawing, you 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 you have officially graduated from the University.

If you register and subsequently discontinue coursework or stop payment on registration checks without an approved petition for withdrawal, leave of absence, or cancellation, you will receive F, NP, or U grades, as appropriate, for all courses in which you are enrolled for that term. A \$60 fine will be assessed if any check for registration fee payment is returned by a bank (i.e., stopped payment, insufficient funds, etc.). No fees will be refunded, and future registration privileges may be curtailed or revoked. Transcripts will not be issued if you have outstanding financial obligations to the University.

Undergraduate Students. If you return to the University for the term following withdrawal, you are considered a continuing student. If you return later than the following term, you must apply for readmission.

Graduate Students. If you do not register for a term, you are considered to have withdrawn from the University and must apply for readmission when you 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 which begin when you identify the term you expect to complete degree requirements through URSA (consult the *Schedule of Classes* for complete instructions on using URSA to declare degree candidacy). **This must be done before you complete 160 units (172 for the School of Engineering and Applied Science) or a \$13 late candidacy fee will be assessed.** The identified term must fall within the academic year (four quarters) subsequent to the term in which you reach or expect to reach the 160-/172-unit mark.

Exceptions can be made by your degree auditor depending on your program of study (e.g., double majors).

You may request a review of your degree progress by a counselor in your college or school office at any time. Advisers in your major department are also available for counseling on departmental requirements.

The "degree expected term" you specify through URSA is used by the degree auditors to review your coursework and begin the audit of your completion of degree requirements. You cannot graduate without such an audit. If your expected graduation date changes and you have not yet completed 160/172 units, update your degree term through URSA. Once you have completed 160/172 or more units, a fee will be assessed each time you petition to change your "degree expected term" using the UCLA Declaration of Candidacy form.

Consult the latest *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.

You can confirm your "degree expected term" at any time through URSA at (310) 208-0425. Declaring candidacy is not a guarantee of graduation. If you have requested through URSA that no public information (including your name) be released, you will not be included in the program booklet for Commencement ceremonies.

If you intend to complete degree requirements as a nonregistered student (take a course through UCLA Extension or at another institution, remove an incomplete grade, etc.), you must file a request to graduate "in absentia" with your degree auditor by the fifth-week candidacy deadline. Students graduating "in absentia" will be 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.

Students in the College of Letters and Science who entered UCLA in Fall Quarter 1988 and thereafter are mailed a computer-generated **Degree Progress Report** once a year (copies can also be ordered at A316 Murphy Hall). This report includes a detailed evaluation of transfer credit, courses and grades for each completed term, degree requirements completed, and requirements still outstanding.

Students who entered prior to Fall Quarter 1988 are audited for degree requirements by the Registrar's degree auditors after completing 160 units, with a "degree expected term" within the subsequent two terms. You should receive information regarding your completion of requirements or any remaining degree requirements and/or deficiencies no later than your final term.

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. If you receive such a notice, contact a degree auditor immediately to discuss your expected completion of the requirements.

Once you complete 180 units and reach the term you have declared as your "degree expected term," you are reviewed by your degree auditor for award of the degree each subsequent term while in continuous registration, including UCLA Summer Sessions. Keep your degree auditor informed of your plans for completing your degree.

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 dead-

lines). For full details on degree requirements and procedures for graduate students, see the Graduate Study section of this catalog.

Final Transcript

Official transcripts with your graduation date included are available approximately seven weeks after the end of the term. If you require earlier proof of graduation, contact your 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 your diploma in person (no fee) or by mail (with fee) is sent to you approximately seven weeks after the end of your final term. To expedite receipt of your diploma, you 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 your 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 will bear 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, as well as prizes. Check with your school or college for eligibility requirements and program and time schedules.

Academic regalia (caps, gowns, and hoods) are available for rent/purchase at ASUCLA's Graduation Et Cetera (B Level of Ackerman Union, 310-825-2587). In addition, graduation announcements with printed enclosure cards, diploma covers, and diploma mounting are available. You may also purchase graduation announcements at the ASUCLA Campus Photo Studio (second floor of Ackerman Union) through mid-May. The studio is scheduled to move to the A Level of Ackerman Union during Spring Quarter 1996.



College and Schools

School of the Arts and Architecture

School of Dentistry

Graduate School of Education and Information Studies

School of Engineering and Applied Science

School of Law

College of Letters and Science

John E. Anderson Graduate School of Management

School of Medicine

School of Nursing

School of Public Health

School of Public Policy and Social Research

School of Theater, Film, and Television



School of the Arts and Architecture

Daniel Neuman, Acting Dean

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 and Systematic Musicology, Music, and World Arts and Cultures (the recently merged Department of Dance and the World Arts and Cultures Program). 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 Center for the 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; with current restructuring, ceramics is now an area of specialization within the department. The Department of Design offers an exploration of the union of traditional design — graphics, visual communications — with the theories and techniques of design computation and logical systems. Students in the Department of Ethnomusicology and Systematic Musicology study the performance and context of music-making from a global perspective, and the Music Department offers specializations in composition, theory, and performance. 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, 1100 Dickson Art Center, UCLA, Los Angeles, CA 90095-1620 (310-825-9708).

If you are interested in obtaining instructional credentials for California elementary and secondary schools, consult the Graduate School of Education and Information Studies, 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.F.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.F.A. in Music 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 you on receipt of your application. Deadline date for applications is November 30, 1995, for admission in Fall Quarter 1996.

The Study List

Each term the student Study List must include from 12 to 17 units. The school has no provision for part-time enrollment. After your first term, you may petition to carry more than 17 units (up to 20 units maximum) if you 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 you have not filed your Study List by the end of the second week of classes, you must obtain the consent of the Student Services Office 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 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 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 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.

General Education (GE) Course 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, Los Angeles, CA 90095-1620.

Intersegmental General Education Transfer Curriculum (IGETC)

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 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 you complete it. If you select the IGETC, you must complete it entirely before enrolling at UCLA. Otherwise, you must fulfill the School of the Arts and Architecture general education requirements.

English Composition and Rhetoric

English 3 with a minimum grade of C should be completed by the end of your freshman year and may not be taken on a Passed/Not Passed basis.

Critical Reading and Writing

One course from English 4, Humanities 2A, 2B, or 2C with a minimum grade of C should be completed by the end of your sophomore year and may not be taken on a Passed/Not Passed basis. Humanities 2A, 2B, or 2C may not be applied toward the humanities/literature requirement if taken to meet this requirement.

Foreign Language

You may meet this requirement by (1) scoring 3, 4, or 5 on the Advanced Placement (AP) foreign language examination 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 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.

Mathematics

One course (four units) in mathematics or statistics or an introductory course in computers selected from Mathematics 1, 2, 3A, 3B, 3C, 5, 31A, 31B, Program in Computing 1, 10A, 10B, 10C, Statistics 50.

Science

Two courses (eight units) from different departments in physical or biological sciences selected from Anthropology 7, 10, 12, 15, Astronomy 2A, 2B, 3, 3H, 4, 5, 6, 81, 82, Atmospheric Sciences 2, 2E, 3, 3E, 4, 5, 6, 6E, Biology 2, 5L, 6, 10, 12, 13, 21, 25, 30, 40, 50, 70, 80, Chemistry and Biochemistry 2, 11A, 11B, 15, Earth and Space Sciences 1, 2, 5, 8, 9, 15, 16, 17, 20, Geography 1, 2, 5, Microbiology and Molecular Genetics 6, 7, Physics 3A, 3B, 3C, 6A, 6B, 6C, 8A, 8B, 8C, 10, Physiological Science 3, 5, 6, 13, Psychology 15.

Social Sciences

Three courses (12 units), with at least one from each group:

Group A — Economics 1, 2, 5, History 1A, 1B, 1C, 3A through 3D, 4, 5A, 5B, 6A, 6B, 6C, 7A, 7B, 8A, 8B, 8C, 9A through 9D, 10A, 10B, 11A, 11B, 21, Political Science 10, 20, 30, 40, 50.

Group B — Afro-American Studies M5, Anthropology 8, 9, 33, Chicana and Chicano Studies 10B, Geography 3, 4, Psychology 10, Social Sciences 20, Sociology 1, 2, 3, 4, M5, 31, Women's Studies 10.

Humanities

Three courses (12 units), with at least one course in three of the four groups:

Group A — Arts — Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57 (except art and design majors), Classics 42, 51, Ethnomusicology and Systematic Musicology 20A, 20B, 20C, 106A, 106B, 106C, M108A, 108B, M110A, M110B, M111, 113, M115, 117, 118, 120A, 120B, 121, 123, M124, M126, 128, 130, CM132, 136A, 136B, 146, 147, 156A, 156B, 157, 158A, 158B, 158C, 160A, 174 (except music and ethnomusicology majors), Film and Television 106A, 106B, 106C, 107, 108, 110A, 110B, 110C, 112, 113, 114, 116; Music 15, 136A, 136B, 136C, 158 (except music and ethnomusicology majors), Musicology 2A, 2B, 13, 122, 130, 133, 134, 135A, 135B, 135C, 139, 156, 189 (except music and ethnomusicology majors), Theater 101A, 101B, 101C, 102A through 102E, M103A through 103F, 104A, 104B, 104C, 105, 106, 107, 111A, 111B, 111C, World Arts and Cultures 128, 132A, C133, 134, 144, 181A through 181D, 182, 183, CM184, C187 (except world arts and cultures majors).

Group B — Culture and Civilization — Bulgarian 99, Chicana and Chicano Studies 10A, Chinese 50, Classics 10, 20, Folklore and Mythology 15, German 100A, 100B, 100C, Italian 42A, 42B, Japanese 50, Jewish Studies 10, Korean 50, Portuguese M42, M44, Romanian 99, Russian 99A, 99B, Slavic 99, Spanish M42, M44.

Group C — Literature — Classics 40, 41, English 10A, 10B, 10C, 70, 75, 80, 85, 90, 95A, 95B, 95C, 96, French 12, German 50A, 50B, Humanities 1A, 1B, 1C, 1D, 2A, 2B, 2C, Italian 50A, 50B, Portuguese 40A, 40B, Russian 25, Scandinavian 50, Spanish 60A, 60B, 60C, 61A, 61B, 61C, and selected upper division courses in English and in other language and literature departments. Humanities 2A, 2B, or 2C may not be applied toward the critical reading and writing requirement if taken to meet this requirement.

Group D — Philosophy/Religion — Ancient Near East 130, Anthropology 156, Chinese 160, 175, Classics 88A, M145A, M145B, 166A, 166B, East Asian Languages and Cultures 60, Indic 175, Iranian 170, Islamics 110, Japanese 160, 161, 175, Jewish Studies 130, Korean 160, 175, Philosophy 1, 2, 4, 5A, 6, 7, 8, 9, 21, 22, 31, 32.

Additional Upper Division Nonmajor Requirements

In addition to the general education requirements, you 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, children's theater, creative dramatics, internships, production, workshop, and field studies courses. Consult your school counselor prior to enrolling.

Unit Requirements

You 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 you take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

You may petition to be reviewed for a double major on an individual basis. Contact the Student Services Office for an outline of criteria required.

Residence Requirements

You 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.

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) must be completed before upper division major work is undertaken.

You must complete your 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 your major department must be taken for a letter grade.

As changes in major requirements occur, you are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the departmental adviser,⁴ 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.

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. You are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; you are placed on probation if you fail to pass these units. You are subject to dismissal if you fail to pass at least 32 units in three consecutive regular terms in residence.

Honors

To receive **Dean's Honors** in the School of the Arts and Architecture, you 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 your transcript for the appropriate term. You are not eligible for Dean's Honors in any given term if you receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

Honors at graduation are awarded to students with superior grade-point averages. To be eligible, you must have completed 90 or more units for a letter grade at the University of California. The current levels of honors and the requirements for each level are *cum laude*, an overall average of 3.611; *magna cum laude*, 3.710; *summa cum laude*, 3.805. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in your graduating year determine your eligibility.

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, 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 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 University 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. The Graduate Affirmative Affairs Office provides counseling, academic support, and financial assistance to ethnic minority students.

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 your 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 in the program office and accessible on the Graduate Division Gopher via the Internet.

School of Dentistry

Jay A. Gershen, Acting Dean

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 the dental student for a professional career 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 postdoctoral 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 postdoctoral 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

Surgery (D.D.S.)

Oral Biology (M.S.)

Pre dental Program

For details on the three-year pre dental 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 the *Announcement of the UCLA School of Dentistry*, available from the Office of Student Affairs and Admissions, School of Dentistry, A3-042 Dentistry, UCLA, Los Angeles, CA 90095-1762.

Postdoctoral Programs

The School of Dentistry offers the following opportunities for postdoctoral 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 periodontics and combined orthodontic/pediatric dentistry program; two-year programs in the specialties of pediatric dentistry, prosthodontics, endodontics, and orofacial pain and dysfunction; and a 27-month program in orthodontics.

Information on these postdoctoral programs can be obtained by writing directly to Postdoctoral Programs, School of Dentistry, A3-042 Dentistry, UCLA, Los Angeles, CA 90095-1762.

Graduate School of Education and Information Studies

Theodore R. Mitchell, Dean

The UCLA Graduate School of Education and Information Studies (GSEIS) includes two departments — the Department of Education and the Department of Library and Information Science. Together, the two departments embody the school's commitment to understand and improve 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 Graduate School of Education and Information Studies (GSEIS) 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, 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 Library and Information Science.

Degrees Offered

Education (M.A., M.Ed., Ed.D., Ph.D.)

Library and Information Science (M.S.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

For 50 years, the UCLA School of Engineering and Applied Science has enjoyed a respected reputation for technological innovation and pursuit of fundamental scientific knowledge. The school has always attracted top faculty, celebrated for distinguished teaching and research, to train and mentor students. The school has strong programs in traditional disciplines, including computer science, electrical engineering, manufacturing, and mechanical engineering, and growing programs exist in evolving fields such as optoelectronics, microsensors, industrial ecology, environmental cleanup and pollution prevention, wireless communications, composites, and new materials development.

As the twenty-first century approaches, 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. If you can commit to a high standard of achievement, we invite you 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.)
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., Engineer)
Engineering and Applied Science (Graduate Certificate of Specialization)
Manufacturing Engineering (M.S.)
Materials Engineering (B.S.)
Materials Science and Engineering (M.S., Ph.D.)
Mechanical Engineering (B.S., M.S., Ph.D.)
Nuclear Engineering (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. You 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; ask the testing agencies to send your results directly to the UCLA Undergraduate Admissions Office.

Applicants are encouraged to apply either at 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 prerequisites 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 ½ 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 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

You 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 1995 fulfills requirements in the School of Engineering and Applied Science as follows:

AP Test	Credit Allowed on School Requirements
Art History	8 lower division units toward humanities
Biology	Biology 2 (4 units) plus 4 lower division units free electives
Chemistry	8 lower division units toward general chemistry
Computer Science (A Test)	2 unassigned lower division computer science units
Computer Science (AB Test)	Computer Science 10C or 11 (4 units)
Note: Four units maximum for both computer science tests.	
Economics, Macroeconomics	Score 3 — 4 lower division units free electives Score 4 or 5 — Economics 2 (4 units)
Economics, Microeconomics	Score 3 — 4 lower division units free electives Score 4 or 5 — Economics 1 (4 units)
English, Composition and Literature	Score 3 — 8 lower division units (4 units humanities, 4 units free electives), Subject A Score 4 — English 3 (4 units), 4 units humanities, Subject A Score 5 — English 3 (4 units), English 4 (4 units), Subject A
English, Language and Composition	Score 3 — 8 lower division units free electives, Subject A Score 4 — English 3 (4 units), 4 lower division units free electives, Subject A Score 5 — English 3 (4 units), English 4 (4 units), Subject A
Note: Eight units maximum for Composition and Literature <i>and</i> for Language and Composition.	
Government and Politics, U.S.	4 lower division units toward social sciences
Government and Politics, Comparative	Political Science 50 (4 units toward social sciences)
History, U.S.	Score 3 — 8 lower division units toward social sciences Score 4 or 5 — History 7A-7B (8 lower division units toward social sciences)
History, European	History 1C (4 units) plus European history (4 lower division units toward social sciences)
French Language,	Score 3 — French 4 (8 units free electives) Score 4 — French 5 (8 units free electives) Score 5 — French 6 (8 units free electives)
Language, German	Score 3 — German 3 (8 units free electives) Score 4 — German 4 (8 units free electives) Score 5 — German 5 (8 units free electives)
Language, Latin (Vergil or Catullus/Horace)	4 units toward humanities
Mathematics (AB Test)	Score 3, 4, or 5 — Mathematics 31A (4 units)
Mathematics (BC Test)	Score 3, 4, or 5 — Mathematics 31A, 31B (8 units)
Note: Students who take both Mathematics examinations receive a maximum of eight units credit. Students who pass the Mathematics AB examination with a score of 3 may still take Mathematics 31A for credit. Students who pass the Mathematics BC examination with a score of 3 may still take Mathematics 31A, 31B, for credit.	
Music Literature	8 units toward fine arts
Music Theory	8 lower division units free electives
Note: 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.	
Physics (B Test)	Physics General B — 8 lower division units toward physical sciences (free elective units only)
Physics (C — Mechanics)	Physics General C — 4 lower division units (credit determined on an individual basis)

Physics (C — Electricity and Magnetism) Physics General C — 4 lower division units (credit determined on an individual basis)

Note: If students have credit for Physics B and C — Mechanics or Physics B and C — Electricity and Magnetism or 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.

Spanish, Language or Literature Score 3 — Spanish 4 (8 units free electives)
Score 4 or 5 — Spanish 5 (8 units free electives)

Some portions of Advanced Placement Test credit are evaluated by corresponding UCLA course number. If you take the equivalent UCLA course, a deduction of UCLA unit credit is made prior to graduation.

If you have completed 36 quarter units at the time of the examination, you will receive no Advanced Placement Test credit.

Admission as a Junior

Applicants for admission to the school in junior standing should have completed 21 to 23 courses (84 to 92 quarter units) in good standing, including the following minimum subject requirements:

(1) Two and one-half courses in chemistry, equivalent to UCLA's Chemistry and Biochemistry 11A, 11B/11BL (only Chemistry and Biochemistry 11A 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 11C/11CL, 132A, 132B/132BL, which do not need to be taken prior to admission to UCLA); (2) six courses in mathematics, equivalent to UCLA's Mathematics 31A, 31B, 32A, 32B, 33A, 33B; (3) four courses in physics, equivalent to UCLA's Physics 8A, 8B, 8C, 8D (Physics 8D/8DL are not required for the civil engineering, computer science, or computer science and engineering degree), and physics laboratory courses (8AL, 8BL, 8CL, 8DL), depending on curriculum selected.

It is strongly recommended that transfer students complete a course equivalent to UCLA's English 3 in addition to the minimum admissions requirements.

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.

Students who have been admitted to senior standing in the school on the basis of credit from another institution, from UCLA Extension, or from another college or school of the University must complete, after admission, eight upper division courses which satisfy part of their approved major field sequence.

Requirements for Bachelor of Science Degrees

The requirements for the Bachelor of Science 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. You must also satisfy the curricular requirements for the curriculum you 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 you 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 Residence 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.

Study Lists and Credit Limitations

Study Lists require approval of the dean of the school or a designated representative. It is your responsibility to present Study Lists which reflect satisfactory progress toward the Bachelor of Science degree, according to standards set by the faculty; academic counselors in the Office of Academic and Student Affairs are available to help you. 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. You are expected to enroll in at least 12 units each term. If you enroll in less than 12 units, you must obtain approval by petition to the dean prior to enrollment in courses. The normal program is 16 units per term. You may not enroll in more than 18 units per term unless an Excess Unit Petition is approved in advance by the dean.

You must attain a minimum grade of C to satisfy the English 3 requirement, which must be met before you have completed 90 quarter units (a grade of C - does not satisfy this requirement).

After 213 quarter units, enrollment may not normally be continued in the school. You may petition the dean for special permission to continue work required to complete the degree. This regulation does not apply to Departmental Scholars.

After you have completed 105 quarter units (regardless of where these units have been completed), you will 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, or C, satisfies the computer programming requirement. 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.

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) Three to 10 engineering core courses (12 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 3, which must be completed with a minimum grade of C within your 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. 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.

(5) Free elective courses (four to eight units) may be selected in some programs (see curriculum requirements in individual departments). The free electives may be selected from any courses yielding credit acceptable to the University of California except CLEP and certain remedial courses. However, in programs which include free elective units, it is strongly recommended that you select additional technical courses for some of these units.

(6) The engineering design content of your program must total at least one half-year of design experience.

(7) The engineering science content of your program must include a minimum of one year of engineering science units.

Lists of courses approved to satisfy specific curricular requirements, as well as specifying design and engineering science credit in engineering courses, 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.

Advising and Program Planning

As a new undergraduate, you must have your course of study approved by an academic counselor. After the first term, curricular and career advising is accomplished on a formal basis. You are assigned a faculty adviser in your particular specialization in your sophomore year or earlier.

In addition you are assigned, by major, to an academic counselor in the Office of Academic and Student Affairs who provides you with advice regarding general requirements for the degrees and University and school regulations and procedures. It is your responsibility to periodically meet with your academic counselor in the Office of Academic and Student Affairs, as well as with your faculty adviser, to discuss curriculum requirements, programs of study, and any other academic matters of concern.

You normally follow the curriculum in effect when you 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 you with University procedures and to answer any questions you may have in regard to general requirements. Pay them a visit.

Passed/Not Passed Grading

You may take one course per term on a Passed/ Not Passed basis if you 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 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.

Preparation for the Majors

The following lower division courses or their equivalents are required preparation for engineering majors:

Mathematics

Analytic geometry and calculus, 8 units; calculus of several variables, 8 units; matrices and differential equations, 4 units; infinite series, 4 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 16 quarter units minimum).

UCLA equivalent courses: Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, depending on curriculum selected. Physics 8D/8DL are not required for the civil engineering, computer science, or computer science and engineering degree.

Chemistry

Two quarters or two semesters of general chemistry with laboratory (total of 10 quarter units minimum).

UCLA equivalent courses: Chemistry and Biochemistry 11A, 11B/11BL. Only Chemistry and Biochemistry 11A is required for the computer science and engineering degree; chemistry is not required for the computer science degree. The chemical engineering curriculum also requires Chemistry and Biochemistry 11C/11CL, 132A, 132B/132BL.

Engineering

Digital computer programming, using a higher-level language such as FORTRAN, PASCAL, or C (4 units); other courses: statics, dynamics, graphics and descriptive geometry, surveying, circuit analysis, properties of materials, strength of materials, additional chemistry, additional computer science (total of 24 quarter units minimum).

UCLA equivalent courses: Computer Science 11; Civil and Environmental Engineering 15A and 15B; Electrical Engineering 5C; Mechanical, Aerospace, and Nuclear 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 (4 units), English composition (4 units), humanities/social sciences (total of 16 quarter units minimum).

UCLA equivalent courses: SEAS general education (GE) courses.

Honors

Departmental Scholars

If you are an exceptionally promising junior or senior, you may be nominated as a Departmental Scholar 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 16 units (12 units of letter grade) with a grade-point average equal to or greater than 3.7.

Honors at Graduation

Students who have achieved scholastic distinction may be awarded the bachelor's degree with honors. To be eligible, you 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 you in the top five percent of the school (GPA of 3.801 or better) for *summa cum laude*, the next five percent (GPA of 3.704 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.540 or better) for *cum laude*.

Based on grades achieved in upper division courses, engineering students must have a 3.801 grade-point average for *summa cum laude*, a 3.704 for *magna cum laude*, and a 3.540 for *cum laude*. For all designations of honors, you must have a minimum 3.25 grade-point average in your major field courses. To be eligible for an award, you 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 13 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 (515 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 sciences, 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 you arrive at UCLA, the adviser will help you plan a program which will 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 you are interested, School of Engineering and Applied Science, UCLA, Los Angeles, CA 90095.

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 152A, 152B, 168L, 171L, 199, Electrical Engineering 100, 101, 102, 103, 110L, 199, Materials Science and Engineering 199, Mechanical, Aerospace, and Nuclear 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 your 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, Aerospace, and Nuclear 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. You are free to propose to the school any other field of study, with the support of your 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 your 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 you have done, usually but not necessarily under the supervision of the thesis committee, or else provide a critical exposition of some topic in your major field of study. You 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. Your comprehensive examining committee may conduct an oral query after review of the written examination. In case of failure, you may be reexamined once with the consent of your departmental graduate adviser.

Cooperative Degree Programs

The School of Engineering and Applied Science has established two joint degree programs with other schools and departments on campus which allow you to earn two master's degrees simultaneously: the M.B.A./M.S.-Computer Science and the M.A.-Latin American Studies/M.S.-Engineering. 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 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, 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

Chemical Engineering Department — Chemical engineering.

Civil and Environmental Engineering Department — Environmental engineering, geotechnical engineering, structures (structural mechanics and earthquake engineering), water resources engineering.

Computer Science Department — Artificial intelligence, computer network modeling and analysis, computer science theory, computer system architecture, programming languages and systems (software systems), scientific computing (biomedical systems, physical systems).

Electrical Engineering Department — Applied mathematics (established minor field only), applied plasma physics and fusion engineering, communications and telecommunications engineering, control systems, electromagnetics, integrated circuits and systems, operations research, quantum electronics, signal processing, solid-state electronics.

Materials Science and Engineering Department — Ceramics and ceramics processing, materials science, mechanical metallurgy, metallography and metals processing.

Mechanical, Aerospace, and Nuclear Engineering Department — Applied dynamic systems control, applied mathematics (established minor field only), applied plasma physics and fusion engineering, dynamics, fluid mechanics, heat and mass transfer, nuclear science and engineering, structural and solid mechanics.

Schoolwide Fields and Programs — For information regarding biocybernetics and man/machine/environment systems, contact the Office of Academic and Student Affairs, School of Engineering and Applied Science, 6426 Boelter Hall, UCLA, Los Angeles, CA 90095-1601, (310) 825-1704.

You may propose to the school any other field of study with the support of your 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

Susan Westerberg Prager, Dean

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 the faculty which 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 will ultimately face them as lawyers and policy-makers.

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 which 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.)

Juris Doctor Degree

Admission

Students beginning their professional work are admitted only for the Fall Semester. You must have received a bachelor's degree from a university or college of approved standing before beginning work in the school. You are also required to take the Law School Admission Test (LSAT). The admissions committee considers grades and test scores and, in appropriate cases, such additional factors as ability in languages other than English, work experience or career achievement, previous positions of leadership or other special achievements, ethnic background, prior community or public service, unusual life experiences, overcoming a physical disability or other disadvantage, career goals, economic disadvantages, and any other characteristic which may indicate that you will contribute to the educational and other benefits of a diversified student body.

For detailed information about the academic programs offered by the School of Law, the fees, and the semester-system calendar by which it operates, obtain the *Announcement of the UCLA School of Law* by contacting the Law Admissions Office, School of Law, 71 Dodd Hall, UCLA, Los Angeles, CA 90095-1445.

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 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. In conjunction with these courses students also receive training in the use of legal bibliography and in effective legal writing and oral advocacy.

In the second and third years students have an opportunity to engage in a number of different fields of law and law-related study.

Concurrent Degree Programs

The School of Law offers three concurrent degree programs which allow you to fulfill the requirements of the J.D. and another graduate degree simultaneously.

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.

M.A. Urban Planning/J.D.

The School of Law and the Department of Urban Planning 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.

Students interested in the program must apply and be admitted to the School of Law, the Urban Planning Department, and the Graduate Division.

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 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. Students interested in such a program should apply to both schools simultaneously.

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 Rita Saavedra, LL.M. Program, School of Law, 1242 Law, UCLA, Los Angeles, CA 90095-1476, for further information.

Clinical Programs

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 prior to entry into the legal profession. Through simulated and actual client contact, students learn skills such as how to interview and counsel clients in litigation and nonlitigation matters, draft legal documents, examine and cross-examine witnesses, resolve legal disputes, and argue to a judge or jury. In the recently established Frank G. Wells Environmental Law Clinic, students derive hands-on experience working on a mixture of 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 community outreach law, 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 people about Proposition 187, the California law now being challenged in federal court which eliminated government benefits for illegal immigrants. Other innovative programs include a mediation clinic working with cases in the municipal courts 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 at the school's Clinic Law Office or, for some courses, in public interest law settings.

The clinical wing includes a two-story Law Office designed with modern lawyering technology in mind: the student work rooms are equipped with computers that operate on a network, access legal research databases, and use electronic mail.

The School of Law was a pioneer of clinical legal education, and the program continues on the cutting edge of new methods for training lawyers. The program has received the Emil Gumpert Award for Excellence in the Teaching of Trial Advocacy, and clinical faculty members have authored numerous influential texts and articles that are used in clinical courses 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 practitioners and judges, students perform legal work in

government law offices, public interest law firms, nonprofit agencies, and the chambers of state and federal judges.

In the semester-long program, students develop their legal skills outside the classroom context, gain practical experience in supervised settings, and acquire perspectives about the lawyering process or the judicial decision-making process. Students regularly report that the program is an excellent educational experience.

College of Letters and Science

Brian P. Copenhaver, Provost

"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 23,425 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 100 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 will 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 sciences, 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 Counseling Service, Honors Programs, and Academic Advancement Program.

Humanities

The division's mission 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 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

The division's departments 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

The division's departments 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 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 Sciences (B.S., M.S., C.Phil., Ph.D.)
 Biochemistry (B.S., M.S., C.Phil., Ph.D.)
 Biology (B.S., M.A., C.Phil., Ph.D.)
 Business Economics (B.A.)
 Cell and Molecular Biology (B.S.)
 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 (M.A., C.Phil., Ph.D.)
 Cybernetics (B.S.)
 Development Studies (B.A.)
 Earth Sciences (B.A.)
 East Asian Languages and Cultures (M.A., C.Phil., Ph.D.)
 East Asian Studies (B.A.)
 Economics (B.A., M.A., C.Phil., Ph.D.)
 Economics/International Area Studies (B.A.)
 Economics/System Science (B.S.)
 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.)
 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.)
 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.)
 Mathematics (B.S., M.A., M.A.T., C.Phil., Ph.D.)
 Mathematics/Applied Science (B.S.)
 Mathematics of Computation (B.S.)
 Microbiology and Molecular Genetics (B.S., M.A., Ph.D.)
 Molecular Biology (Ph.D.)
 Musicology (B.A., 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.)
 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.)
 Teaching English as a Second Language (M.A.)
 Women's Studies (B.A.)

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, you are required to select lower division courses that deal with the general foundations of human knowledge. In upper division courses you are relatively free to concentrate attention on one field of interest: your major.

You are expected to select a major by the beginning of your 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 your special need (individual major). Preparation for a major often requires prior completion of courses known as "requisites."

Counseling Services

The College Counseling Service is located in A316 Murphy Hall. Staff members are specially trained to assist you with questions pertaining to academic regulations and procedures, selection of courses, and the many options and alternatives available to enhance your university education.

Some questions can be answered at the college information window or by calling (310) 825-1965. If you would like to confer with a counselor or counseling assistant (CA) regarding overall degree requirements, academic difficulty, program planning, or assistance in selecting a major, you can arrange an appointment at the information window. Group counseling sessions on a variety of academic issues are offered throughout the year.

For information on the ASK peer counselors, Orientation, and College Tutorial Services, see the Undergraduate Study section of this catalog.

Your 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 you are ready to do so, obtain approval on a Petition for Declaration of Major from the department or interdepartmental degree committee which governs your intended major.

You can obtain help with your academic planning from a variety of resources, including the College Counseling Service in A316 Murphy Hall (310-825-1687 or 825-1965) and the Placement and Career Planning Center (310-825-2981). In addition, faculty members and counselors in each college department are available to discuss in detail the courses and programs in their respective fields.

Assessing Progress Toward Your Degree

One of your responsibilities as a UCLA student includes a regular monitoring of all requirements necessary for the degree. It is imperative that you read this catalog carefully and consult regularly with the Letters and Science counseling staff for confirmation of the requirements you need. Departmental counselors can advise you regarding progress and completion of your major requirements. It is important that you maintain an accurate assessment of progress toward your degree by utilizing departmental and College Counseling Service resources. To assist you in your 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 will 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 will be placed on probation, and students who do not pass at least 32 units during three consecutive terms will be 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. If you have been away from the University for several terms, you should consult with your major department or curriculum adviser concerning the requirements under which you will 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 88 departmental majors currently offered by the college.

Interdepartmental Majors

An interdepartmental major consists of at least 13 related upper division courses, of which 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 25 interdepartmental majors. Although most lead to bachelor's degrees, there are some which lead to graduate degrees only. Check the list of majors and degrees for the programs which interest you.

African Area Studies
 Afro-American Studies
 American Indian Studies
 Applied Linguistics
 Archaeology
 Asian American Studies
 Chemistry/Materials Science
 Communication Studies
 Comparative Literature
 Cybernetics
 Development Studies
 East Asian Studies
 Economics/System Science
 European Studies
 Folklore and Mythology
 History/Art History
 Indo-European Studies
 Islamic Studies
 Latin American Studies
 Molecular Biology
 Near Eastern Studies
 Neuroscience
 Religion, Study of
 Romance Linguistics and Literature
 Women's Studies

You can find a detailed description of each of these majors under their respective heading in the Curricula and Courses section of this catalog.

Individual Majors

If you have some unusual but definite academic interest for which no suitable major is offered at the University and you have completed at least three terms of work (nine courses) at the University with a grade-point average of 3.4 or better, you 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. The title of the major will be entered in the memoranda column of your official transcript and, at your request, printed on your diploma (up to a maximum of 70 characters). If you do not elect to have the title printed or if it is longer than 70 characters, your diploma will read "Individual Field of Concentration." For further details about individual majors, contact the Honors Programs Office in A311 Murphy Hall (310-825-1553).

Life Sciences Core Curriculum

Students who wish to study life sciences have a choice of six majors, all of which lead to a Bachelor of Science degree: biology, cell and molecular biology, microbiology and molecular genetics, neuroscience, physiological science, and psychobiology. 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. For additional information on the life sciences core curriculum, see the website <http://www.lifesci.ucla.edu/score>.

If you are considering one of the life sciences majors, you are encouraged to declare a major as early as possible, even in your first year. In this way, you are identified by the life sciences advising offices and receive important curricular and other information. Because the core curriculum prepares you for any of the six majors, you have the flexibility to switch to another life sciences major at any time during your progression through the core curriculum. Note: The 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.

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL.

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. If you receive a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, you 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 for majors equivalent to Life Sciences 1, 2, and 3; 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.

Returning Students and Their Majors

If you return to the University to resume your studies after an absence of several years, you may find your previous major area of study no longer available. You then must select a current major in which to complete your studies. Consult the College Counseling Service for assistance.

Minors

The college is planning to offer minors in the 1995-96 academic year. For information about minors, contact your academic counselor.

Supplemental Programs

You may choose from 12 different programs which are not degree-granting majors, but are sequences of supplemental courses designed to enhance your work in certain areas. Each of these specializations must be taken jointly with an organized departmental or interdepartmental major:

- African Studies
- Asian American Studies
- Business and Administration
- Chicana and Chicano Studies
- Computing, Specialization in (anthropology, cybernetics, economics, geography, linguistics, mathematics, psychology, sociology)
- Diversified Liberal Arts
- Education
- International Relations
- Labor and Workplace Studies
- Organizational Studies
- Urban Studies
- Women's Studies

Detailed descriptions of the programs (except specialization in computing) are given under their respective headings in the Curricula and Courses section of this catalog. For descriptions of the specialization in computing, refer to the majors listed in parentheses above.

Student Research Program

For information on the Student Research Program (SRP), see *Alternative Academics* in the Undergraduate Study section of this catalog.

Double Majors

If you are in good academic standing, you 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 you must obtain the approval of both departments.

With few exceptions, double majors in the same department are unacceptable. You 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 Your Major

If you are in good academic standing and wish to change your major, you may petition to do so provided you 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 you are on probation or have begun your last term.

If you fail to attain a grade-point average of 2.0 (C) in preparation for the major or major courses, you 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.

The 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. Three courses are often recommended for students in the first term of the freshman year. All other students may carry four and one-half courses (18 units) without petition. After the first term, you may petition to enroll in as many as five courses if you attained at least a B average the preceding term in a pro-

gram 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 department and major of your choice.

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 Course Requirements

Department Requirements

- (1) Preparation for the Major
- (2) Major Requirements

Electives

The remaining units, defined as electives, are courses which vary according to your interests and goals. When selecting your courses, keep the following degree criteria in mind:

Scholarship

You 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 your 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 72 units (18 courses) must be upper division (numbered 100-199).

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 course requirements.

Unit Requirements

You must satisfactorily complete for credit a minimum of **180 units** (45 courses) for the bachelor's degree. At least **72 units** (18 courses) of the 180 units must be **upper division (numbered 100-199)**. A maximum of

216 (228 for double majors and special programs) units is allowed. If you have advanced placement (transfer) credit, you may exceed the unit maximum by the amount of that credit.

Scholarship and Major Requirements

You 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. You 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 you 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.

English Composition Requirement

Note: You must complete the University's Subject A or English as a Second Language (ESL) requirement prior to completing the college's English Composition requirement.

You may satisfy the English Composition requirement by taking one course from English 3, 4, Humanities 2A, 2B, 2C, 2D. The course must be taken for a letter grade, and you must receive at least a C; a grade of C- is not acceptable. Humanities 2A, 2B, 2C, or 2D may be applied toward the humanities general education requirements; English 3 or 4 may not be applied.

The composition requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English or by passing the English 3 Proficiency Examination. Students scoring 660 or better on the SAT II Subject Test in Writing are eligible for this proficiency examination.

You must satisfy the composition requirement within your first three terms in residence.

Transfer Students. You may take the English 3 Proficiency Examination (1) if you have completed a transferable English composition course with a Passed grade rather than a letter grade or (2) if you have completed, with a grade of C or better, a college-level English composition course that the Office of Undergraduate Admissions and Relations with Schools does not accept as equivalent to English 3. Like eligible freshmen, you must register for the examination in the Writing Programs Office, 271 Kinsey Hall, before the first day of enrollment for the term.

If you have credit for 90 or more units and have not satisfied the requirement, you are expected to include an acceptable composition course on your Study List during your first term in residence in the college. If you are required to take English 2 to satisfy the Subject A requirement, you should, on completion of that requirement, take an acceptable composition course in your second term in residence.

English as a Second Language (ESL) Students. If your native language is not English, you 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 you 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. SAT I and II scores have been converted to a new scale effective April 1995.

Quantitative Reasoning. May be satisfied by achieving an SAT I mathematics score of 600 or better, a mathematics subject test score of 550 or better, or by completing one of the following courses: Anthropology 80; Biostatistics 100A, 100B, 100C, 100D; Computer Science 10C, 10F; Economics 40; Geography 40; Mathematics 1 (recommended only for students continuing into calculus), 2, or any higher numbered course except 38A, 38B, and 104; Philosophy 31; Political Science 6; Program in Computing 10A, 10B, 10C; Sociology 18, 109A; Statistics 50.

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 level three (consult the *Schedule of Classes* for times and places of these regularly scheduled examinations).

If you wish to demonstrate proficiency in a language which is taught in a UCLA department but for which there is no scheduled examination, contact the appropriate department to arrange for one. If you wish to take an examination in a language not taught at UCLA, contact the College Counseling Service.

The following language courses may be used to fulfill the foreign language requirement:

African Languages (Linguistics) 1A-1B-1C (Swahili); 7A-7B-7C (Zulu); 11A-11B-11C (Yoruba); 31A-31B-31C (Bambara); 41A-41B-41C (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 130A-130B and 131A

Berber (Near Eastern Languages) 101A-101B-101C

Bulgarian (Slavic Languages) 103A-103B-103C

Chinese (East Asian Languages) 1, 2, 3

Czech (Slavic Languages) 102A-102B-102C

Dutch (Germanic Languages) 103A-103B, 103C

French 1, 2, 3

German (Germanic Languages) 1, 2, 3

Greek (Classics) 1, 2, 3

Hebrew (Near Eastern Languages) 1A-1B-1C or 10A-10B-10C

Hungarian (Germanic Languages) 101A, 101B, 101C

Indigenous Languages of the Americas (Linguistics) 18A-18B-18C (Quechua)

Iranian (Near Eastern Languages) 1A-1B-1C (Persian)

Italian 1, 2, 3

Japanese (East Asian Languages) 1, 2, 3

Korean (East Asian Languages) 1, 2, 3

Latin (Classics) 1, 2, and 3, or 16 (Summer Sessions course)

Lithuanian (Slavic Languages) 101A-101B-101C

Polish (Slavic Languages) 102A-102B-102C

Portuguese (Spanish and Portuguese) 1, 2, 3

Romanian (Slavic Languages) 101A-101B-101C

Russian (Slavic Languages) 1, 2, and 3, or 11A-13B (two units each)

Scandinavian 1, 2, 3 (Swedish); 11, 12, 13 (Norwegian); 21, 22, 23 (Danish)

Semitics (Near Eastern Languages) 140A-140B, 141 (Akkadian)

Serbo-Croatian (Slavic Languages) 103A-103B-103C

Spanish (Spanish and Portuguese) 1, 2, 3

Turkic Languages (Near Eastern Languages) 101A-101B-101C (Turkish); 111A-111B-111C (Uzbek)

Ukrainian (Slavic Languages) 101A-101B-101C

Yiddish (Germanic Languages) 101A, 101B, 101C

General Education (GE) Course 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 — you are encouraged to explore the different possibilities for further university study. Whether or not you have a specific educational goal, general education requirements are designed to broaden your intellectual perspective and to set you on the path to becoming an educated member of society.

The set of GE course requirements you will follow are specified on the list labeled Courses to Fulfill GE Requirements. You 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 1995 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.

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 Courses to Fulfill GE Requirements list. You 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 Seminars and Special Programs for Undergraduates.

Advanced Placement Credit. For application of advanced placement (AP) credit on the general education requirements, see the Advanced Placement chart or consult the College Counseling Service.

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 Letters and Science counselor regarding your 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 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. Although general education or

transfer core courses are graduation requirements rather than admission requirements, you 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 you complete it. If you select the IGETC, you must complete it entirely before enrolling at UCLA. Otherwise, you 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
- English
- English/Greek
- English/Latin
- French
- German
- Greek
- Greek and Latin
- Hebrew
- Italian (including Italian and Special Fields)
- Japanese
- 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 (including all Linguistics and special fields majors)
- Spanish and Linguistics

A4: Culture and Civilization

- Ancient Near Eastern Civilizations
- Classical Civilization
- Iranian Studies
- Jewish Studies
- Near Eastern Studies
- Religion, Study of
- Russian Studies

A5: The Arts

- Art History
- Musicology

(B) Physical Sciences

- Applied Mathematics
- Astrophysics
- Atmospheric Sciences

- Biochemistry
- Chemistry
- Chemistry/Materials Science
- Cybernetics
- Earth Sciences
- Economics/System Science
- General Chemistry
- General Mathematics
- General Physics
- Geology (including all specialization options)
- Geophysics (including all specialization options)
- Mathematics
- Mathematics/Applied Science
- 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
- Development Studies
- East Asian Studies
- Economics (including all specialization options except Economics/System Science)
- European Studies
- Geography
- Geography/Environmental Studies
- Latin American Studies
- Political Science
- Sociology
- Women's Studies

(D) Life Sciences

- Biology
- Cell and Molecular Biology
- Cognitive Science
- Microbiology and Molecular Genetics
- Neuroscience
- Physiological Science
- Psychobiology
- Psychology

Courses to Fulfill GE Requirements

Courses with an asterisk indicate cross-listed courses which can fulfill GE requirements in only one group.

See Quantitative Reasoning and Foreign Language Requirements sections for courses to fulfill those requirements.

All honors sections of courses listed below also fulfill GE requirements. Inquire at the Honors Programs Office (A311 Murphy Hall) for information on courses which satisfy any of the areas of the general education requirements

(A) Humanities

Four courses, with at least one from Group A1 and no more than two courses from any single subgroup:

(1) Literature**Classics**

- 40. Survey of Greek Literature in Translation
- 41. Survey of Latin Literature in Translation

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
- 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)
- 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
- 101A. Introduction to German Poetry (in German)
- 101B. Introduction to German Drama (in German)
- 101C. Introduction to German Narrative Prose (in German)

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

Italian

- 50A. Masterpieces of Italian Literature: From Its Origins to End of the Renaissance
- 50B. Masterpieces of Italian Literature: From the Baroque Period to the Present

Portuguese (Spanish and Portuguese)

- 40A, 40B. Portuguese, Brazilian, and African Literature in Translation
- 46. Brazilian Culture and Civilization
- 120A, 120B. Survey of Portuguese Literature (in Portuguese)
- 130A, 130B. Survey of Brazilian Literature (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)

(2) Philosophy**Philosophy**

- 1. Beginnings of Western Philosophy
- 2. Introduction to Philosophy of Religion
- 4. Philosophical Analysis of Contemporary Moral Issues

- 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

(3) Language and Linguistics**Linguistics**

- 1. Introduction to Study of Language
- 2. Language in the U.S.
- 10. Structure of English Words
- 20. Introduction to Linguistics

Language

Formal University foreign language instruction at level four or higher; no more than one course at level four or higher may be used

Spanish and Portuguese

- M35. Spanish, Portuguese, and Nature of Language

(4) Culture and Civilization**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

East Asian Languages and Cultures

- 60. Introduction to Buddhism

Folklore and Mythology

- 15. Introduction to American Folklore Studies

French

- 14. Introduction to French Civilization

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

Italian

- 42A. Italian Civilization or Italy through the Ages: From Origins through the Renaissance
- 42B. Italian Civilization or Italy through the Ages: From the Enlightenment to Modern Italy
- 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

Russian (Slavic Languages)

- 99A. Introduction to Russian Civilization
99B. Russian Civilization in the 20th Century

Slavic (Slavic Languages)

99. Introduction to Slavic Civilization

Spanish and Portuguese

- M42. Civilization of Spain and Portugal
M44. Civilization of Spanish America and Brazil

(5) The Arts**Art History**

50. Ancient Art
51. Medieval Art
54. Modern Art
55A. Africa, Oceania, and Native America
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

Classics

42. Cinema and the Ancient World

Design

10. Nature of Design

Ethnomusicology and Systematic Musicology

- 20A, 20B, 20C. Musical Cultures of the World
M108A, 108B. Music of Latin America
M110A, M110B. The 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

Music

15. Art of Listening

Musicology

- 2A, 2B. Introduction to the Literature of 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
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

Chemical Engineering

2. Technology and the Environment

Chemistry and Biochemistry

2. Introductory Chemistry

- 11A, 11B. General Chemistry

- 11BL. General Chemistry Laboratory

15. Survey of Organic Chemistry and Biochemistry

- 15L. Laboratory in Elementary Organic Chemistry and Biochemistry

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. Earth Science and Society: Geological Ecological Interactions

8. Earthquakes

9. Origin and Evolution of Solar System

- *15. Introduction to Oceanography

- *20. Natural History of Southern California

Geography

1. Physical Environment

Mathematics

2. Finite Mathematics

- 3A, 3B. Calculus for Life Sciences Students

5. Calculus for Liberal Arts Students

- 31A, 31B. Calculus and Analytic Geometry

- 31AQ, 31BQ. Calculus and Analytic Geometry with Computer Laboratory

- 31E. Calculus for Economics Students

Mechanical, Aerospace, and Nuclear Engineering

1. Energy: Resources, Conversion, Utilization, and the Environment

2. Toxic Waste Control

Physics

- 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: Mechanics

- 6B. Physics for Life Sciences Majors: Electricity and Magnetism

- 6C. Physics for Life Sciences Majors: Light and Modern Physics

- 8A. Physics for Scientists and Engineers: Mechanics

- 8B. Physics for Scientists and Engineers: Waves, Sound, Heat

- 8C. Physics for Scientists and Engineers: Electricity and Magnetism

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 11A/11B, 11A/15; Earth and Space Sciences 1/2, 1/8, 1/9, 1/15, 1/Geography 1; Mathematics 3A/3B, 3A/31B, 3A/31E, 3B/31A, 31A/31B, 31A/31E; Mechanical, Aerospace, and Nuclear Engineering 1/2, 2/Chemistry and Biochemistry 2; Physics 3A/3B, 6A/6B, 6A/8B, 6A/8C, 6B/8A, 8A/8B, 8A/8C.

Courses with a laboratory and/or demonstration component include Astronomy 2A, 2B, 3, 81, 82, Atmospheric Sciences 2, 3, 3E, 6E, Chemistry and Biochemistry 11BL, 15L, Earth and Space Sciences 1, 2, 15, 20, Geography 1, Mathematics 31AQ, 31BQ, Mechanical, Aerospace, and Nuclear Engineering 1, 2, Physics 3A, 3B, 3C, 6A, 6B, 6C, 8A, 8B, 8C, 10.

(C) Social Sciences

Four courses (two each from Groups 1 and 2):

(1) 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
- 3A, 3B, 3C. Introduction to History of Science
- 3D. Themes in History of Medicine
- 4. Introduction to History of Religions
- 5A, 5B. Survey of British History
- 6A, 6B, 6C. History of the American Peoples
- 7A, 7B. Survey of Political History of the U.S.
- 8B. Latin America: Reform and Revolution
- 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
- 21. World History, 1200 to 1800
- 22. Contemporary World History, 1870 to the Present

Political Science

- 10. Introduction to Political Theory

(2) 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. Sociocultural Anthropology
- 33. Culture and Communication

Asian American Studies

- 21. Asians and Pacific Islanders in American Society

Biology

- *11. Biomedical Research Issues in Minority Communities

Chicana and Chicano Studies

- 10B. Chicanos in American Society

Communication Studies

- 10. Introduction to Communication Studies

Economics

- 1, 2. Principles of Economics
- 5. Introductory Economics

Geography

- 3. Cultural Geography
- 4. Introduction to Economic Geography

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

(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
- 15. Human Biology and Behavior

Biology

- 2. Principles of Modern Biology
- 5L. Organismic and Environmental Biology Laboratory
- 6. Ecology, Evolution, and Behavior
- 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
- 30. Biology of Cancer
- 40. AIDS and Other Sexually Transmitted Diseases
- 50. Desert Life
- 70. Genetic Engineering and Society
- 80. The Green World: Plant Biology for Now and the Future
- 88E. Lower Division Seminar: Genetics and Society — Current Status and Future Applications
- 88F. Lower Division Seminar: Science and Scientists — Expectations and Realities

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
- 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

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

Courses with a laboratory and/or demonstration component include Biology 2, 5L, 6, 10, 21, 50, 80, Earth and Space Sciences 15, 16, 17, 20, Geography 2, 5, Physiological Science 3, 5, 13.

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 will 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. Consult a counselor in the College Counseling Service if you have questions.

Subject A

If you do not satisfy the Subject A requirement prior to enrolling at UC, you must pass an approved course or other program prescribed by your UC campus of residence. Only after satisfying the Subject A requirement can you 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 (26¼ courses) toward the degree in all institutions attended, you 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 and Systematic Musicology 91A-91Z, Music 90A through 90N, and World Arts and Cultures 71B through 79Z, C171B through C179Z) may be applied toward the bachelor's degree whether taken at UCLA or another institution.

Foreign Language

Credit will not be allowed for completing a less advanced course in grammar and/or composition after you 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 you had less than 36 units of credit at the time of the examination(s). See the chart, "Credit for Advanced Placement Tests," 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 3A, 6A, 8A, 10

Any two or more courses from Physics 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 80, Economics 40, Geography 40, Political Science 6, Psychology 41, Sociology 18, Statistics 50) 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.

You may petition for credit by examination for one course at a time. The examination for that course must be taken successfully before you 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. Approval is given or withheld by the dean of the Division of Honors and Undergraduate Programs who may limit the number of such petitions you present.

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. With the assistance of Honors Programs counselors, you integrate this coursework throughout your undergraduate education with other University, college, and major requirements for the bachelor's degree.

Credit for Advanced Placement Tests

Advanced Placement Test	UCLA Course Equivalents	Credit Allowed on GE Requirements
Art History	8 units	No application for art
Art Studio: General Portfolio or Drawing Portfolio	8 units	No application for art
Biology	Biology 2 (4 units) plus 4 unassigned units	4 units toward life sciences requirement
Chemistry	8 units	No application for chemistry
Computer Science (A Test)	2 unassigned units	No application for computer science
Computer Science (AB Test)	2 unassigned units	Satisfies quantitative reasoning requirement
Note: Students who take both computer science tests receive a maximum of four units of credit.		
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
Economics, 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	Score 3 — 8 unassigned units	Score 3 — Satisfies Subject A requirement
Language and Composition or Literature and Composition	Score 4 — English 3 (8 units) Score 5 — English 3 and 4 (8 units)	Score 4 or 5 — Satisfies Subject A and English composition requirements
Note: Students who take both English tests receive a maximum of eight units of credit.		
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 — No application for German Score 4 or 5 — 4 units toward language and linguistics requirement
Government and Politics, U.S.	4 units	4 units toward social analysis requirement; satisfies American History and Institutions requirement
Government and Politics, Comparative	4 units	4 units toward social analysis requirement
History, U.S.	Score 3 — 8 units Score 4 or 5 — History 7A-7B (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
History, European	History 1C (4 units) plus 4 units	4 units toward historical analysis requirement
Latin (Vergil, Catullus/ Horace)	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
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
Note: Students who take both Mathematics tests receive a maximum of eight units of credit.		
Music Literature	8 units	No application for music
Music Theory	8 units	No application for music
Note: Students who take both Music tests receive a maximum of eight units of credit.		
Physics (B Test)	8 units	No application for physics
Physics (C Test)	8 units	No application for physics
Note: Students who take both Physics tests receive a maximum of eight units of credit.		
Psychology	4 unassigned units	No application for psychology
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

Note: All UCLA course equivalents consist of lower division advanced placement units. You may not repeat for units or grade points any AP Test credit that has been given UCLA course number equivalency (e.g., History 7A-7B.)

gree. In this way, these units need not be above and beyond your other academic commitments.

Students in the College Honors program are entitled to specialized counseling within the division, some preferential pre-enrollment 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 a filing and mailing service for letters of recommendation. 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 an SAT score of 1,300 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 or (3) qualify through the Honors Programs Educational Enhancement Program (see below). Certain entering transfer students may be admitted with a transfer GPA of 3.85 (or 3.5 if transferring from another UC campus or a college in the Transfer Alliance Program). 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, as are both regularly qualified and potentially successful underrepresented minority students.

The Educational Enhancement Program offers low-income, minority, disabled, and other nontraditional students who might not otherwise be able to participate an opportunity to qualify for UCLA's College Honors program. Contact the Honors Programs Office for more information.

You 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, you 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 you in the top five percent of College of Letters and Science graduates (GPA of 3.787 or better) for *summa cum laude*, the next five percent (GPA of 3.685 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.526 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 your graduating year (fall, winter, spring, summer) determine your eligibility. Consult your graduation-year catalog for the requirements that apply to you.

Dean's Honors List

The Dean's Honors List recognizes high scholastic achievement in any one term. The following criteria are used to note Dean's Honors List 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. Dean's Honors List is automatically recorded on your 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 your college/school honors program. You must also have at least one term's coursework remaining at UCLA. To obtain both the bachelor's and master's degrees you 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. If you are interested in becoming a Departmental Scholar, consult your 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.

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 later in this section for a complete description of the program.

Honors Programs Office

The Honors Programs Office, located in A311 Murphy Hall (310-825-1553, 825-3786), 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 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 and graduating seniors 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 you if you plan to apply to a professional school at the end of your sophomore (90 units) or junior (135 units) year.

If you are not accepted by a professional school or plan to receive your degree before entering, you 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.

Preprofessional Advising Office

Information and counseling on preparing for professional schools and assistance in filing applications and preparing for interviews are available through the Preprofessional Advising Office, A266 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.

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. You should determine and satisfy the specific requirements of the dental schools to which you expect to apply.

To be adequately prepared for the predental curriculum, you 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 11A, 11B/11BL, 11C/11CL, 132A, 132B/132BL, 153A, 153L; (2) English 3, 4; (3) Life Sciences 1, 2, 3, 4, and two biology courses with laboratory; (4) Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C; (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 Los Angeles; 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):

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 program); (3) Chemistry and Biochemistry 11A, 11B/11BL, 132A, 132B/132BL, 153A, 153L; (4) one year of English which includes English 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 you intend to apply for admission to a medical school and wish to complete the requirements for a bachelor's degree before such admission, you should select a major within the College of Letters and Science. *Medical schools have no preference as to major. You should choose the major in which you are most interested and can do best.* In addition to fulfilling the requirements of the selected major, you should satisfy the specific requirements for medical schools to which you 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.

The following courses are usually required for admission to the UCLA School of Medicine: (1) two years of college biology 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, and 4, plus additional life sciences courses to meet the general and laboratory coursework requirements); (2) Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL, 153A, 153L; (3) 12 quarter units of English, including at least one course in English composition; (4) Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C. 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, you 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, 6110 Executive Boulevard, Suite 405, Rockville, MD 20852; 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.

Pre nursing Curriculum: Two Years

Note: The School of Nursing is suspending admissions to the undergraduate program for the 1996-97 academic year.

The University offers a four-year course of study leading to the Bachelor of Science degree in Nursing. The pre nursing curriculum in the College of Letters and Science is designed to prepare you for the program in the UCLA School of Nursing. You should apply to the School of Nursing when you have completed or have in progress 84 quarter credits, including the pre nursing courses listed below with grades of C or better, and a cumulative grade-point average of at least 2.8. Since you must apply during the Fall Quarter of the year prior to the year in which you wish to be enrolled, you must present your proposed curriculum for the remaining terms.

Because enrollment in the UCLA School of Nursing is limited, you should become familiar with the admission requirements as early as possible. Attend **open counseling sessions** in the UCLA School of Nursing (times are posted in the Office of Student Affairs, 2-200 Factor Building, 310-825-7181) and those given by the Preprofessional Advising Office (posted outside A266 Murphy Hall, 310-825-1817).

New students admitted to the college in this curriculum should declare pre nursing as their major. Weekly open counseling sessions are available through the College of Letters and Science. Students in the college who do not transfer to the UCLA School of Nursing must declare a major and be able to complete all degree requirements within 216 units.

Pre nursing Requirements for the UCLA School of Nursing: (1) Anthropology 9; (2) Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A; (3) Community Health Sciences 130; (4) English 3; (5) Life Sciences 2, 3; (6) Microbiology and Molecular Genetics 6 or 10 or 101; (7) Physics 10 or one year of high school physics; (8) Physiological Science 13; (9) Psychology 10; (10) Sociology 1; (11) one four-unit humanities course from literature, philosophy, language and linguistics, culture and civilization, or the arts; (12) recommended electives in the social and life sciences. Life Sciences 4 is highly recommended. All required pre nursing courses must be completed for a letter grade.

Preoptometry Curriculum: Three Years

A three-year program designed to prepare you for admission to optometric schools may be completed in the College of Letters and Science. If you are planning to transfer to the School of Optometry at Berkeley, you should contact Assistant Dean Carter of the School of Optometry, University of California, Berkeley, CA 94720, (510) 642-9537, as early in your preprofessional studies as possible.

You will be adequately prepared for preoptometric studies if you 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 11A, 11B/11BL, 11C/11CL, 132A, 132B; (2) English 3, and 4 or 100; (3) Life Sciences 1, 3; (4) Mathematics 1, 3A, and 3B, or 3A, 3B, and 3C, or 31A, 31B, and Statistics 50 or Psychology 41; (5) Microbiology and Molecular Genetics 6 or 101; (6) Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C; (7) introductory anat-

omy (Physiological Science 13) and physiology (Biology 166); ¶(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 you 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, you 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 may be obtained from the office of the Director of Admissions, University of California Medical Center, San Francisco, CA 94143-0446, (510) 476-2732. For further information, see the *Announcement of the School of Pharmacy, UC San Francisco*, which may be obtained from the Dean, School of Pharmacy, University of California Medical Center, San Francisco, CA 94143-0446.

Curriculum Requirements: (1) Subject A; (2) American History and Institutions; (3) Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL, 132A, 132B/132BL; (4) English 3, 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 3A and 3B, or 6A and 6B, or 8A and 8C/8CL; (8) 28 quarter units of electives selected from courses in foreign language, social sciences, and humanities.

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 prerequisite courses: (1) Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 15, 15L; (2) Life Sciences 1, 2, 3; (3) Physics 3A, 3B, 3C; (4) introductory anatomy (Physiological Science 13) and physiology (Biology 166); (5) Psychology 10, 115, 127, 130; (6) one course in statistics and one in computing. The prerequisite courses should be taken for a letter grade; GPAs for these courses should not be lower than 3.0, with no grade lower than a C.

You should write to schools with physical therapy programs early in your 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 mathemat-

ics 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) and the UCLA Medical Center offer a two-year program in respiratory therapy accredited by the American Medical Association (AMA) through which you 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 premedical B.S./B.A. degree prerequisites and, after completing their UCLA degree, enter the second year at the SMC/UCLA Medical Center School of Respiratory Therapy. 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, you should become familiar with the admission requirements as early as possible.

Curriculum Requirements (First Year): (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/UCLA Medical Center School of Respiratory Therapy at (310) 825-7222.

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 your academic work, LSAT scores, and other qualities as reflected in your 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* avail-

able in the program office and accessible on the Graduate Division Gopher via the Internet.

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

William P. Pierskalla, Dean

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 basic 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 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 prerequisites, is limited.

Degrees Offered

- Master of Business Administration (M.B.A.)
- Master of Science (M.S.)
- Doctor of Philosophy in Management (Ph.D.)

Centers and Programs

Business Forecasting Project

Using large-scale econometric models, the Business Forecasting Project 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 confer-

ences 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 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 International Business Education and Research

The Center for International Business Education and 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 Technology Management

The program of the Center for Technology Management combines academic analysis and objectivity with the real-world needs and concerns of high-tech companies that manufacture advanced technology products or use them to produce other goods or services. The center's distinctive M.B.A. in Technology Management Program immerses students in the issues and concerns relative to technology in business today.

Harold Price Center for Entrepreneurial Studies

The Harold Price Center for Entrepreneurial Studies 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. 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.

LEAD Program

The LEAD sponsors four-week summer institutes at outstanding business schools for qualified African American, Hispanic, and Native American students between their junior and senior years of high school. These programs are designed to introduce participants to the world of business, economics, finance, and management through a carefully tailored curriculum involving University faculty and guest lecturers from industry.

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 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.

Riordan Programs

The Riordan Programs were established in 1986 by the Riordan Foundation in response to the growing demand for trained minority managers who can provide vision and leadership in culturally diverse communities. The programs offer Anderson School students opportunities to work with corporate leaders throughout the community, encouraging minority students to consider and prepare for careers in business.

School of Medicine

Gerald S. Levey, Dean and Provost

A modern school of medicine exists in many minds and in many places. It includes many more disciplines than all those available to such physicians as Copernicus and John Locke, famous for discoveries well beyond medicine then or now. 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.

Regarded by many physicians and medical faculty to be among the best in the nation, UCLA's School of Medicine encompasses a wide range of clinical specialties, including neurology, obstetrics and gynecology, ophthalmology, orthopedic surgery, pediatrics, radiation oncology, and surgery. Graduate work leading to the M.S. and/or Ph.D. degrees is offered through the Graduate Division, either separately or in conjunction with the M.D. program, in 10 different disciplines.

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.

The UCLA School of Medicine offers an M.D. degree program, several allied health programs in affiliation with other hospitals and universities, and a number of postgraduate medical training programs. In addition to specialties in medicine, neurology, obstetrics and gynecology, ophthalmology, orthopedic surgery, pediatrics, radiation oncology, and surgery, which lead to the M.D. degree, a range of master's and doctoral degrees is offered through the Graduate Division.

Degrees Offered

- Anatomy and Cell Biology (M.S., C.Phil., Ph.D.)
- Anesthesiology — Nurse Anesthesia (M.S.)
- Biological Chemistry (M.S., Ph.D.)
- Biomathematics (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 Biobehavioral Sciences Clinical Psychology Internship (Certificate)
- Radiological Sciences — Biomedical Physics (M.S., Ph.D.)

Note: The following Master of Science degrees require application to the doctoral degree program: Anatomy and Cell Biology, Microbiology and Immunology, Pharmacology, Physiology.

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 humane 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.

During the first two years, which are devoted mainly to the basic sciences with only periodic, brief clinical exposure, instruction is primarily in the form of lectures, laboratory sessions, small-group problem-oriented instruction, demonstrations, and tutorials. In the last two years, instruction in patient care is given in the form of required and elective clinical rotations at the UCLA Medical Center and at the many affiliated hospitals.

All of the medical school departments participate in the medical curriculum leading to the M.D. degree. If you are interested in details on the M.D. curriculum and a listing of courses offered in each department, or if you wish to make application to the M.D. program, you should obtain a copy of the *Announcement of the UCLA School of Medicine* from the Office of Student Affairs, School of Medicine, 12-109 CHS, UCLA, 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.

Graduate Programs

Master's and/or doctoral degrees are offered through the UCLA Graduate Division in the following fields: anatomy (Department of Neurobiology), biological chemistry, biomathematics, biomedical physics (Department of Radiological Sciences), experimental pathology, microbiology and immunology, neuroscience, nurse anesthesia, 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.

Additional Programs

Articulated Degree Programs

The School of Medicine offers an articulated degree program in conjunction with the Graduate Division which allows you to earn both the M.D. and Ph.D. in seven years, depending on your course of study and research. The Ph.D. may be awarded in one of several medical science fields. For more information, contact the Medical Scientist Training Program at (310) 794-1817.

In addition, an arrangement with the School of Public Health enables you 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.

Allied Health Programs

Programs in allied health include animal care technician, dental assistant, dental hygienist, dietetics technician, emergency medical technician, social work, pharmacy, respiratory therapist, vocational nurse, nurse anesthetist, operating room nurse, physician's assistant, physical therapist, radiologic technologist, radiation therapy technologist, and ultrasound technologist.

Information regarding these programs may be obtained from the Office of Allied Health Programs in the UCLA Center for the Health Sciences (310-794-8352).

Postgraduate Medical Training Programs

Postgraduate training programs, including residencies, are available at several off-campus sites in addition to those offered at the UCLA Medical Center. Programs at the allied 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 Office of Student Affairs, UCLA School of Medicine.

School of Nursing

Donna L. Vredevoe, Acting Dean

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 baccalaureate level is generic in preparing students for licensure as registered nurses and certification as public health nurses. At the master's level there are 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. If you are interested in the academic programs offered, you 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, 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 1965 the Master of Nursing 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 degree program in 1986, and in Fall Quarter 1987 the first doctoral students were admitted.

The baccalaureate program has been continuously approved by the California Board of Registered Nursing since 1949. 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 Accrediting Service of the National League for Nursing has granted full accreditation to the programs since 1954.

Degrees Offered

Bachelor of Science (B.S.)
Master of Nursing (M.N.)
Doctor of Nursing Science (D.N.Sc.)

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, and service to the profession and the community. It involves individuals, families, groups, and communities as clients and the human and physical environments which interact with these clients. Nursing clients may be well or ill with health conditions that range from wellness to illness, so nursing activities include health promotion and maintenance, intervention and treatment, rehabilitation and restoration, and palliation. 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 which 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 their disease status, race, or culture.

Persons who are the recipients of client-centered nursing care are considered as 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 which 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 in all three programs (baccalaureate, master's, and doctoral) 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 basic, specialist, 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. Afifi, Dean

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 accidents, 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. They are committed to the prevention of disease, promotion of health, and improvement in the quality of life.

To fulfill its national and international mission, the school (1) educates new professionals and leaders for the private and public sectors, (2) prepares researchers and educators of future professionals, (3) conducts research to define, protect, and improve conditions for a healthy public, and (4) 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.)

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 promotion 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, 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 programs 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; the concurrent M.B.A./M.P.H. with the John E. Anderson Graduate School of Management; and two articulated M.A./M.P.H. degrees 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

UCLA Center for Health Policy Research

The UCLA 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 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. In addition, the center sponsors lectures and seminars on health policy-related topics for students, faculty, and staff. For additional information, call (310) 825-5491.

UCLA Center for Health Promotion and Disease Prevention

Established in July 1991, the center 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 Southern California AIDS Education and Training Center. The center is also responsible for overseeing the Preventive Medicine Residency Program.

UCLA 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 patient services through consultation, education, and evaluation. 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, and Nursing. Active collaboration also occurs with the UCLA Center for Labor Research within the Institute of Industrial Relations and with faculty from the Schools of Engineering and Applied Science and Public Policy and Social Research.

Specific COEH programs within the School of Public Health include the following specialties and services:

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.

Occupational 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 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 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.

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.

Health Careers Opportunity Program

The Health Careers Opportunity Program (HCOP) was established at the UCLA School of Public Health in 1981 to increase the representation of American Indian, African American, and Latino minorities receiving graduate degrees in public health. The objectives of HCOP are threefold: (1) to increase the number of qualified and well-prepared underrepresented minority applicants, (2) to increase the number of American Indian, African American, and Latino applicants accepted and enrolled in the school, and (3) to develop and maintain an effective retention program.

Eligibility for HCOP services is based on the population parity model consistent with the State of California, Office of Statewide Health Planning and Development. In this model, a group is considered underrepresented if the percentage of a specific racial/ethnic group in the health professions is less than that group's percentage in the total population of the state. Thus, under the population parity model, culturally sensitive underrepresented minorities must meet all three of the following criteria to be HCOP-eligible at the UCLA School of Public Health: (1) must be African American, Latino, or American Indian, (2) must be a U.S. citizen or permanent resident, and (3) must have graduated from high school and an undergraduate college in the U.S.

The UCLA School of Public Health is nationally recognized for its successful program. HCOP has the largest enrollment of underrepresented minorities in a school of public health in the country. The activities associated with this comprehensive minority preparation, recruitment, enrollment, and retention program include the following:

- (1) Applicant and counselor conferences covering all aspects of the admission process.
- (2) Minority Peer Counseling Program for School of Public Health applicants. Sensitive and concerned minority students currently enrolled in the school serve as role models to potential applicants and give specific information about the course of study at the school.
- (3) Summer Enrichment Program in the biomedical sciences for undergraduate minorities to enhance their academic and research skills and to assist in the successful completion of their undergraduate work.
- (4) Alumni counseling and networking by graduates of the school to give insight into the various fields of public health.
- (5) Public Health Leadership Conference for students enrolled at targeted colleges and universities.
- (6) Summer Prologue Program for incoming underrepresented minority students which includes academic courses in the areas of writing, epidemiology, biostatistics, research, and computer skills.
- (7) Student Mentor Program, matching enrolled first-year HCOP graduate students with second-year students to provide a student support system.
- (8) Minority resource bank of fellowships and internships for enrolled graduate students.
- (9) Minority High School Student Summer Research Apprenticeship Program for rising juniors to stimulate an interest in pursuing careers in research and the health professions.

The HCOP Office is open weekdays from 9 a.m. to 5 p.m. to assist HCOP-eligible students with applications to UCLA and preparation for a career in public health (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 innova-

tive 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 multi-ethnic communities, and (5) develop continuing education programs, including an M.P.H. degree for working professionals. For additional information, call (310) 794-7028.

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 eight 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, socioeconomically 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 human factor engineers affiliated with the University of California (Los Angeles and Davis), 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 and Industrial Relations.

Graduate students can affiliate with SCIPRC through academic coursework in injury, research experience with ongoing investigations, and support for independent graduate student research.

School of Public Policy and Social Research

Archie Kleingartner, Acting Dean

Established July 1, 1994, the School of Public Policy and Social Research allows UCLA to link its faculty in a wide array of policy areas to the needs of the various communities that it exists to serve. The school's faculty members work collaboratively with other campus departments, the external communities, and government and private agencies to further a variety of initiatives.

The school has three academic departments — Policy Studies, Social Welfare, and Urban Planning. The Departments of Social Welfare and Urban Planning are fully operational and offer outstanding master's and doctoral programs. The Department of Policy Studies was established in 1994 along with the school.

In addition to its instructional programs, the school houses a wide array of research centers and institutes that allow faculty members from across the campus to come together to pursue topics of mutual interest, including the Center for Child and Family Policy Studies, Center for Communication Policy, Center for Health Policy Research, Center for Labor Research and Education, Center for North American Integration and Development, Lewis Center for Regional Policy Studies, Institute of Industrial Relations, and Institute of Transportation Studies. The research program connects the school firmly to the outside world and enriches the curriculum.

The School of Public Policy and Social Research offers graduate programs leading to the 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. Further information about these programs can be found in the Curricula and Courses section of this catalog.

Degrees Offered

Social Welfare (M.S.W., Ph.D.)

Urban Planning (M.A., Ph.D.)

School of Theater, Film, and Television

Gilbert Cates, Dean

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, creating a dramatic character on a bare stage or a dramatic narrative on screen, or writing scripts or scholarly articles, all students study both the aesthetics and cultural significance of theater, film, and television. Through an intensive, multiple-discipline curriculum, the school defines the inherent differences of theater, film, and television, affirms their similarities, and encourages their interaction. As art forms and cultural interventions, theater, film, and television 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 Center for the Performing Arts, Westwood 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, and television. The M.A. and Ph.D. programs engage students in the critical study and research of each medium, including its 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 three theaters of the Macgowan Hall complex. 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, and a complete animation laboratory for both traditional and computer-generated animation. 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, Los Angeles, CA 90095-1622.

If you are interested in obtaining instructional credentials for California elementary and secondary schools, consult the Graduate School of Education and Information Studies, 1009 Moore Hall (310-825-8328).

Majors and Degrees Offered

Film and Television (M.A., M.F.A., C.Phil., Ph.D.)

Motion Picture/Television (B.A.)

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 you on receipt of your application. Deadline date for applications is November 30, 1995, for admission in Fall Quarter 1996.

The Study List

Each term the student Study List must include from 12 to 17 units. The school has no provision for part-time enrollment. After your first term, you may petition to carry more than 17 units (up to 20 units maximum) if you 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 you have not filed your Study List by the end of the second week of classes, you 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.

General Education (GE) Course Requirements

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.

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, Los Angeles, CA 90095-1622.

Intersegmental General Education Transfer Curriculum (IGETC).

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 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 you complete it. If you select the IGETC, you must complete it entirely before enrolling at UCLA. Otherwise, you must fulfill the School of Theater, Film, and Television general education requirements.

English Composition and Rhetoric

English 3 with a minimum grade of C or an AP score of 4 should be completed by the end of your freshman year and may not be taken on a Passed/Not Passed basis.

Critical Reading and Writing

One course from English 4, Humanities 2A, 2B, or 2C with a minimum grade of C or an AP score of 5 should be completed by the end of your sophomore year and may not be taken on a Passed/Not Passed basis. Humanities 2A, 2B, or 2C may not be applied toward the literature requirement if taken to meet this requirement.

Art and Philosophy

Five courses (20 units), with no more than two courses from any single group:

Group A — Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57, Classics 51, Design 10.

Group B — World Arts and Cultures 134, 181A, 182, C187.

Group C — Ethnomusicology and Systematic Musicology 20A, 20B, 20C, M108A, 108B, M110A, M110B, 113, 136A, 136B, 147, 174, Music 15, Musicology 2A, 2B, 13, 133, 134, 135A, 135B, 135C.

Group D — Philosophy 1, 2, 4, 5A, 6, 7, 8, 21, 22.

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:

Group A — Chinese 50, Classics 10, 20, East Asian Languages and Cultures 60, Folklore and Mythology 15, German 100A, 100B, 100C, Italian 42A, 42B, Japanese 50, Jewish Studies 10, Korean 50, Portuguese M42, M44, Russian 99A, 99B, Spanish M42, M44, Women's Studies 10.

Group B — History 1A, 1B, 1C, 3A through 3D, 4, 5A, 5B, 6A, 6B, 6C, 7A, 7B, 8B, 8C, 9A, 9C, 9D, 10A, 10B, 11A, 11B, Political Science 10, 20, 40, 50.

Group C — Anthropology 8, 9, 33, Psychology 10, Sociology 1, 2, 3, 4, 31.

Science

One course (four units) in physical sciences and one course (four units) in biological sciences:

Group A — Physical Sciences — Astronomy 2A, 2B, 3, 4, 5, 6, Atmospheric Sciences 2, 3, 4, 5, 6, Chemistry and Biochemistry 2, 11A, 11B, 15, Earth and Space Sciences 1, 2, 5, 8, 9, 15, Geography 1, Mathematics 2, 3A, 3B, 5, 31A, 31B, 31E, Physics 3A, 3B, 3C, 6A, 6B, 6C, 8A, 8B, 8C, 10.

Group B — Biological Sciences — Anthropology 7, 10, 12, 15, Biology 2, 6, 10, 13, 21, 25, 40, 70, Earth and Space Sciences 16, Geography 2, 5, Microbiology and Molecular Genetics 6, 7, Psychology 15.

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. Humanities 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

You may meet this requirement by (1) scoring 3, 4, or 5 on the Advanced Placement (AP) foreign language examination 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.

Unit Requirements

Double majors in the school, or between the school and other academic units, are not permitted.

You 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 you take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

Residence Requirements

You 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.

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 motion picture/television major requires upper division work only.

You must complete your 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, you 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. You are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; you are placed on probation if you fail to pass these units. You are subject to dismissal if you fail to pass at least 32 units in three consecutive regular terms in residence.

Honors

To receive **Dean's Honors** in the School of Theater, Film, and Television, you 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 your transcript for the appropriate term. You are not eligible for Dean's Honors in any given term if you receive an incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

Honors at graduation are awarded to students with superior grade-point averages. To be eligible, you 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 3.776; *magna cum laude*, 3.846; *summa cum laude*, 3.875.

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 University 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. The Graduate Affirmative Affairs Office provides counseling, academic support, and financial assistance to ethnic minority students.

Admission

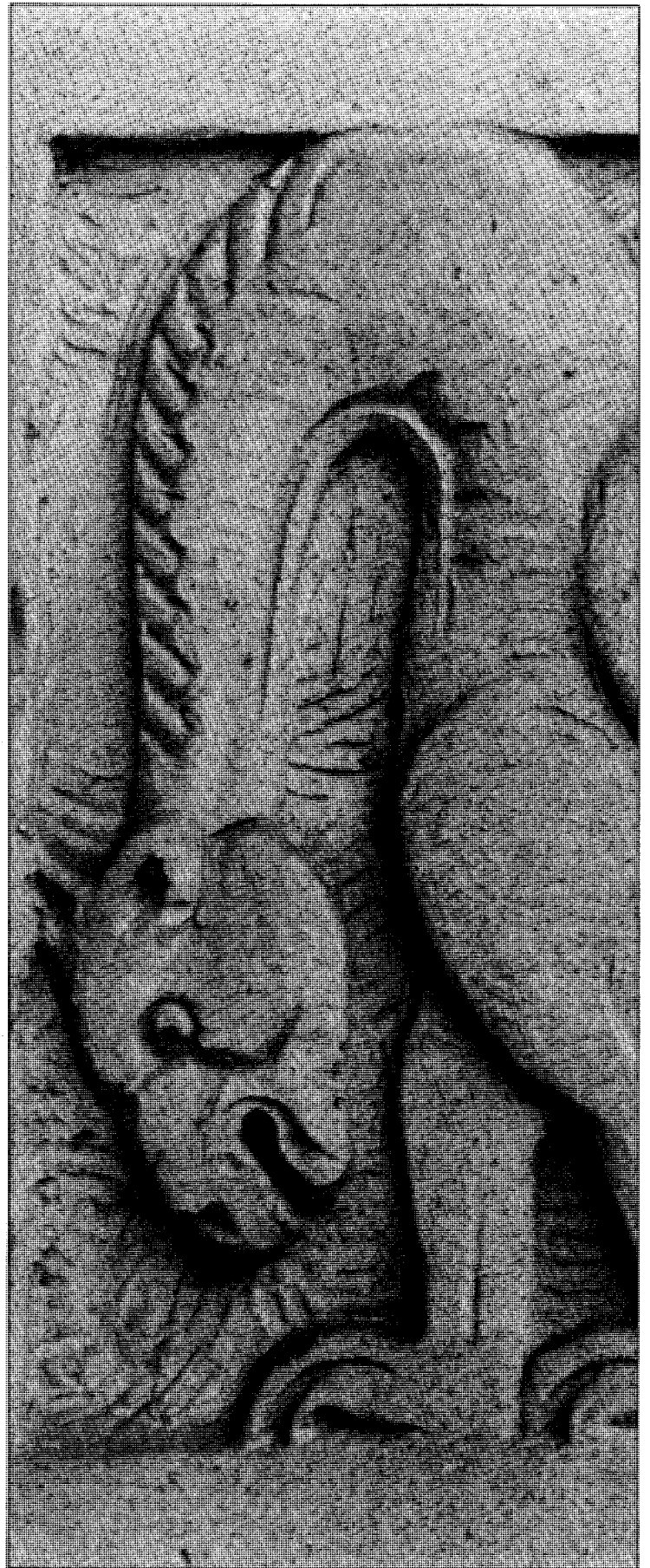
In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. Detailed information can be found in the departmental 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 in the program office and accessible on the Graduate Division Gopher via the Internet.

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 the website at <http://www.saonet.ucla.edu/stinfo/reg.htm>.

For a complete outline of graduate degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in program offices or accessible on the Graduate Division Gopher via the Internet.

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 GPA in the major field), seniors, and graduate students. To enroll, you 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, you 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. If you have an outstanding Incomplete grade in a 199, 199F, 199H, or 199I course, you may not register for another until the I grade is removed. See departmental listings and individual course descriptions for specific prerequisites 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 you take a graduate course as an undergraduate, you 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, you may not attend UCLA Extension for degree credit if you 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). You will find that particular course listed under both departments in the Curricula and Courses section.

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

Professors

Richard L. Abel, LL.B., Ph.D. (*Law*)
Edward A. Alpers, Ph.D. (*History*)
Jacqueline C. DjèDjè, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Robert B. Edgerton, Ph.D. (*Anthropology*)
Christopher Ehret, Ph.D. (*History*), *Chair*
Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)
Peter B. Hammond, Ph.D. (*Anthropology*)
Gail G. Harrison, Ph.D. (*Community Health Sciences*)
John N. Hawkins, Ph.D. (*Education*)
Thomas J. Hinnebusch, Ph.D. (*Linguistics, African Languages*)
Dean T. Jamison, Ph.D. (*Community Health Sciences, Education*)
Edmond Keller, Ph.D. (*Political Science*)
Robert S. Kirsner, Ph.D. (*Germanic Languages*)
Deepak K. Lal, D.Phil. (*Economics*)
Michael F. Lofchie, Ph.D. (*Political Science*)
Charlotte G. Neumann, M.D. (*Community Health Sciences*)
Boniface I. Obichere, D.Phil. (*History*)
Antony R. Orme, Ph.D. (*Geography*)
Merrick Posnansky, Ph.D. (*History, Anthropology*)
Russell G. Schuh, Ph.D. (*Linguistics, African Languages*)
Richard L. Sklar, Ph.D. (*Political Science*)
Edward W. Soja, Ph.D. (*Urban Planning*)
Hartmut Walter, Ph.D. (*Geography*)
Thomas S. Weisner, Ph.D. (*Anthropology*)

Professors Emeriti

Hassan el Nouty, Docteur ès Lettres (*French*)
John Friedmann, Ph.D. (*Urban Planning*)
Victoria A. Fromkin, Ph.D. (*Linguistics*)
Walter R. Goldschmidt, Ph.D. (*Anthropology*)
Richard C. Hawkins, M.A. (*Film and Television*)
Frederick C. Kintzer, Ed.D. (*Education*)
Mazisi R. Kunene, Ph.D. (*Linguistics*)
Wolf Leslau, Docteur ès Lettres (*Hebrew, Semitic Languages*)
Jacques Maquet, Ph.D. (*Anthropology*)
Alfred K. Neumann, M.D. (*Community Health Sciences*)
Georges Sabagh, Ph.D. (*Sociology*)
Nathan Shapira, Dottore in Architettura (*Design*)
Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)
Benjamin E. Thomas, Ph.D. (*Geography*)

Associate Professors

Robert C. Bailey, Ph.D. (*Anthropology*)
Judith A. Carney, Ph.D. (*Geography*)
Donald J. Cosentino, Ph.D. (*English, Folklore and Mythology*)
Teshome H. Gabriel, Ph.D. (*Film and Television*)
Gerry A. Hale, Ph.D. (*Geography*)
Susanna B. Hecht, Ph.D. (*Urban Planning*)
Robert A. Hill, M.Sc. (*History*)
Gail E. Kennedy, Ph.D. (*Anthropology*)
Hilda J. Koopman, Ph.D. (*Linguistics, African Languages*)
Mary Niles Maack, D.L.S. (*Library and Information Science*)
Nadine R. Peacock, Ph.D. (*Anthropology*)
Beverly J. Robinson, Ph.D. (*Theater*)
Duncan Thomas, Ph.D. (*Economics*)
William H. Worgler, Ph.D. (*History*)

Assistant Professors

Patrick Asea, Ph.D. (*Economics*)
Johannes J. Feddema, Ph.D. (*Geography*)
Anna Simons, Ph.D. (*Anthropology*)

Lecturer

Patrice E.F. Jelliffe, R.N., M.P.H. (*Community Health Sciences*)

Adjunct Associate Professor

Sondra Hale, Ph.D. (*Anthropology*)

Visiting Assistant Professor

Kobla Ladzekpo, M.A. (*Ethnomusicology and Systematic Musicology*)

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

Admission

In addition to the University minimum requirements, applicants to the Master of Arts in African Area Studies 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 Master of Arts 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 Master of Arts in African Area Studies with the Master of Fine Arts in Film and Television, with a specialization in motion picture/television.

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 Master of Arts 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

Each student chooses a disciplinary (or interdisciplinary) concentration which 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 a student 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, the student selects 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, the student, in consultation with the graduate adviser, selects 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.

Graduate Courses

M229B. Africana Bibliography and Research Methods. (Same as Library and Information Science 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 units). Prerequisite: 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.

African Area Studies Course List

All courses are not offered every academic year. You 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
41A-41B-41C. Elementary Hausa
42A-42B-42C. Intermediate Hausa
97. Elementary and Intermediate Studies in African Languages

103A-103B-103C. Advanced Swahili
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. The Australopithecines
*121C. Evolution of the Genus *Homo*
*133R. Aesthetic Systems
*150. Study of Social Systems
*156. Comparative Religion
*158. Hunting and Gathering Societies
*161. Development Anthropology
*165. Demographic Problems in Nonindustrial Societies
*M168. Health in Culture and Society
171. Sub-Saharan Africa
*212P. Selected Topics in Hunter/Gatherer Archaeology
*221A-221B. Fossil Evidence for Human Evolution
*230Q. Theories of Culture
*233Q. Aesthetic Anthropology
*250. Selected Topics in Social Anthropology
*252P. Comparative Systems of Social Inequality
*254. Kinship
*255. Comparative Political Institutions
*M262P. Culture and Human Reproduction
Art History *55A. Africa, Oceania, and Native America
*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
*203. 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
*M236. Human Resources and Economic Development
*M240. Culture and Human Reproduction
*294. Social and Behavioral Factors of AIDS/HIV: A Global Perspective
*430A. International Health Agencies and Programs

*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
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. Analysis and Appraisal of Development Projects
*287A-287Z. Topics in Development Economics
Education *204B. Introduction to Comparative Education
*204C. Education and National Development
*204E. International Efforts in Education
*238. Cross-National Analysis of Higher 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 *281. Epidemiology for Developing Countries
*282. Rapid Epidemiologic Surveys in Developing Countries
*290. Seminar: Epidemiology — Infectious and Tropical Disease
Ethnomusicology and Systematic Musicology 20B. Musical Cultures of the World: Near East and Africa
91E. Music and Dance of Ghana
M110A-M110B. The African American Musical Heritage
136A-136B. Music of Africa
*C201A-C201B. 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. The 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: Problems and Issues
- *133. Cultural Geography of the Modern World
135. African Ecology and Development
- *140. Political Geography
188. Northern Africa
189. Middle and Southern Africa
- *229. Seminar: People and Environment
- *232. Advanced Cultural Geography
- *233. Seminar: Cultural Geography
- *234. Environment and Subsistence in Indigenous Cultures
- *240. Advanced Political Geography
- *241. Seminar: Political Geography
- *242. Advanced Population Geography
288. Northern Africa
289. Middle and Southern Africa
- *291. Arid Lands
- 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. Ethiopia and the Horn of Africa
- 178A-178B. History of Eastern Africa
- 179A-179B. History of Southern Africa
- 200N. Advanced Historiography: Africa
- 201N. Topics in History: Africa
275. Introduction to Professional Study of African History
276. African Archaeology: Field Techniques
277. African Archaeology: Data Analysis
- 278A-278B. Seminars: African History
- Political Science** 133. International Relations of Sub-Saharan Africa
- *139A-139Z. Special Studies in International Relations
- 166A-166B-166C. Government and Politics in Sub-Saharan Africa
- *167A. Ideology and Development in World Politics
- C197D. Seminar for Majors: South African Politics
- C241. African Studies
- *255. Seminar: Political Change
- Sociology** *31. Dilemmas of Third World Development
- Teaching English as a Second Language and Applied Linguistics** 109. Literature in the ESL Context
- 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
- *267A. Resource-Based Development Planning
- *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

Professors

Christopher Ehret, Ph.D. (*History*), Chair
Thomas J. Hinnebusch, Ph.D. (*Linguistics, African Languages*)
Richard L. Sklar, Ph.D. (*Political Science*)

Scope and Objectives

This special undergraduate program 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. Students completing this special program receive a degree with a major in a selected discipline and specialization in African studies. The chair of the committee in charge certifies completion of the program.

Special Undergraduate 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

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, you 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 Christopher Ehret, History, 6265 Bunche Hall (310-825-4093, 825-4601).

AFRO-AMERICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
160 Haines Hall
Box 951545
Los Angeles, CA 90095-1545
(310) 825-7403

Professors

Walter Allen, Ph.D. (*Sociology*)
Gordon L. Berry, Ed.D. (*Education*)
Lawrence Bobo, Ph.D. (*Sociology*)
Kimberle W. Crenshaw, J.D., LL.M. (*Law*)
Jacqueline C. DjèDjè, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Sandra Graham, Ph.D. (*Education*)
Vickie M. Mays, Ph.D. (*Psychology*)
Claudia Mitchell-Kernan, Ph.D. (*Anthropology*)
Hector F. Myers, Ph.D. (*Psychology*)
Melvin Oliver, Ph.D. (*Sociology*)
Valerie A. Smith, Ph.D. (*English*)
Gail E. Wyatt, Ph.D., in *Residence* (*Psychiatry and Biobehavioral Sciences*)

Associate Professors

Teshome H. Gabriel, Ph.D. (*Film and Television*)
Franklin D. Gilliam, Jr., Ph.D. (*Political Science*)
Robert A. Hill, M.Sc. (*History*)
Beverly J. Robinson, Ph.D. (*Theater*)
M. Belinda Tucker, Ph.D., in *Residence* (*Psychiatry and Biobehavioral Sciences*)
Richard A. Yarbrough, Ph.D. (*English*)

Assistant Professors

Marcyliena H. Morgan, Ph.D. (*Anthropology*)
Brenda Stevenson, Ph.D. (*History*)

Lecturers

Kenny Burrell, B.A.
Paul Von Blum, J.D.

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 students 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).

Bachelor of Arts Degree

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 lower division 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, 40, Mathematics 3A, 31E (or 3A and 3B, or 31A and 31B); *English* — English 3, 4, 10A, 10B, 10C (all must be taken in sequence); *history* — History 1A-1B-1C, 6A-6B-6C, 10B, and 99 or 100A; *philosophy* — Philosophy 4, 21, 22, 31; *political science* — Political Science 6, 20, 40, Sociology 1, Economics 1; *psychology* — Mathematics 2, Psychology 10, 41, 42, Biology 2, Anthropology 7, Physics 10 (or 3A or 6A or 8A), one year of high school chemistry (or Chemistry and Biochemistry 2 or 11A); *sociology* — Afro-American Studies M5 or Anthropology 34, Mathematics 2, Sociology 1, 18, Anthropology 9. You 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: You 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, you should select a combination of courses that best meets your current and future educational and career goals.

Approved courses (recommended courses are in bold):

Afro-American Studies **100B, C101A through C101Z, M104A, M104B, M104C, M144, M145, M158A, M158B, M158C, M158E, M164, M172, M197, 197B, 199**

Anthropology 110, **111, 115P, 120, 124, 125, 130, 135A, 135B, M136Q, 138, M140, 142A, 142B, M145, 150, 151, 152, 153, M154, 158, 161, M164, 167, M168, 171, 180, 182, 186, 199**

Economics **11, 101, 102, 103A through 103Z, 107, 110, 111, 112, 120, 121, 130, 133, M135, M136, 141, 144, 147A, 147B, 150, 151, 160, 161, 180, 183, 190, 191, 192, 199**

English 80, 85, 95A, 95B, 95C, 100, **M104A, M104B, M104C, M105, 106, M107A, M107B, M107C, 108A, 108B, 109, M111A, 114, 115A, 118, 131A through 131D, 136A, 136B, 136C, 140A, 140B, 141A, 141B, 142A, 142B, 143, 171A, 171B, 173B, 174B, 178, 188, 189, 190, M197, 199**

History 99, 100A, M104A, M104B, 107A, 107B, 109A, 109B, 135A, 135B, **145A, 145B, 146A, 146B, 147A, 147B, 148A, 148B, 148C, 149A, 149B, 154A, 154B, 156A, 156B, 156C, 156D, 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, 156, 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, 166A, 166B, 166C, 167A, 167B, 168, 199**

Psychology **42, 110, 111, 112B, 115, 116, 119D, 120, 121, 123, 127, 129A, 129B, 130, 132, 135, 136A, 136B, 137C, 137D, M138, M142, 150, 151, M163, M165, 170A, 170B, M172, 175, 177, 179A, 192, 193, 194, 197,**

199 (note: courses 110, 115, 120, 125, 127, 135, M142, 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, M144, 145, 147A, 147B, 148, 149, 156, 157, 158, 160, 169, 170, 171, 174, M175, M176, 182, 183, 184, 185, 186, 195A through 195Z, 197, 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. If you are an Afro-American studies major with a grade-point average of 3.5 or better, you 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). If you are interested in this option, you 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, you are encouraged to plan your 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 the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants for admission to the Master of Arts in Afro-American Studies degree 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 of 3.0 or B average in the junior/senior years of college; (4) a statement of purpose describing applicant's 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 the student's 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 the Fall Quarter. Prospective students may request applications from the M.A. Degree Program in Afro-American Studies at the address given at the beginning of this listing.

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 student's 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.

Lower Division Courses

M5. Social Organization of Black Communities. (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. 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. 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.

C101A-C101Z. Special Topics in Afro-American Studies. Prerequisite: consent of instructor. Variable topics. May be repeated for credit. Concurrently scheduled with courses C201A-C201Z.

M102. Culture, Media, and Los Angeles (6 units). (Same as Asian American Studies M197H and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Prerequisite: upper division standing. 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. (Same as Theater M103A.) Lecture, three hours. Prerequisite: upper division standing. 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. (Same as Theater M103B.) Lecture, three hours. Prerequisite: upper division standing. 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. (Same as Theater M103E.) Lecture, three hours. Prerequisite: upper division standing. 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. (Same as English M104A.) Prerequisite: 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. (Same as English M104B.) Prerequisite: 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. (Same as English M104C.) Prerequisite: 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.

M110A-M110B. The African American Musical Heritage. (Same as Ethnomusicology M110A-M110B and Folklore M154A-M154B.) Prerequisite: consent of instructor. 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.

M144. Ethnic Politics: African American Politics. (Formerly numbered M147.) (Same as Political Science M144B.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: Political Science 40, and one 140-level political science course or one upper division course on race or ethnicity from history, psychology, or sociology, or consent of instructor. 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. (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. (Same as History M158A.) 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. (Same as History M158B-M158C.) 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 milieu.

M158E. African American Nationalism in First Half of the 20th Century. (Same as History M158E.) 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. The Afro-American Experience in the U.S. (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. (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. (Same as Psychology M172 and Women's Studies M172.) Limited to 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. (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. (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.

M197. Topics in Afro-American Literature. (Same as English M197.) 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.

197B. Special Studies in Comparative Literature: Caribbean Literature. 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 units). To be arranged with faculty member who will direct the study. Prerequisites: 3.0 GPA in the major, junior or senior standing, consent of instructor. Intensive directed research project. Eight units may be applied toward major requirements.

Graduate Courses

M200A. Advanced Historiography: Afro-American. (Same as History M200V.) Seminar, three hours. May be repeated for credit.

200B. Seminar: Political Economy of Race. Prerequisite: consent of instructor. 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 socioeconomic system of this country and to compare it to political, social, and economic conditions of African peoples elsewhere.

M200C. Selected Problems in Urban Sociology. (Same as Sociology M262.) Seminar. Prerequisite: consent of instructor.

M200D. Afro-American Sociolinguistics: Black English. (Same as Anthropology M243Q.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as English M262.) Prerequisite: consent of instructor. 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. Seminar. Prerequisite: consent of instructor. 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.

C201A-C201Z. Special Topics in Afro-American Studies. Prerequisite: consent of instructor. Variable topics. May be repeated for credit. Concurrently scheduled with courses C101A-C101Z.

M211. Seminar: African American Music. (Same as Ethnomusicology M211.) Seminar, three hours. Prerequisites: Ethnomusicology M110A-M110B or consent of instructor, graduate standing. 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.

M240. Assessment and Treatment of Afro-American Families. (Same as Psychiatry M240.) Seminar, three hours. Designed for both mental health trainees and graduate students interested in developing and refining skills in assessment and treatment of African American families within a sociocultural context.

241. Special Topics in Afro-American Studies. 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. 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. 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 units). Prerequisites: graduate standing, consent of instructor. May not be applied toward M.A. course requirements. S/U grading.

598. Research for and Preparation of M.A. Thesis (4 or 8 units). Prerequisites: graduate standing, consent of instructor. May not be applied toward M.A. course requirements. S/U grading.

AMERICAN INDIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Professors

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Paula Gunn Allen, Ph.D. (*English*)
Carole E. Goldberg-Ambrose, J.D. (*Law*)
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Cecelia F. Klein, Ph.D. (*Art History*)
Kenneth R. Lincoln, Ph.D. (*English*)
Pamela L. Munro, Ph.D. (*Linguistics*)
Gary B. Nash, Ph.D. (*History*)
Gregory M. Sarris, Ph.D. (*English*)
Robert A. Georges, Ph.D., *Emerita* (*English*)

Charlotte A. Heth, Ph.D., *Emerita* (*Ethnomusicology and Systematic Musicology*)
Allegra Fuller Snyder, M.A., *Emerita* (*World Arts and Cultures*)

Associate Professors

Duane Champagne, Ph.D. (*Sociology*)
Paul V. Kroskity, Ph.D. (*Anthropology*)
Melissa Meyer, Ph.D. (*History*)

Visiting Associate Professor

Hanay Geiogamah, 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. You will graduate with the training you 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.

Graduate Study

The following constitutes introductory information regarding the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

A bachelor's degree from an accredited undergraduate institution is required for admission to the Master of Arts program in American Indian Studies. 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 docu-

ments supporting their enrollment application. At least three faculty letters of recommendation must be submitted. Admission to the program is limited to the Fall Quarter. Application forms and further information may be obtained from the Committee to Administer the M.A. Degree in American Indian Studies at the address given at the beginning of this listing.

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 and Systematic Musicology, 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 Studies 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.

Lower Division Course

10. Introduction to American Indian Studies. 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 Course

197. Special Topics in American Indian Studies. 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.

Graduate Courses

M200A. Advanced Historiography: American Indian Peoples. (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. (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. (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. Discussion, three hours. Prerequisite: consent of instructor.

ANESTHESIOLOGY

School of Medicine

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Chingmuh Lee, M.D.
John C. Liebeskind, Ph.D.
Eduardo H. Rubinstein, M.D., Ph.D.
Leonard F. Walts, M.D.
Wynne R. Waugaman, CRNA, Ph.D.
John A. Yagiela, D.D.S.

Professors Emeriti

Gerald D. Allen, M.D.
Verne L. Brechner, M.D.
Mary E. Carsten, Ph.D.
John B. Dillon, M.D.
Joan W. Flacke, M.D.
Werner E. Flacke, M.D.
Ronald L. Katz, M.D.
Richard W. Patterson, M.D.
Stuart F. Sullivan, M.D.
Donald M. Wiberg, Ph.D.

Associate Professors

Kenneth A. Conklin, M.D.
Marie E. Csete, M.D., *in Residence*
Patricia A. Kapur, M.D.
Jordan D. Miller, M.D.
Stanley W. Stead, M.D.

Assistant Professors

Victor C. Baum, M.D.
Nicholas A. Deutsch, M.D., *in Residence*
Erin A. Sullivan, M.D., *in Residence*

Associate Professor of Clinical Anesthesiology

Judith E. Brill, M.D.

Adjunct and Visiting Professors

Maurice Lippman, M.D., *Adjunct*
 Wilson C. Wilhite, Jr., M.D., *Visiting, Executive Vice
 Chair*

Adjunct and Clinical Associate Professors

Richard Y. Chen, M.D., *Clinical*
 Carroll Dolan, M.D., *Clinical*
 Thomas M. Grove, M.D., *Clinical*
 Robert D. Kaufman, M.D., *Adjunct*
 George F. Khoury, M.D., *Clinical*
 Donald A. Kroll, M.D., Ph.D., *Clinical*
 Marie G. Kuffner, M.D., *Clinical*
 Jill L'Armand, M.D., *Clinical*
 Tai Shion Lee, M.D., *Adjunct*
 Anthony M. Nyerges, M.D., *Clinical*
 David F. O'Donnell, M.D., *Clinical*
 John W. Ritter, M.D., *Clinical*
 Harvey K. Rosenbaum, M.D., *Clinical*
 Naomi Saucier, M.D., *Clinical*
 Stanley S. Schneider, M.D., *Clinical*
 Young Zin Sohn, M.D., *Adjunct*
 Elaine C. Yang, M.D., *Adjunct*
 Fahimeh Ziadourad, M.D., *Clinical*

Clinical Assistant Professors

Elizabeth Andersen, CRNA
 Corrie T.M. Anderson, M.D.
 Michelle Y.C. Braunfeld, M.D.
 Joseph L. Cadranet, M.D.
 Howard I. Chait, M.D.
 Linda S. Finander, CRNA, M.S.
 Peter J. Gesund, M.D.
 Gail S. Goldstein, M.D.
 Charles A. Griffis, CRNA, M.S.
 Dana L. Grogan, R.N., CRNA, M.S.
 Johnny R. Harrison, M.D.
 Richard B. Hoberman, M.D.
 Marshal B. Kaplan, M.D.
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 Lynne G. Swain, CRNA, M.S.
 Barbara M. Van de Wiele, M.D.
 Ceil E. Vercellino, CRNA, M.S.
 Laura Wong, CRNA

Scope and Objectives

The Department of Anesthesiology in the School of Medicine, in conjunction with the Los Angeles County Olive View-UCLA Medical Center, offers a program leading to the M.S. degree in Nurse Anesthesia. Administratively housed at the Olive View-UCLA Medical Center, the program trains qualified registered nurses in the specialty of anesthesiology and prepares graduates for the national certification examination for nurse anesthetists. Graduates attain a high level of clinical competence combined with an extensive body of didactic knowledge relevant to the specialty. The program is designed to lead to careers in the clinical practice of nurse anesthesiology, with the opportunity to participate in research in the area.

Graduate Study

The following constitutes introductory information regarding the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree**Admission**

The Master of Science program in Nurse Anesthesia is under review and admissions are currently closed.

Areas of Study

Consult the department.

Course Requirements

Thirty-six graduate and upper division units are required for the Master of Science degree in Nurse Anesthesia, of which 20 units must be at the graduate level.

Required courses are Anesthesiology 215A, 215B, 220, 221, 223, 225, 290; Education 210B; Physiology 100; four units from Anesthesiology 210A, 210B, 210C; Anesthesiology 597 or 598A; and Anesthesiology 598B.

Anesthesiology 598B may be repeated twice, but only four units of 500-level courses may be applied toward the graduate unit requirement. Courses in the 500 series may be taken for letter grades.

Professional courses are prerequisite to certification in the Nurse Anesthesia Program. Twenty-two units of professional courses are required as follows: Anesthesiology 400A through 400G, 401, 402A, 402B.

Students must complete all didactic, clinical, and thesis or comprehensive examination work to earn the M.S. degree.

The program does not discriminate on any basis unless a disability is determined by the selection committee to preclude the safe clinical practice of anesthesia.

Students must complete minimum requirements of the American Association of Nurse Anesthetists Council on Accreditation.

Eligibility to take the national certification examination is only granted after completion of all course requirements and successful thesis defense and filing.

Comprehensive Examination Plan

This plan is recommended for students planning doctoral study.

Thesis Plan

The thesis committee is established during the second year of the program. The thesis proposal is written and approved during the second year and must be completed (filed) by the end of the Spring Quarter of the third year.

Graduate Courses

210A. Chemistry and Physics of Nurse Anesthesia I (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Study of principles of chemistry and physics as applied specifically to practice of anesthesia.

210B. Chemistry and Physics of Nurse Anesthesia II (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Continuation of study of principles of chemistry and physics as applied specifically to practice of anesthesia.

210C. Chemistry and Physics of Nurse Anesthesia III (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Continuation of study of chemistry and physics as related to anesthesia management, with specific emphasis on biochemistry as related to acid-base balance and theories of narcosis.

215A. Pharmacology of Nurse Anesthesia I. Lecture, four hours; discussion, one to two hours. Introduction to basic pharmacological principles as applied to administration of anesthesia. Study of uptake and distribution, mechanism of action, fate, and toxicology as related to anesthetic agents.

215B. Pharmacology of Nurse Anesthesia II. Lecture/discussion. Study of pharmacology of adjunct drugs influencing anesthesia administration, including their uptake and distribution, mechanism of action, fate, biotransformation, and toxicology.

220. Respiratory Anatomy and Physiology for Nurse Anesthetists (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Study of structure and function of respiratory system, with emphasis on anatomy and physiology at cellular level.

221. Cardiovascular Anatomy and Physiology for Nurse Anesthetists (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Integrated study of anatomy and physiology of cardiovascular system as related to management of anesthesia administration.

M222. Biological Control Systems. (Same as Electrical Engineering M243.) Prerequisite: Electrical Engineering 141 or equivalent. Introduction to application of control theory to modeling and analysis of biological control systems, such as respiratory system, cardiovascular system, and neuromuscular system. Emphasis on solving problems of current interest in biomedicine.

223. Anatomy and Physiology of Endocrine and Excretory Systems for Nurse Anesthetists (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Integrated study of endocrine and excretory systems as related to management of anesthesia administration.

225. Anatomy and Physiology of Nervous System for Nurse Anesthetists (2 units). Lecture, two hours; discussion, one to two hours. Prerequisite: consent of instructor. Integrated study of anatomy and physiology of nervous system as related to management of anesthesia administration.

290. Anesthesia Seminar for Nurse Anesthetists (2 units). Discussion, two to three hours. Discussion of research methods, basic statistics, and critical scientific paper analyses in relation to anesthesia research and practice.

400A. Basic Clinical Anesthesia for Nurse Anesthetists I (2 units). Lecture, three hours; laboratory, 30 hours. Prerequisites: courses 402A, 402B. Correlation of techniques of anesthesia administration with basic science knowledge as applied in the clinical area with supervised practice. S/U grading.

400B. Basic Clinical Anesthesia for Nurse Anesthetists II (2 units). Lecture, two hours; laboratory, 30 hours. Prerequisite: course 400A. Continuation of practice of techniques of anesthesia administration as applied in the clinical area with supervised practice. S/U grading.

400C. Basic Clinical Anesthesia for Nurse Anesthetists III (2 units). Lecture, two hours; laboratory, 30 hours. Prerequisite: course 400B. Continuation of techniques of anesthesia administration as applied in the clinical area with supervised practice. S/U grading.

400D. Clinical Anesthesia for Nurse Anesthetists IV (2 units). Lecture, two hours; laboratory, 30 hours. Prerequisite: course 400C. Practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading.

400E. Clinical Anesthesia for Nurse Anesthetists V (2 units). Lecture, two hours; laboratory, 30 hours. Prerequisite: course 400D. Practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading.

400F. Clinical Anesthesia for Nurse Anesthetists VI (2 units). Lecture, two hours; laboratory, 30 hours. Prerequisite: course 400E. Practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading.

400G. Clinical Anesthesia for Nurse Anesthetists VII (2 units). Lecture, two hours; laboratory, 30 hours. Prerequisite: course 400F. Practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading.

401. Legal Aspects and Bioethics (2 units). Lecture, two hours; discussion, 30 minutes to one hour. Prerequisite: consent of department. Introduction to history, bioethics, and legal aspects of nurse anesthesia. Exploration of psychology related to the patient undergoing surgery and anesthesia.

402A. Fundamentals of Anesthesia Practice for Nurse Anesthetists. Lecture, four hours; discussion, one to two hours. Prerequisite: consent of instructor. Introduction to basic principles of anesthesia administration, including preanesthetic assessment, physical examination, techniques and procedures, and anesthesia for specialized techniques and surgery.

402B. Fundamentals of Anesthesia Practice for Nurse Anesthetists (2 units). Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Continuation of techniques and procedures, and anesthesia for specialized techniques and surgery.

596. Directed Individual Study or Research (2 to 8 units). Prerequisite: second- or third-year graduate standing in nurse anesthesiology. Individualized clinical laboratory directed by the faculty. S/U grading.

597. Preparation for M.S. Comprehensive Examination (2 units). Prerequisite: consent of instructor. Opportunity to pursue comprehensive study in anesthesiology and related areas on individual basis, with opportunity for discussion of material with instructor. S/U grading.

598A. Research in Anesthesia I (2 units). Prerequisite: consent of instructor. Opportunity to pursue anesthesia research outlets for thesis preparation. Independent research of quality suitable for publication required. May be selected instead of oral comprehensive examination for completion of M.S. program. S/U grading.

598B. Research in Anesthesia II (2 units). Prerequisite: consent of instructor. Opportunity to pursue anesthesia research outlets for thesis preparation. Independent research of quality suitable for publication required. May be selected instead of oral comprehensive examination for completion of M.S. program. May be repeated twice for credit. S/U grading.

Timothy Earle, Ph.D.
Robert B. Edgerton, Ph.D.
Peter B. Hammond, Ph.D.
James N. Hill, Ph.D., *Chair*
Allen W. Johnson, Ph.D.
Claudia Mitchell-Kernan, Ph.D.
Michael Raleigh, Ph.D.
Dwight Read, Ph.D.
Karen B. Sacks, Ph.D.
Susan C. Scrimshaw, Ph.D.
Russell Thornton, Ph.D.
James Diego Vigil, Ph.D.
Thomas S. Weisner, Ph.D.

Professors Emeriti

C. Rainer Berger, Ph.D.
William O. Bright, Ph.D.
Walter R. Goldschmidt, Ph.D.
John G. Kennedy, Ph.D.
Lewis L. Langness, Ph.D.
William A. Lessa, Ph.D.
Jacques Maquet, Ph.D.
Clement W. Meighan, 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

Jeanne Arnold, Ph.D., *in Residence*
Robert C. Bailey, Ph.D.
Douglas Hollan, Ph.D.
Gail E. Kennedy, Ph.D.
Paul V. Kroskrity, Ph.D.
Richard Leventhal, Ph.D.
Nancy E. Levine, Ph.D.
Nadine R. Peacock, Ph.D.
Joan Silk, Ph.D.

Assistant Professors

Marcyliena H. Morgan, Ph.D.
Kyeoung Park, Ph.D.
Thomas Plummer, Ph.D.
Anna Simons, Ph.D.
Mariko Tamanoi, Ph.D.

Adjunct Associate Professor

Sondra Hale, Ph.D.

Visiting Assistant Professor

Joseph Manson, 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, hunt-

ers/gatherers, iconography, craft specialization, quantitative analysis, and political economy and include major programs focused on Western North America, the high cultures of Mesoamerica and South America, Europe, Africa, and the Caribbean.

Biological anthropology is a comprehensive program on evolutionary anthropology, with emphasis on the behavioral and reproductive ecology of humans and other primates. It includes training in evolutionary theory, behavioral ecology, human ethology, reproductive physiology and ecology, paleoanthropology, primate behavior and evolution, and mathematical modeling. Faculty members have engaged in fieldwork on several continents, particularly Africa, where ongoing projects include work on human reproductive ecology, dietary and subsistence ecology, human ethology, and primate behavior.

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 urban sociolinguistics, ethnographic approaches to discourse analysis, field methods, and conversational analysis, 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 have enabled 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.

ANTHROPOLOGY

College of Letters and Science

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Professors

Nicholas Blurton Jones, Ph.D.
Robert Boyd, Ph.D.
Carole H. Browner, Ph.D.
Christopher B. Donnan, Ph.D.
Alessandro Duranti, Ph.D.

Bachelor of Arts Degree

Preparation for the Major

Required: Anthropology 7, 8, 9, and one elective from 10, 15, 33, 34, 60, 60P, 80. *All courses must be taken for a letter grade, and you must maintain an overall 2.0 GPA.*

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, you must take two courses in the sociocultural anthropology field and one course in each of the other three fields (see "Scope and Objectives" above). One upper division survey core course is offered in each field (two in sociocultural anthropology), but you may take any course in the given area to fulfill this requirement. *All courses must be taken for a letter grade, and you must maintain an overall 2.0 GPA.*

You must complete 14 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 course in regional cultures.
- (3) Four additional upper division anthropology courses.
- (4) Four courses in related fields selected from a list maintained in the department.

Students considering graduate work in anthropology are strongly encouraged to take at least one course in the history and theory of anthropology and one course in methodology in addition to the upper division core courses in the four fields.

Concentrations for the Major

Concentrations, although not required, may help define and structure an anthropology major when you want emphasis in one of the four major fields. Whether or not you opt for a concentration, the requirements for the major must still be satisfied. It is possible to use courses within your 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 80, 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, M189A, M189B, Geography 140, 148, Sociology 101

(2) *Biological Anthropology* — Anthropology 120; one quantitative methods course from 80, 180, 186; one methods course from 115P, M116Q, 117, 117P, 124R, C126P, 129P, 143; one human biology and behavioral ecology course from 124, 124Q, 186P, M189A, M189B; one paleoanthropology course from 121A, 121B, 121C, or both 12 and 129Q (credit will not be granted for both courses 7 and 12); one human genetics course from 125, Biology 135, CM156; one primate behavior course from Anthropology 128A, 128B, Biology 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 80, C126P, 139, 180, 182, 186, Sociology 101; one region and society course from 158, 171, 172R, M172T, 173Q, 174P, 174Q, 175R, 175S, 175T, 175U, 175V, 177; two additional courses from one of the subconcentrations listed below:

(a) *Applied and Development Subconcentration* — Primary courses: Anthropology 60, 60P, 161; additional courses: M155Q, 162, M162P, 167, M168, 186, 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, M154; additional courses: 88A through 88Z, 128A, 128B, 153, 155, 156, 158, M162P

(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 you should have a cumulative GPA of 3.0 overall and a 3.5 cumulative GPA in your 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, re-

search, analysis, and writing of your paper take place over four terms through courses 197HA-197HD. Course 197HA should be taken in Winter Quarter and 197HB in Spring Quarter. Your research should be done in summer, and courses 197HC and 197HD should be taken in Fall and Winter Quarters of your graduation year. Contact the departmental honors adviser early in your studies for more information.

Bachelor of Science Degree

Preparation for the Major

Required: Anthropology 7 or 12, 8, 9, 10 or 15; Chemistry and Biochemistry 11A, 11B/11BL, 11CL; Life Sciences 1, 2, 3, 4; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 3A, 3B, and 3C, or 6A, 6B, and 6C. *All courses must be taken for a letter grade, and you must maintain an overall 2.0 GPA.*

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 you must maintain an overall 2.0 GPA.*

You must complete 16 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 course in regional cultures.
- (3) Two statistics courses (sequential recommended).
- (4) Four additional upper division anthropology courses.
- (5) Four four-unit courses in related fields selected from a list maintained in the department.

Specialization in Computing

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, Computer Science 172, 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. You graduate with a bachelor's degree in your major and a specialization in computing. Interested students should contact the undergraduate adviser.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Admission to the Master of Arts graduate program in anthropology 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 6: (1) official transcripts of record from each college or university at which work has been completed; (2) statement of purpose; (3) three letters of recommendation (preferably from anthropologists); (4) a research or term paper; 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 address given at the beginning of this listing.

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 units) 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 the 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
- (2) Biological — Anthropology 120G
- (3) Linguistic — Anthropology M140
- (4) Sociocultural — Anthropology 130, 150

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 the 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 ex-

amination 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 students' 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, *Regulations for Thesis and Dissertation Preparation*, for instructions on the preparation and submission of the thesis.

Doctoral Degree

Admission

Students who are entering the graduate program with a Master of Arts degree, whether or not in anthropology, are required to demonstrate basic knowledge of the discipline before being permitted to begin the requirements for the doctorate. 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 required 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, prior master's paper or a research paper that was written while in graduate status.

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 a written and oral examination. 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.

Oral 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.

Lower Division Courses

7. Human Evolution. Lecture, three hours; discussion, one hour. Required as preparation for B.A. degree. Not open for credit to students with credit for course 12. Evolutionary processes and evolutionary past of the human species.

8. Archaeology: An Introduction. 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. Sociocultural Anthropology. 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. Lecture, three hours; discussion, one hour. Required as preparation for B.S. degree. 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. Lecture, three hours; discussion, one hour. Required as preparation for B.S. degree. Not open for credit to students with credit for course 7. Human population biology in the conceptual framework of evolutionary processes. Emphasis on comparative primate behavior, structural anatomy, and the fossil record.

15. Human Biology and Behavior. Lecture, three hours; discussion, one hour. Human biology and behavior through the life cycle from conception to senescence. Discussion of natural selection, sexual selection, and life history theory. Factors influencing variation in fertility and mortality: reproductive ecology, growth, development, and aging.

33. Culture and Communication. Lecture, three hours; discussion, one hour. 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. 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.

51. Social Inequality. Lecture, three hours; discussion, one hour; field studies component. Analysis of cultural causes and consequences of cultural differentiation in which social inequality based on ethnicity and social race, religion, gender, sexual orientation, age, and mental and physical disability is common factor.

60. Anthropology for Today. Lecture, three hours. Lectures, films, readings, and discussions, with focus on critical evaluation of anthropological method and theory to understand cultural aspects of a selection of pressing problems in the modern world. Examination of such domestic issues as poverty and social inequality, educational reform, public health and mental health, conflict and criminality, as well as such Third World issues as economic development, environmental protection, population control, political modernization, diplomacy, warfare, revolution, refugee and disaster relief, minority rights, and protection of indigenous peoples. Survey of ethical issues and career opportunities in applied anthropology.

60P. Internships in Applied Anthropology. Seminar, three hours. Enforced requisite: course 60. Designed to give students firsthand experience working in agencies in public and private sectors (e.g., refugee relief centers, drug rehabilitation programs, community development agencies, mental health clinics, etc.) selected for their relevance to individual students' prospective professional interests. Eight to 12 hours per week, complemented by weekly seminars, field evaluations, and preparation of a field journal.

80. Introduction to Quantitative Methods. 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).

88A-88Z. Lower Division Seminars. (Formerly numbered 88.) 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. Diversity in American Cultures. Discussion of readings, followed by seminar presentations, with focus on cross-cultural analysis of attributes common to all societal forms in which differences culturally defined as significant affect both individual life chances and societal well-being.

Upper Division Courses

All upper division courses with letter designations (A, B, P, Q, etc.) may be taken independently unless otherwise stated.

Archaeology

110. World Archaeology. Prerequisites: course 8 and upper division standing, or consent of instructor. 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. 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. Lecture, three hours. Prerequisite: course 8 or consent of instructor. 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. 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. Lecture, three hours. Prerequisite: 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. 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). 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). 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. Lecture, three hours. Prerequisite: 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.

M115A-M115B. Historical Archaeology. (Formerly numbered M115S.) (Same as History M103A-M103B.) Lecture, three hours. 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 (4 to 8 units). Lecture, two hours; fieldwork, eight or more hours. Prerequisites: course 8, consent of instructor. Procedures of archaeological excavation, mapping, stratigraphy, collecting, and recording of archaeological data (field class conducted off campus). Summer field session in various locations set by individual instructor. P/NP or letter grading.

C115R. Strategy of Archaeology. (Formerly numbered 115R.) Seminar, three hours; outside study, nine hours. Prerequisite: upper division standing. 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. (Same as Geography M178.) Lecture, three hours; reading period, one hour. Prerequisite: consent of instructor. 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 Materials Analysis: Laboratory Methods. Lecture, three hours; laboratory, three hours. Prerequisite: course 8. Training in archaeological analysis of prehistoric cultural materials, including chipped and ground stone artifacts, vertebrate fauna, shellfish, ceramics, ornaments and beads, and craft production materials from sites worldwide. Introduction to electronic measurement instrumentation and computerization of archaeological data. P/NP or letter grading.

117P. Intensive Laboratory Training in Archaeology. Lecture, three hours; laboratory, four hours. Prerequisite: course 117 or equivalent. 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. Prerequisite: consent of instructor. 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. Prerequisites: course 118A, consent of instructor. 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. (Same as History M175A.) Lecture, three hours; outside study, nine hours. 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. Lecture, three hours. Prerequisites: courses 10, 12, or equivalent. Limited to majors and graduate students in anthropology. Survey of biological anthropology including all major subareas. Lecture/seminar format requires attendance at a recitation section in addition to lectures. (Core course for biological field.)

120G. Biological Anthropology in Review. Lecture, three hours; seminar, three hours. Corequisite: lecture portion of course 7. Limited to graduate students in anthropology. 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. Lecture, three hours. Recommended (but not prerequisite): courses 10, 12. Course 121A should be taken before 121B and 121C. Introduction to method and theory in paleoanthropology. Primate evolution, Cretaceous through the Miocene.

121B. The Australopithecines. Lecture, three hours. Prerequisite: consent of instructor. Recommended: courses 10, 12, 121A. Morphology, ecology, and behavior of the genus *Australopithecus*. History of their discoveries and their place in human evolution.

121C. Evolution of the Genus *Homo*. Lecture, three hours. Prerequisite: consent of instructor. Recommended: courses 10, 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.

121P. Reconstructing Hominid Behavior and Paleopedology. 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.

124. Evolution and Biology of Human Behavior. Comparative survey of behavior patterns of preliterate 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. Lecture, three hours. Prerequisite: consent of instructor. Recommended: course 7 or 10 or 12 or equivalent. 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.

124Q. Physiology of Human Behavior. Lecture, three hours. Prerequisites: upper division standing and/or consent of instructor. Overview of neural, physiological, and endocrine substrates of a variety of human behaviors, including sexual behavior, aggression, language, and affiliative behavior. Emphasis on evolutionary origins, developmental pathways, and cross-cultural expressions of behaviors examined. Focus on human behavior, with evidence from animal literature as well.

124R. Laboratory Methods in Human Behavioral Endocrinology (6 units). Lecture, three hours; laboratory, three hours (plus time to complete project). Prerequisite: course 124Q or consent of instructor. Introduction to laboratory methods in neuroendocrinology for students in social and behavioral sciences. Emphasis on field-compatible methods. Design and execution of a small research project.

125. Genetics of Human Diversity. Lecture, three hours. Survey of human biological diversity. Emphasis on genetics at the population level for both discrete and quantitative variation. Analytic methods and evolutionary hypotheses.

C126P. Introduction to Field Methods in Human Ecology. Lecture, three hours. Prerequisite: upper division or graduate standing. 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 labs. Course fee required. Concurrently scheduled with course C226P. P/NP or letter grading.

127P. Primate Evolution. Prerequisite: upper division standing. 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. Lecture, three hours. Prerequisite: upper division standing. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 7 or 12. Strongly recommended: course 128A, Biology 5, Chemistry 11A. 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.

129P. Laboratory Methods in Biological Anthropology: Skeletal. Lecture, three hours. Prerequisites: courses 10, 12, consent of instructor. Limited to majors and graduate students. Laboratory methodology and analysis of human variation on skeletal material.

129Q. Paleopathology. Lecture, one hour; laboratory, three hours. Prerequisites: course 129P, upper division standing, consent of instructor. 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. Lecture, three hours. Prerequisite: one lower division sociocultural anthropology course or equivalent, upper division standing. 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.)

132. Technology and Environment. 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. Prerequisite: upper division standing or consent of instructor. 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. Lecture, three hours. Prerequisite: upper division standing. 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.

135A-135B. Introduction to Psychological Anthropology. Lecture, three hours. P/NP or letter grading.

135A. Historical Development. Prerequisite: course 9 or consent of instructor. 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. Prerequisite: upper division standing or consent of instructor. 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. Seminar, three hours. Prerequisites: course 9 or equivalent, consent of instructor. 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. Lecture, three hours. Prerequisites: course 9 or equivalent, consent of instructor. Relationship between culture and recognition of, responses toward, and forms of deviant and abnormal behavior.

135T. Psychoanalysis and Anthropology. 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.

M136G. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (Same as Psychiatry M112.) Prerequisite: consent of instructor. 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.

138. Methods and Techniques of Ethnohistory. 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. Lecture, three hours. Prerequisite: upper division standing. Corequisite: course 139L. 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.

139L. Field Methods in Cultural Anthropology. Laboratory, three hours. Prerequisite: upper division standing. Corequisite: course 139. Supervised practicum of field methods in cultural anthropology. Field methods and techniques presented in course 139 practiced and applied in simulated field situations. Discussion of styles of presenting ethnographical information.

Linguistic Anthropology

M140. Language in Culture. (Same as Linguistics M146.) Prerequisite: upper division standing or consent of instructor. 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.)

141. Ethnography of Everyday Speech. Lecture, three hours. Prerequisites: course 33, upper division standing or consent of instructor. 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. Lecture, three hours. Course 142A or Sociology CM124A or consent of instructor is prerequisite 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. Lecture, three hours. Prerequisite: Linguistics 20 or prior experience in linguistics. 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. Prerequisite: prior coursework in either anthropology, linguistics, or American Indian studies. 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. (Formerly numbered 145.) (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. Lecture, three hours. 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.

Social Anthropology

150. Study of Social Systems. Lecture, three hours. Prerequisite: course 9 or consent of instructor. 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. 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. 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. 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.

M154. Women in Culture and Society. (Same as Women's Studies M154.) Lecture, three hours. Open to upper division social sciences majors. Comparative study of women's lives globally and locally from an anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case studies, and student research and presentation. P/NP or letter grading.

155. Women's Voices: Their Critique of Anthropology of Japan. Lecture, three hours. Prerequisite: 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. (Formerly numbered M155.) (Same as Women's Studies M160.) Lecture/discussion, three hours. Recommended (but not prerequisite): 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. 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.

158. Hunting and Gathering Societies. 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. Lecture, three hours. Prerequisite: course 9 or 150 or consent of instructor. 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. 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. Lecture, three hours. Prerequisites: course 9 and upper division standing, or consent of instructor. 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.

162. Contemporary American Indian Problems. Contemporary problems of the American Indian both on and off the reservation. Topics include self-determination, land claims, activism, urban Indians, and role of the Bureau of Indian Affairs.

M162P. Destruction and Survival of Indigenous Societies. (Same as World Arts and Cultures M162P.) Lecture, three hours. Prerequisite: course 9 or upper division standing or consent of instructor. Clarification of concepts and forms of destruction and survival; analysis directed to different processes threatening the institutions of a group and its survival. Exploration of current theories of ethnocide and genocide for their relevance and validity. P/NP or letter grading.

M164. The Afro-American Experience in the U.S. (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. Lecture, three hours. Prerequisite: 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.

167. Urban Anthropology. Open to upper division majors in social sciences, and others with consent of instructor. 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.

M168. Health in Culture and Society. (Same as Nursing M158.) Prerequisite: upper division standing. Examination of theories and methods of medical anthropology in relation to cross-cultural health systems, role networks, attitude and belief systems of the participants. Emphasis on interaction networks in health care systems.

Regional Cultures

Africa

171. Sub-Saharan Africa. Lecture, three hours. Prerequisite: upper division standing or consent of instructor. 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

172R. Cultures of the Pueblo Southwest. Lecture, three hours. Prerequisite: course 8 or 9 or upper division standing or consent of instructor. 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.

M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest. (Same as Chicana and Chicano Studies M172T.) Lecture, three hours. Prerequisite: course 9 or consent of instructor. Ethnography of social and cultural adaptations of Hispanic peoples in the U.S. Southwest: their respective social organization, economic and political institutions, sacred and secular belief systems, and expressive cultures. P/NP (undergraduates), S/U (graduates), or letter grading.

Middle America

173Q. Latin American Communities. 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. 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.

174Q. Ethnology of South American Indians. Prerequisite: course 174P or consent of instructor. Introduction to ethnology of South American Indians, with special emphasis on Lowland South America. Methods and theories applied to study of man and culture on the subcontinent, including biological anthropology, linguistics, and sociocultural anthropology.

Asia

175R. Societies of Central Asia. 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. Lecture, three hours. Prerequisite: course 9. 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. 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. Lecture, three hours. Prerequisite: course 9 or consent of instructor. 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. 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.

Middle East

176. Culture Area of the Middle East. 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. 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. (Formerly numbered 186A.) Lecture, three hours. Prerequisite: course 80 or equivalent. Methods of quantitative data analysis. Topics to be selected from linear regression analysis (univariate and multivariate), principal component analysis, discriminant analysis, cluster analysis, nonparametric tests, and log-linear models. Emphasis on computer-based applications of data analysis techniques.

182. History of Anthropology. 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. Prerequisite: at least one upper division archaeology course or consent of instructor. 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.

184. History of Human Evolutionary Theory. The men, events, and spirit of the time which mark man's attempts to understand his origins and diversity.

186. Models and Modeling in Anthropology. (Formerly numbered 186B.) 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. Lecture, two hours; discussion, one hour. Prerequisite: course 9 or 10 or equivalent. 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.

M189A-M189B. Theoretical Behavioral Ecology. (Same as Biology M189A-M189B.) Lecture, three hours. Prerequisites: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course M189A or consent of instructor is prerequisite to M189B. 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.

Special Studies

C191. Writing for Anthropology. Lecture, three hours. Prerequisite: course 9. Teaching of writing skills in various academic forms, including term papers, essay examinations, journal articles, and reports. Class projects require student writing and evaluation of professional writing. Emphasis on organization and presentation of a scholarly argument. Concurrently scheduled with course C291.

197H. Departmental Honors Seminar. Seminar, three hours. Prerequisites: junior standing, consent of instructor. Five discussion segments dealing with major debates, questions, and issues in each departmental field (archaeological, biological, linguistic, and sociocultural). Discussion each week in seminar format of readings on a major topic.

197HA. Beginning Seminar. Seminar, three hours. Prerequisites: anthropology honors program standing, consent of instructor. Survey of major research strategies in anthropology to aid honors students in developing research proposals.

197HB. Field Methods. Seminar, three hours. Prerequisites: anthropology honors program standing, consent of instructor. Survey of major field methods in anthropology to prepare students to conduct their own field research.

197HC. Data Analysis. Seminar, three hours. Prerequisites: anthropology honors program standing, consent of instructor. Survey of major forms of data analysis in anthropology to aid honors students in analysis of their own research data.

197HD. Writing for Anthropology. Seminar, three hours. Prerequisites: anthropology honors program standing, consent of instructor. Teaching of writing skills, with focus on how to write honors theses.

197K-197Z. Selected Topics in Anthropology (2 to 4 units 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 units). Prerequisite: consent of instructor. Eight units may be applied toward upper division anthropology courses required for the major.

Graduate Courses

Admission to all graduate courses is subject to consent of instructor and completion of appropriate course requirements (when so indicated). Graduate courses are normally nonrepetitive in content but may be repeated for credit with consent of instructor and graduate counselor.

200A-200B. Proseminars: Practice of Anthropology. Seminar, three hours. Prerequisite: consent of instructor. 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. In Progress and S/U or letter grading.

M201A-M201B. Graduate Core Seminars: Archaeology (6 units each). (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 interpretative strategies. May be repeated for credit with consent of adviser.

202. Biological Anthropology Colloquium. 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. (Formerly numbered 203.) Seminar, three hours. Prerequisites: two courses from 130, 135A, 150, or equivalent, or consent of instructor:

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 (but not prerequisite): 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 (but not prerequisite): course 203B. Examination of selected contemporary works and issues in the field of sociocultural anthropology.

204. Core Seminar: Linguistic Anthropology. Seminar, three hours. Prerequisite: consent of instructor. 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. Prerequisites: one term of statistics, consent of instructor. 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. (Formerly numbered 211.) (Same as Archaeology M201C.) Lecture, three hours. Prerequisite: consent of instructor. Course 210 is not prerequisite 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. Seminar, three hours. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: consent of instructor. 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 units). (Same as Archaeology M205.) Lecture, three hours. Prerequisite: graduate standing 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. Seminar, three hours. Prerequisite: consent of instructor. May be repeated for credit.

214. Selected Topics in Prehistoric Civilizations of the New World. Prerequisite: consent of instructor. Mesoamerican and Andean civilizations normally constitute major focus of seminar. May be repeated for credit.

215. Field Training in Archaeology (4 to 8 units). Prerequisite: prior experience in archaeology. Advanced training in archaeological excavation techniques, including organization of projects, supervision of field crews, methodology of field recording, and preliminary analysis of field data. May be repeated for credit.

C215R. Strategy of Archaeology. Seminar, three hours; outside study, nine hours. Prerequisite: consent of instructor. 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.

M216. Dating Techniques in Environmental Sciences and Archaeology. (Same as Geography M278.) Lecture, three hours. Prerequisite: consent of instructor. Colloquium devoted to topics in dating techniques in environmental sciences, archaeology, and biological anthropology, as well as laboratory instruction and experimental work. May be repeated for credit.

217. Explanation of Societal Change. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. Examination and analysis of fossil evidence for man's evolution.

223P. Biology and Ecology of Foraging Peoples. Prerequisite: consent of instructor. Detailed discussions of topical issues in study of foraging societies, including perspectives of cultural ecology and ethnoarchaeology. Primary emphasis on theoretical and practical topics in human ecology and biology, including health and nutrition, growth and development, life history variables, foraging, and sex differences.

C226P. Introduction to Field Methods in Human Ecology. Lecture, three hours. Prerequisite: upper division or graduate standing. 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 labs. Course fee required. Concurrently scheduled with course C126P.

226P. Ecology of Human Reproduction. Seminar, three hours. Prerequisite: consent of instructor. Critical examination of current research concerning responsiveness of the human reproductive system to a variety of biobehavioral and ecological influences, including stress, exercise, nutrition, and disease. Influence of reproductive hormones on human behavior. Evolutionary and cross-cultural perspectives. S/U or letter grading.

M229A. Seminar: Human Behavioral Ecology. (Same as Education M281A and Psychiatry M279A.) Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Examination of predictive models from animal behavioral ecology used to study human diet and subsistence; settlement patterns and territoriality; sharing and helping; reproduction and mortality. Comparison with other economic and ecological approaches in anthropology.

M229B. Seminar: Reproduction, Families, and Parenting. (Same as Education M281B and Psychiatry M279B.) Prerequisite: consent of instructor. Guided forum for graduate students to discuss and broaden their studies of human reproduction and child rearing from varied viewpoints. Representation and debate of theories, questions, and methods from social and biological sciences.

M229C. Seminar: Selected Topics in Human Ethology. (Same as Education M281C and Psychiatry M279C.) Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Consideration of appropriateness and contributions of using animal behavior methodology in study of human behavior. Analysis: describing and recording behavior; causation; development, especially longitudinal studies; adaptation; evolutionary origins.

Cultural Anthropology

230P. Ethnology. Prerequisite: consent of instructor. Seminar on ethnological method and theory concentrating on ideational systems. May be repeated for credit.

230Q. Theories of Culture. Lecture, three hours. Prerequisite: consent of instructor. 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. Prerequisite: graduate standing. Effect of class, caste, and race on the Asian American personality within the framework of anthropological theories.

232Q. Myth and Ritual. Prerequisite: consent of instructor. Nature and function of myth and ritual in nonindustrialized societies. Associated value systems and philosophies examined as infrastructure of culture rather than as phenomena proposed by structuralist rationalism and cultural material empiricism. May be repeated for credit.

M232R. South American Folklore and Mythology Studies. (Same as Folklore M257.) Prerequisite: course 174P or consent of instructor. Examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these people.

M232S. Ethnography of Humor. (Same as Folklore M214.) Lecture, three hours. Prerequisite: graduate standing in anthropology or folklore and mythology. 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.

232T. Person, Self, and Identity in Contemporary Anthropology. Seminar, three hours. Prerequisite: graduate standing or consent of instructor. Survey of anthropological literature on person, self, and identity. Conceptual and theoretical relationships among these terms and their use in contemporary ethnography. S/U or letter grading.

232V. Current Issues in Ethnography. Seminar, three hours. Prerequisite: graduate standing or consent of instructor. S/U or letter grading.

233P. Symbolic Anthropology. Prerequisite: course 133R or consent of instructor. 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. Prerequisite: course 133R or consent of instructor. 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. (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.

M234P. Transcultural Psychiatry. (Same as Psychiatry M222.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Psychiatry M272.) Lecture, three hours. Prerequisite: consent of instructor. 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. (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. (Formerly numbered M235A-M235B.) (Same as Psychiatry M213.) Seminar, three hours. Prerequisite: graduate standing.

M235S. Culture, Adaptation, and Intervention. (Same as Psychiatry M215.) Prerequisite: graduate standing. Role of ecological, social, and cultural influences on family adaptation, child competence, and interventions, including theory, empirical research, and applied/policy topics. Review and critique of current research in this field.

M236P. Cross-Cultural Studies of Socialization and Children. (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. (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.

238. Native American Revitalization Movements. 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 units). Seminar, three hours. Prerequisite: consent of instructor. 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. (Same as Linguistics M246C.) Prerequisite: consent of instructor. Problems in relations of language, culture, and society. May be repeated for credit.

242. Ethnography of Communication. Prerequisite: graduate standing or consent of instructor. 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. Prerequisites: prior coursework in either anthropology, linguistics, or American Indian studies, consent of instructor. 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. (Same as Afro-American Studies M200D.) Lecture, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours; work with informant, one hour. Prerequisite: 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. Prerequisite: consent of instructor. 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 inter-individual variation, and to evaluate utility and potential applicability of recent linguistic models to anthropological linguistics and anthropological theory.

246. Research Design and Field Training in Linguistic Anthropology. Prerequisite: consent of instructor. Supervised collection of linguistic information in the field. Students spend full time in the field for most of term. May be repeated for credit. S/U or letter grading.

247. Analysis of Linguistic Field Data. Seminar, three hours. Prerequisite: course 202 or 242 or 246 or consent of instructor. Supervised analysis of linguistic field data by students who have participated in a related field training course. Students work with their own as well as general project data in preparation of articles for professional journals. May be repeated for credit. S/U or letter grading.

248. Practicum in a Field Language (4 to 8 units). Prerequisite: consent of instructor. Intensive training in an indigenous language as preparation for work in the field.

M249A-M249B. Ethnographic Methods in Applied Linguistics A, B. (Same as Teaching English as a Second Language M270A-M270B.) Course M249A is prerequisite to 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 framework that considers language as a social and cultural practice. First term devoted to skills related to collecting socially and culturally meaningful data; second term 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.

Social Anthropology

250. Selected Topics in Social Anthropology. Seminar, three hours. Prerequisite: consent of instructor. Intensive examination of current theoretical views and literature. S/U or letter grading.

251P. Cultural Ecology. Prerequisite: consent of instructor. May be repeated for credit.

252P. Comparative Systems of Social Inequality. 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. Lecture, one hour; discussion, two hours. Prerequisite: 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. Prerequisite: consent of instructor. May be repeated for credit.

253P. Technology and Economy. Seminar, three hours. Prerequisite: consent of instructor. Analysis of technological systems and patterns of technical evolution in context of corresponding social and economic change (e.g., in labor organization, kinship, property rights), using examples mainly from Asian peasant societies, past and present. S/U or letter grading.

254. Kinship. Prerequisite: consent of instructor. May be repeated for credit.

255. Comparative Political Institutions. Prerequisite: consent of instructor. May be repeated for credit.

256. Anthropology of Conflict. 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. Prerequisite: course 167 or consent of instructor. Intensive anthropological examination of the urban setting as a human environment. S/U or letter grading.

261Q. Issues in Applied Anthropology. 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.

M262P. Culture and Human Reproduction. (Same as Community Health Sciences M240.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Exploration of human behavior related to reproduction. Cross-cultural exploration of biological and behavioral factors, with particular reference to human adaptation.

263P. Gender Systems. Discussion, three hours. Prerequisite: consent of instructor. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

M263Q. Advanced Seminar: Medical Anthropology. (Same as Community Health Sciences M244, Nursing M273, and Psychiatry M273.) Seminar, three hours. Prerequisite: consent of instructor. 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.

263R. Medicine in Chinese Culture. Seminar, three hours. Prerequisite: consent of instructor. Use of the rich historical material and anthropological studies of Chinese medicine to analyze social and symbolic complementarity of different therapeutic systems and current attempts at syncretization with Western biomedicine. S/U or letter grading.

265. Public Archaeology. Prerequisite: consent of instructor. Archaeology as part of the national heritage, both in the U.S. and other countries. Legal, ethical, cultural, and scholarly aspects of salvage and contact archaeology. Designed for researchers and managers of cultural resources.

M269. Contemporary Issues of the American Indian. (Same as American Indian Studies M200C 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 American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B.

M269P. Politics of Reproduction. (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.

Regional Cultures

M272. Indians of South America. (Same as Latin American Studies M250A.) Lecture, three hours. Prerequisite: consent of instructor. Survey of literature and research topics related to Indian cultures of South America. May be repeated for credit.

273. Cultures of the Middle East. Seminar, three hours. Prerequisite: consent of instructor. Survey of literature and problems of various cultures of the Middle East.

274. Cultures of the Pacific Islands. Prerequisite: consent of instructor. Topics in contemporary sociocultural anthropology and classic ethnography of Melanesia, Polynesia, and Micronesia. May be repeated for credit.

277. Aspects of Chinese Society. Seminar, three hours. Prerequisite: consent of instructor. Anthropological perspective on historical evolution of and contemporary changes in such key institutions of Chinese society as family, lineage, and associations, setting individuals and groups in the larger political, economic, and class framework of society and state. S/U or letter grading.

History, Theory, and Method

281. Selected Topics in History of Anthropology. Prerequisite: consent of instructor. Particular problems in history of anthropology as dictated by interests of students and faculty. May be repeated for credit.

281P. Contemporary Problems in Africa. Seminar, three hours. Prerequisite: consent of instructor. 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.

282. Research Design in Cultural Anthropology. Prerequisite: consent of instructor. Primarily intended 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. Seminar, three hours. Prerequisite: consent of instructor. 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. (Same as Community Health Sciences M216.) Discussion, three hours; laboratory, one hour. Prerequisite: consent of instructor. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to health care.

285. Schools, Domains, and Strategies in World Archaeology. Seminar, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisites: graduate standing and/or consent of instructor. 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. Seminar, three hours. Prerequisite: course 180 or consent of instructor. 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. Seminar, three hours. Prerequisites: graduate standing, consent of instructor. 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. Prerequisite: graduate standing. 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.

287Q. Native American Historical Demography. 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.

C291. Writing for Anthropology. Lecture, three hours. Prerequisite: consent of instructor. Teaching of writing skills in various academic forms, including term papers, essay examinations, journal articles, and reports. Class projects require student writing and evaluation of professional writing. Emphasis on organization and presentation of a scholarly argument. Concurrently scheduled with course C191. Graduate students expected to prepare a higher level of the scholarly research paper. S/U or letter grading.

292. Making Oral Presentations. Lecture/student presentations, two hours; discussion, one hour. Prerequisite: graduate standing or consent of instructor. 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.

Special Studies

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Seminar/workshop, three hours. Prerequisite: graduate standing. 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 units). Prerequisite: 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 units). Prerequisite: consent of instructor. Directed individual studies. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations (2 to 12 units).

598. Research for and Preparation of M.A. Thesis (2 to 8 units). Prerequisite: consent of instructor (faculty adviser). Preparation of research data and writing of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation (2 to 12 units). Prerequisite: consent of instructor. Ph.D. dissertation research or writing. Students must have completed qualifying examinations and ordinarily take no other coursework.

APPLIED LINGUISTICS

*Interdepartmental Program
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Professors

Roger W. Andersen, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Raimo A. Anttila, Ph.D. (*Linguistics*)
Lyle Bachman, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Marianne Celce-Murcia, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Susan R. Curtiss, Ph.D. (*Linguistics*)
Bruce P. Hayes, Ph.D. (*Linguistics*)
Thomas J. Hinnebusch, Ph.D. (*Linguistics*)
Nina M. Hyams, Ph.D. (*Linguistics*)
Patricia A. Keating, Ph.D. (*Linguistics*)
Edward L. Keenan, Ph.D. (*Linguistics*)
Pamela L. Munro, Ph.D. (*Linguistics*)
Elinor Ochs, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Emanuel A. Schegloff, Ph.D. (*Sociology*)
Russell G. Schuh, Ph.D. (*Linguistics*)
John H. Schumann, Ed.D. (*Teaching English as a Second Language and Applied Linguistics*),
Chair
Donca Steriade, Ph.D. (*Linguistics*)
Robert P. Stockwell, Ph.D. (*Linguistics*)

Professors Emeriti

George D. Bedell, Ph.D. (*Linguistics*)
Russell N. Campbell, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Victoria A. Fromkin, Ph.D. (*Linguistics*)
Evelyn R. Hatch, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Mazisi R. Kunene, Ph.D. (*Linguistics*)
Peter N. Ladefoged, Ph.D. (*Linguistics*)
Earl J. Rand, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Paul M. Schachter, Ph.D. (*Linguistics*)

Associate Professors

Hilda J. Koopman, Ph.D. (*Linguistics*)
Dominique L. Sportiche, Ph.D. (*Linguistics*)
Edward P. Stabler, Ph.D. (*Linguistics*)
Timothy A. Stowell, Ph.D. (*Linguistics*)

Assistant Professors

Asif Agha, Ph.D. (*Teaching English as a Second Language and Applied Linguistics*)
Marcyliena H. Morgan, Ph.D. (*Anthropology*)

Lecturers

Donna Brinton, M.A. (*Teaching English as a Second Language and Applied Linguistics*)
Janet Goodwin, M.A. (*Teaching English as a Second Language and Applied Linguistics*)
Christine Holten, M.A. (*Teaching English as a Second Language and Applied Linguistics*)
Linda Jensen, M.A. (*Teaching English as a Second Language and Applied Linguistics*)

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 Teaching English as a Second Language and Applied Linguistics, as well as professors in Anthropology, Linguistics, Psychology, Sociology, and Education, 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 the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

None.

Doctoral Degree

Admission

The basic requirement for admission to the doctoral program is the completion of the UCLA Master of Arts 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 another 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/grammar analysis.

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 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 both Linguistics 120A, 120B. 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 Teaching English as a Second Language and Applied Linguistics 283, followed by Teaching English as a Second Language and Applied Linguistics 250 or 252 or Sociology C244A or C244B or Anthropology 204 or 242. For basic preparation in applied linguistics, students must take Teaching English as a Second Language and Applied Linguistics 241.

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, Teaching English as a Second Language and Applied Linguistics 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 Linguis-

tics 501, 597, 599, Teaching English as a Second Language and Applied Linguistics 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 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.

Graduate Courses

501. Cooperative Program (2 to 8 units). Prerequisite: 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 units). Prerequisite: doctoral standing. 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 units). Prerequisite: 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 units). Prerequisite: 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.

Applied Linguistics Course List

Discourse/Grammar Analysis

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. Natural Language Processing I, II
210A, 210B. Field Methods I, II
214. Survey of Current Syntactic Theories
215. Syntactic Typology
220. Linguistic Areas
225. Linguistic Structures
251. Topics in Phonetics and Phonology I: Proseminar
252. Topics in Syntax and Semantics I: Proseminar
253. Topics in Language Variation I: Proseminar
254. Topics in Linguistics I: Proseminar
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)
Teaching English as a Second Language and Applied Linguistics 249. Current Issues in Language Analysis
250. Advanced Seminar: Cohesion Analysis of English Structure
252. Advanced Seminar: Contextual Analysis of English Structure
263. Cross-Linguistic Topics in Functional Grammar I: Typology
264. Cross-Linguistic Topics in Functional Grammar II: Discourse
283. Discourse Analysis
285. Language Socialization
288. Discourse Laboratory
289. Current Issues in Language Use

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 Applied Linguistics A, B
Education 204D. Minority Education in Cross-Cultural Perspective
German (Germanic Languages) C238. Linguistic Theory and Grammatical Description
Sociology C244A-C244B. Conversational Structures I, II
258. 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

- Linguistics 213A.** Grammatical Development
213B. Brain Bases for Language
C235. Neurolinguistics
254. Topics in Linguistics I: Proseminar
259A, 259B. Topics in Linguistics II: Proseminar
264A-264B-264C. Seminars: Special Topics in Linguistic Theory
Teaching English as a Second Language and Applied Linguistics 227. Experiential Seminar: Second Language Learning
251. Advanced Seminar: Interlanguage Analysis
260. Psycholinguistics and Language Teaching
261. Second Language Acquisition
269. Current Issues in Language Acquisition

271. Cross-Linguistic Topics in Second Language Acquisition

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 Thought

Language Assessment

Teaching English as a Second Language and Applied Linguistics 209. Current Issues in Experimental Design and Statistics for Applied Linguistics

222. Language Testing for Teachers of English as a Second Language

225. Program Evaluation in Applied Linguistics

232. Advanced Seminar: Construction and Administration of Language Tests

258. Laboratory: Advanced Topics in Language Assessment

Additional Courses in Other Departments

Education 200B. Survey Research Methods in Education

200C. Analysis of Survey Data in Education

202. Evaluation Theory

210A. Introduction to Research Design and Statistics

210B. Statistical Inference

210C. Analysis of Variance

210D. Multivariate Analysis

210E. Factor Analysis

211A. Measurement of Educational Achievement and Aptitude

211B. Measurement in Education: Underlying Theory

211C. Item Response Theory

218A. Multiple Regression Analysis

218B. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis

218C. Structural Equation Modeling

218D. Analysis of Categorical and Other Nonnormal Data

219. Laboratory: Advanced Topics in Research Methodology

221. Computer Analyses of Empirical Data in Education

222C. Qualitative Data Reduction and Analysis

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

ARCHAEOLOGY

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Elizabeth Carter, Ph.D. (*Near Eastern Languages and Cultures*), *Chair*

Christopher B. Donnan, Ph.D. (*Anthropology*)

Susan B. Downey, Ph.D. (*Art History*)

Timothy Earle, Ph.D. (*Anthropology*)

James N. Hill, Ph.D. (*Anthropology*)

Sarah P. Morris, Ph.D. (*Classics*)

Donald A. Preziosi, Ph.D. (*Art History*)

Dwight Read, Ph.D. (*Anthropology*)

C. Rainer Berger, Ph.D., *Emeritus* (*Anthropology, Geography, Geophysics*)

Giorgio Buccellati, Ph.D., *Emeritus* (*Ancient Near East, History*)

Clement W. Meighan, Ph.D., *Emeritus* (*Anthropology*)

Merrick Posnansky, Ph.D., *Emeritus* (*History, Anthropology*)

Henry B. Nicholson, Ph.D., *Emeritus* (*Anthropology*)

James R. Sackett, Ph.D., *Emeritus* (*Anthropology*)

Associate Professors

Jeanne Arnold, Ph.D., *in Residence* (*Anthropology*)

Irene A. Bierman, Ph.D. (*Art History*)

Hung-hsiang Chou, Ph.D. (*East Asian Languages and Cultures*)

Gail E. Kennedy, Ph.D. (*Anthropology*)

Steven Lattimore, Ph.D. (*Classics*)

Richard Leventhal, Ph.D. (*Anthropology*)

Lothar von Falkenhausen, Ph.D. (*Art History*)

Assistant Professor

Daniel C. Polz, Ph.D. (*Near Eastern Languages and Cultures*)

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. For

a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Since the Archaeology program is interdisciplinary, any undergraduate major may be considered for admission to the Master of Arts program, although those applicants who have had little previous archaeological education 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. These courses do count toward the minimum course requirements for the degree. Applicants are accepted for admission for the Fall Quarter only. The program's *Study Guidelines* brochure will be 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; Europe; 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 units) in the 200 and 500 series, including Archaeology M201A-M201B, M201C. Students must also take a laboratory-based course. This 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 elective course. A minimum of two additional elective graduate courses is required. Archaeology M265 is recommended. The other units may be completed by taking either graduate or upper division courses. The proportion of gradu-

ate to undergraduate courses may vary depending on the student's preparation.

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, or History 276. 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 must be cleared in advance with the chair of the program.

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 comprehensive examinations are graded by a committee consisting of the chair of the Archaeology Program and the professor in charge of the course. The examinations are graded as high pass, pass, or no pass. 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 doctoral 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) unless they can demonstrate to the chair and the members of the admissions committee that the examination should be waived.

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; Eu-

rope; 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 200A, 200B, 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 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, or History 276. 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 fourth 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 this 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 sixth 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 will be examined during the oral qualifying examination.

Upper Division Course

C110. Archaeological Materials Identification and Characterization (6 units). 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

200. Archaeology Colloquium (1 or 6 units). Discussion, two hours. Prerequisite: archaeology major or consent of instructor. Required of all students. Development of archaeology as a discipline. Major intellectual trends and current issues in archaeology. Scientific and humanistic viewpoints presented by archaeologists from different academic departments. May be repeated for credit but may be applied only twice toward departmental M.A. requirements. S/U grading only for students enrolled for one unit.

M201A-M201B. Graduate Core Seminars: Archaeology (6 units each). (Same as Anthropology M201A-M201B.) Seminar, three hours. Required of all M.A. 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. (Same as Anthropology M211.) Lecture, three hours. Prerequisite: consent of instructor. 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 units). (Same as Anthropology M212S.) Lecture, three hours. Prerequisite: graduate standing 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 units). 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.

259. Fieldwork in Archaeology (2 to 12 units). Prerequisite: consent of instructor. 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. (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 units). Prerequisite: 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 units). Hours to be arranged. Prerequisite: consent of instructor. May be repeated for credit with consent of adviser.

597. Preparation for Ph.D. Qualifying Examinations (2 to 12 units). Prerequisites: completion of formal coursework, passing of language examinations before enrollment, consent of instructor. May be repeated for credit with consent of adviser. S/U grading.

598. M.A. Paper Preparation (2 to 12 units). Prerequisite: consent of instructor. May be repeated for credit with consent of adviser. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 12 units). Prerequisite: consent of instructor. May be repeated for credit with consent of adviser. S/U grading.

Related Courses in Other Departments

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 your area of study.

Most archaeology courses are taught in the various departments. The following is a list of such courses, by topic and department. You 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 Materials Analysis: Laboratory Methods

117P. Intensive Laboratory Training in Archaeology

118A, 118B. Museum Studies

121A. Primate Fossil Record

121B. The Australopithecines

121C. Evolution of the Genus *Homo*

129P. Laboratory Methods in Biological Anthropology: Skeletal

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

M216. Dating Techniques in Environmental Sciences and Archaeology

217. Explanation of Societal Change

221A-221B. Fossil Evidence for Human Evolution

283. Formal Methods of Data Analysis in Anthropology

Art History 203. 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

197. Undergraduate Seminars

201A-201U. Topics in History

276. African Archaeology: Field Techniques

277. African Archaeology: Data Analysis

Old World — Europe

Anthropology 112. Old Stone Age Archaeology

213. Selected Topics in Old World Archaeology

Art History 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 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

M102A. Minoan Art and Archaeology

M102B. Mycenaean Art and Architecture

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

School of the Arts and Architecture

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Thomas S. Hines, Ph.D.
Craig Hodgetts, M.Arch.
Daniel Libeskind, M.A.
Robin Liggett, Ph.D.
Mark Mack, M.Arch.
Murray A. Milne, M.Arch.
Barton Myers, M.Arch.
Richard Schoen, M.Arch.
Thomas R. Vreeland, Jr., M.Arch.

Richard S. Weinstein, M.A.
 Samuel Aroni, Ph.D., *Emeritus*
 F. Eugene Kupper, M.Arch., *Emeritus*

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 Franklin Israel, M.Arch.
 Jurg Lang, Dipl.Arch., *Chair*
 George Rand, Ph.D.
 Ben Refuerzo, M.Arch.

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Sylvia Lavin, Ph.D.
 Dagmar Richter, M.A. (Diplom.)

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Berge Aran, Ph.D.
 Thom Mayne, M.Arch.

Adjunct Professors

Charles Jencks, Ph.D.
 Barton Phelps, M.Arch.
 Robert J. Yudell, M.Arch.

Adjunct Associate Professor

Julie Eizenberg, M.Arch.

Adjunct Assistant Professors

Judith Sheine, M.Arch.
 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of Architecture and Urban Design offers a Master of Architecture I (M.Arch. I), a Master of Architecture II (M.Arch. II), and a Master of Arts in Architecture (M.A.).

Master of Architecture I

Admission

The Master of Architecture I program accepts applications from those holding a baccalaureate degree or its equivalent, comparable in standard and content to a bachelor's degree from the University of California. It accepts applications for admission from students with a broad diversity of backgrounds. Although no academic or experiential training in architecture is required, some students have had experience in the field prior to admission. First-year classes assume some familiarity with the history and culture of architecture, possession of basic graphics skills, and understanding of fundamental concepts of mathematics 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 upon having taken at least one college-level course in each of the following areas: Newtonian physics, mathematics, 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 prerequisites, contact the graduate adviser.

The Admissions Committee considers applications from those who, at the time of application, do not have these prerequisites. If applicants do not have the prerequisites, 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 prerequisites 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, a statement of purpose, and a creative portfolio. No admission tests are required. 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 the Fall Quarter. Additional information about the program may be obtained by writing directly to the admis-

sions 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, 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, expect to spend additional time in residence.

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 theory and one studio or project application (Architecture and Urban Design 402, 403 series), during the second year of study.

Specializations are currently available in the following areas: architectural design; urban policy and design; policy, programming, and evaluation; architectural technology; design and computation; history and theories of architecture.

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 201A, 201B, 291, 401, 402, 403 series, 411, 412, 413, 414, 415, 416, 421, 422, 423, 425, 426, 431, 432, 433, 436, 441, 442, 498, 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 these 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 average in these studios are reviewed by a committee consisting of all design studio instructors, and are not be 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) policy, programming, and evaluation, (3) architectural technology, (4) design and computation, (5) history and theories of architecture.

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 five areas listed 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, 403 series studio in the spring. At the beginning of the Fall Quarter of the second year consult the academic adviser and carefully plan the elective coursework.

Waiving Required Courses. Students who believe they 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 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, 403 series are available in spring and may be available in other quarters as well.

First Year

Fall: Architecture and Urban Design 201A, 201B, 411, 421.

Winter: Architecture and Urban Design 412, 422, 431, 436.

Spring: Architecture and Urban Design 413, 423, 432, 442.

Second Year

Fall: 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 Year

Fall: Architecture and Urban Design 291, 416, 426, elective.

Winter: Architecture and Urban Design 401 (or 402 or 415), 498, 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) policy, programming, and evaluation, (4) architectural technology, (5) design and computation, (6) history and theories of architecture.

The examinations are administered by the appropriate curriculum area committees.

Students who opt to take the comprehensive examination in architectural design must enroll in four units of Architecture and Urban Design 498, in addition to 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 Master of Architecture II degree 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 prerequisites.

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, a statement of purpose, and a creative portfolio. No admission tests are required. 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, 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 six major areas include architectural design; urban design; policy, programming, and evaluation; technology; design theory and methods; history, analysis, and criticism of architecture.

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 total 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 six 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.

Policy, Programming, and Evaluation

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.

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, 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.

History and Theories of Architecture

Students are required to complete an approved sequence of three core courses in this area, consisting of (1) two lecture/seminar courses which establish substantive foundations; and (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 11" x 17" 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 estab-

lished 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. This 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 program in Architecture offers 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, and a creative portfolio. No admission tests are required. 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, expect to spend additional time in residence.

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: policy, programming, and evaluation; architectural technology (including energy-conserving design); design and com-

putation; history and theories of architecture. 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 sign up for 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 units) of graduate or upper division work. At least five (20 units) of these courses must be 200-series courses and at least two (eight units) 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 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) short biographical résumé; (2) transcripts of academic record; (3) examples of research and/or creative work; (4) three letters of reference; (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. If an applicant's native language is other than English, they 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.

Major Fields or Subdisciplines

Students are required to undertake a program of study that includes one major area, normally drawn from the following offered by the Architecture and Urban Design Department: (1) policy, programming, and evaluation; (2) architectural technology; (3) design and computation; (4) history and theories of architecture.

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 this 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 over 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, this is taken in the 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 course 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.
- (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 will not 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 be completed at a standard that demonstrates 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. This examination 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.

After passing the University Oral Qualifying Examination, students are advanced to candidacy. The Candidate in Philosophy degree is not awarded.

Lower Division Course

88. Lower Division Seminar: Special Topics in Architecture and Urban Design. 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. (Formerly numbered Architecture and Urban Planning 190.) (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. (Formerly numbered Architecture and Urban Planning C191.) 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. (Formerly numbered Architecture and Urban Planning C192.) 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. (Formerly numbered Architecture and Urban Planning C193.) 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.

199. Special Studies (2 to 8 units). (Formerly numbered Architecture and Urban Planning 199.) Prerequisite: consent of instructor. Independent research or investigation on a selected topic to be arranged with a faculty member. May be repeated for credit.

Graduate Courses

201A. Theory of Architecture (2 to 4 units). (Formerly numbered Architecture and Urban Planning 201A.) Lecture, 90 minutes; discussion, 90 minutes. 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.

201B. Theory of Form (2 units). (Formerly numbered Architecture and Urban Planning 201B.) Lecture/studio, 90 minutes. Exploration of theories of form and composition through lectures and exercises.

203. Decision Making in Planning and Design. (Formerly numbered Architecture and Urban Planning 203.) 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. (Formerly numbered Architecture and Urban Planning 204.) 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.

M224A-M224B. Formal Theory of Composition. (Formerly numbered 224A-224B.) (Same as Design CM211, CM212.) Lecture, three hours; outside study, nine hours. Examination of design as a formal enterprise in which rules are adopted and then followed to compose, describe, and evaluate designs. Development in detail of historical, contemporary, and new examples in architecture, painting, sculpture, and other fine and applied arts. S/U or letter grading. **M224A.** Formal Grammars; **M224B.** Color Grammars. Prerequisite: course M224A.

M224C. Projects in Composition. (Same as Design CM213.) Lecture, three hours; outside study, nine hours. Prerequisites: courses M224A-M224B. Project class in which students pursue individual or group work using formal grammars, including design projects, analytical projects, or research papers. S/U or letter grading.

M225A-M225B-M225C. Fundamentals of Architectonics. (Formerly numbered 225A-225B-225C.) (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. S/U or letter grading. **M225A.** Proportion; **M225B.** Symmetry; **M225C.** Partition and Order.

226A. Introduction to Computer-Aided Design. (Formerly numbered Architecture and Urban Planning 226A.) Lecture, three hours; laboratory, one hour. Introduction to various electronic graphic representations used in design; functionality and structure of modern CAD systems.

226B. Computer-Aided Design and Visualization. (Formerly numbered Architecture and Urban Planning 226B.) Lecture, three hours; laboratory, one hour. Prerequisite: course 226A or equivalent. Intermediate course on use of CAD tools in design, concepts of project organization, design development, with emphasis on three-dimensional representations; introduction to computer-based visualization techniques.

226C. Computer Visualization. (Formerly numbered Architecture and Urban Planning 226C.) Lecture, three hours. Prerequisite: graduate standing or consent of instructor. Concept and techniques of computer visualization of artifacts, including realistic rendering and animation.

M227A. Programming Computer Applications in Architecture and Urban Design. (Formerly numbered 227A.) (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. S/U or letter grading.

M227B. Introduction to Geometric Modeling. (Formerly numbered 227B.) (Same as Design CM242.) Lecture, three hours; outside study, nine hours. Prerequisite: 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. S/U or letter grading.

M227C. User Interaction Techniques in Design. (Formerly numbered 227C.) (Same as Design CM243.) Lecture, three hours; outside study, nine hours. Prerequisite: 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. S/U or letter grading.

227D. Design and Building Models. (Formerly numbered Architecture and Urban Planning 227D.) 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.

M228A-M228B-M228C. Computational Foundations of Design. (Formerly numbered 228A-228B-228C.) (Same as Design CM231, CM232, CM233.) Lecture, three hours; outside study, nine hours. Prerequisite: consent of instructor. S/U or letter grading. **M228A.** Algebra. Introduction to algebras of shapes and their applications in design practice and computer-aided design. **M228B.** Grammars. Computation in algebras: shape grammars and their formal properties. **M228C.** Applications. Applications of shape grammars in architecture and design.

242. Climate Responsive Design. (Formerly numbered Architecture and Urban Planning 242.) Prerequisite: professional degree in architecture or consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 243.) Prerequisites: 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. (Formerly numbered Architecture and Urban Planning C247A.) 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. (Formerly numbered Architecture and Urban Planning 247B.) Lecture, three hours. Prerequisites: course C247A and one climatology course, or consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 248A-248B.) Prerequisites: courses 242 and 442, or consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 255A-255B.) 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.

258. Urban Morphology. (Formerly numbered Architecture and Urban Planning 258.) Lecture, three hours. Exploration of urban space from structuralist perspective. Primary emphasis on relationships between socioeconomic, experiential, and formal structures of the urban environment.

M259. Advanced Real Estate Development for Planners and Architects. (Same as Urban Planning 259.) Discussion, three hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 271.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations.

M272. Real Estate Development for Planners and Architects. (Formerly numbered Architecture and Urban Planning 272.) (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 interactively modified to meet economic feasibility tests.

279. Housing for Developing Countries. (Formerly numbered Architecture and Urban Planning 279.) 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. (Formerly numbered Architecture and Urban Planning C280.) 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. (Formerly numbered Architecture and Urban Planning 282A.) 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. (Formerly numbered Architecture and Urban Planning C282B.) 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.

286A-286B. Ancient Architecture. (Formerly numbered Architecture and Urban Planning 286A-286B.) 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, 400-1500. (Formerly numbered Architecture and Urban Planning 287.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 288A-288B.) 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 units). (Formerly numbered Architecture and Urban Planning 289.) Prerequisite: consent of instructor. Selected academic topics initiated by students, student teams, or faculty and directed by a faculty member. May be repeated for credit.

290. Landscape Studies. (Formerly numbered Architecture and Urban Planning 290.) Lecture, three hours. Historical introduction to principles of garden and landscape design. Exploration of key issues through case studies of gardens, landscape architecture, and vernacular landscape.

291. Theory of Architectural Programming. (Formerly numbered Architecture and Urban Planning 291.) 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. (Formerly numbered Architecture and Urban Planning 292.) 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.

294A-294B. Environmental Psychology. (Formerly numbered Architecture and Urban Planning 294A-294B.) 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: Architectural Theory. (Formerly numbered Architecture and Urban Planning 296.) 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. (Formerly numbered Architecture and Urban Planning 297.) Lecture, two hours; discussion, two hours; laboratory, two hours. Prerequisite: consent of instructor. 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-298D. Research Practicum in Architecture (2 to 4 units each). (Formerly numbered Architecture and Urban Planning 298A-298D.) Prerequisite: consent of instructor. In-depth examination of research methods in the various major fields. May be repeated for credit. **298A.** Research Practicum in Policy, Programming, and Evaluation; **298B.** Research Practicum in Technology; **298C.** Research Practicum in Design Theory and Methods; **298D.** Research Practicum in History, Analysis, and Criticism of Architecture.

375. Teaching Apprentice Practicum (1 to 4 units). (Formerly numbered Architecture and Urban Planning 375.) Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 401.) Studio, eight hours. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 402.) Studio, eight hours. Prerequisite: consent of instructor. 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 units each). (Formerly numbered Architecture and Urban Planning 403A-403D.) Studio, eight hours. Prerequisites: prior courses of particular sequence or consent of instructor. **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. (Formerly numbered Architecture and Urban Planning 404.) (Same as Urban Planning M404.) Lecture, one hour; discussion, one hour; studio, four hours. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 411.) Studio, 12 hours. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 412.) Studio, 12 hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 413.) Studio, 12 hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 414.) Studio, 12 hours. Prerequisite: second-year standing. 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. (Formerly numbered Architecture and Urban Planning 415.) Studio, 12 hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 416.) Studio, 12 hours. Prerequisites: completion of required coursework up to first term of third year, consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 421.) Lecture/studio, 90 minutes. Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 422.) Lecture/studio, 90 minutes. Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 423.) Lecture/studio, 90 minutes. Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 424.) Lecture/studio, 90 minutes. Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 425.) Lecture/studio, 90 minutes. Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 426.) Lecture/studio, 90 minutes. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 428.) Discussion, three hours; studio, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 431.) Lecture, three hours. Prerequisites: basic algebra, geometry, trigonometry, consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 432.) Lecture, three hours. Prerequisites: course 431, consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 433.) Lecture, three hours. Prerequisites: course 432, consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 434.) Lecture, three hours. Prerequisites: course 433, consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 436.) 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. (Formerly numbered Architecture and Urban Planning 437.) Studio, eight hours. Prerequisite: one course in basic building construction (such as 436) or consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 438.) Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 441.) Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 442.) Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 444.) Prerequisite: one course in building climatology or consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 445.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 448.) 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. (Formerly numbered Architecture and Urban Planning 461.) 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 units). (Formerly numbered Architecture and Urban Planning 496.) Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 497.) Prerequisite: consent of instructor. Projects initiated either by individual students or student teams and directed by a faculty member. May be repeated for credit.

498. Program Development (4 to 8 units). (Formerly numbered Architecture and Urban Planning 498.) Studio, six to 10 hours. Prerequisite: consent of instructor. Structural investigation of relationship between verbal description and architectural design. S/U grading.

596. Directed Individual Research and Study in Architecture and Urban Design (2 to 8 units). (Formerly numbered 596A.) May be repeated for credit. S/U grading.

597. Preparation for Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units). (Formerly numbered 597A.) Prerequisite: consent of instructor. May be repeated for credit. S/U grading.

598. Preparation in Architecture/Urban Design for Master's Thesis (2 to 8 units). (Formerly numbered 598A.) Prerequisite: consent of instructor. May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research in Architecture (2 to 8 units). (Formerly numbered 599A.) Prerequisite: doctoral standing. May be repeated for credit. S/U grading.

ART

School of the Arts and Architecture

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(310) 825-3281

Professors

Chris Burden, M.F.A.
Henry T. Hopkins, M.A., *Chair*
Adrian Saxe, B.F.A.
Samuel Amato, B.F.A., *Emeritus*
William J. Brice, *Emeritus*
Raymond B. Brown, M.A., *Emeritus*
Elliot J. Elgart, M.F.A., *Emeritus*
Robert F. Heinecken, M.A., *Emeritus*
Lee Mullican, *Emeritus*

Associate Professors

Barbara Drucker, M.F.A.
Roger Herman, M.F.A.
Lari Pittman, M.F.A.
Charles Ray, M.F.A.
Nancy Rubins, M.F.A.

Assistant Professors

Paul McCarthy, 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 emphasizing experimentation and encouraging students to draw from many disciplines in their creative process. The department provides a strong background in the principal art traditions and contemporary studio practice. B.A. and M.F.A. degrees are offered in painting/drawing, new genres, photography, and sculpture. With the restructuring of the Department of Design, ceramics is now an area of specialization within the Department of Art.

Art courses include painting and drawing, sculpture, printmaking, photography, new alternative media (which include performance, installation, video, and other nontraditional media), and ceramics. Students are introduced to diverse media and ideas in lower division courses and have the opportunity to specialize in upper division. Individual expression is encouraged in a general way for those who wish careers requiring art-related knowledge and in a specific sense for those who go on to careers as professional artists.

The Department of Art curricula lead to the Bachelor of Arts, Master of Arts, and Master of Fine Arts degrees. All programs benefit from the rich and varied art resources at UCLA and in the Los Angeles community.

Bachelor of Arts Degree

Preparation for the Major

Required: Art 1A, 1B, 11A, 11B, 11D, 11E, 31, 32, and one course from Art History 50, 51, 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of Art offers the Master of Arts in Art and the Master of Fine Arts.

Master of Arts

Admission

Students are admitted to the Master of Arts 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 to 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 related 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 Master of Fine Arts 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

Drawing, painting, sculpture, photography, ceramics, and alternative media. 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 to 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 in the field of specialization, including four units of Art 276. 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.

Lower Division Courses

1A. Drawing. Studio, eight hours; five hours arranged. Course in basic drawing skills intended as preparation for work in a variety of media.

1B. Sculpture. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B. Basics of painting: introduction to technical procedures, tools, and materials. Discussion of fundamental conceptual and formal concerns.

11B. Photography. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B. 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.

11C. Printmaking. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B. 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.

11D. New Genres. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B. Introduction to projects in installation, performance, video, film, intermedia, and other nontraditional media and processes.

11E. Ceramics. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B. 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.

31. Modernism. Discussion, three hours. Survey of 20th-century European/American art, its antecedents, and its social and political context.

32. Survey of Critical Thought. 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. Discussion, three hours. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11E, 31, and 32, or consent of instructor. 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. Studio, eight hours; five hours arranged. Prerequisites: courses 1A, 1B, 11A through 11D, 31, and 32, or consent of instructor, senior standing. Advanced studio projects, with emphasis on analysis and criticism of individual creative work and ideas. May be repeated once for credit.

197. Honors Course. Hours to be arranged. Prerequisites: 3.0 GPA overall, 3.5 GPA in major, consent of instructor, junior or senior standing. Individual studies for majors. May be repeated once for credit.

199. Special Studies in Art (2 to 8 units). Hours to be arranged. Prerequisites: 3.0 GPA in major, consent of instructor, senior standing. Individual studies for majors. May be taken for a maximum of eight units.

Graduate Courses

Prerequisite for all courses: consent of instructor. All courses may be repeated for credit (unless otherwise noted) on recommendation of the adviser; they are not open to undergraduate students.

271. Painting (2 to 8 units). Studio, eight hours. Study in painting and associated media.

272. Graduate Printmaking (2 to 8 units). Studio, eight hours. Studies in traditional and experimental printmaking. Selected studies in intaglio, lithograph, woodcut, silk screen, photo printmaking, and mixed media.

273. Graduate Sculpture (2 to 8 units). 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.

274. Photography (2 to 8 units). 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.

275. New Genre (2 to 8 units). Studio, eight hours. Prerequisite: consent of instructor. Studies in alternative media, including installation, performance, video, film, and other nontraditional media and processes.

276. Graduate Group Critique. 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 units). Studio, eight hours. Prerequisite: consent of instructor. 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.

280. Graduate Seminar: Art. 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.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: 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 units). Prerequisite: consent of instructor.

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.

David M. Kunzle, Ph.D.
Donald F. McCallum, Ph.D.
Donald A. Preziosi, Ph.D.
Anthony Vidler, Dipl.Arch., *Chair*
Katharina Otto-Dorn, Ph.D., *Emerita*
Carlo Pedretti, M.A., *Emeritus (Armand Hammer Professor Emeritus of Leonardo Studies)*

Associate Professors

Irene A. Bierman, Ph.D.
Robert L. Brown, Ph.D.
Lothar von Falkenhausen, Ph.D.
Cécile Whiting, Ph.D.
Joanna Woods-Marsden, Ph.D.

Assistant Professor

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. This 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.

Bachelor of Arts Degree

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, M102B, M102C, M102D, M102E, (2) M102F, M102G, M102H, M102I, M102J, M102K, (3) 105A, 105B, 105C, 105D, 105E, (4) 106A, 106B, 106C, 106D, 108A, 108B, (5) 109A, 109B, 109C, 109D, (6) 110A, 110B, 110C, 110D, 110E, 110F, 110G, (7) C112A, C112B, C112C.

Group B — (8) 104A, 104B, C104C, (9) 114A, 114D, 114F, C115A, (10) 114C, 114E, C115B, C115C, C115D, C115E, 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 72 units for graduation. Additional upper division units must be taken to reach the 72-unit total.

It is recommended that you have each term's program approved by the departmental adviser.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

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 Master of Arts in Art History 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, the student 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.

ART HISTORY

College of Letters and Science

UCLA
3209 Dickson Art Center
Box 951417
Los Angeles, CA 90095-1417
(310) 206-6905

Professors

Albert Boime, Ph.D.
Susan B. Downey, Ph.D.
Cecelia F. Klein, Ph.D.

Areas of Study

Fifteen areas in three 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.

Course Requirements

The M.A. degree requires the completion of a major and two minors within the art history major. There are three 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 areas 1-6 or two courses from area 15, Field C.

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 — two courses in one area other than the major selected from areas 7-14 or two courses from area 15, Field C.

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, areas 1-6 or areas 7-14, Field B.

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 — 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.

All students must take (1) Art History 200 and (2) either course 201 or 202. Courses to be taken 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.

Upon completion of all course and foreign language requirements, the department requests the Graduate Division to appoint the thesis committee. After this committee has been appointed, students may petition for advancement to candidacy for the M.A. degree. Candidates have one calendar year after advancement 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 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 Ph.D. degree program. 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) eighteenth century; (7) Greek; (8) medieval; (9) nineteenth century; (10) Renaissance; (11) Roman; and (12) twentieth 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 Fields 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 1-12 or 13-21 in Fields A or B.

Minor from Fields 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 on 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 on 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 on 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 on 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, the student selects 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, the student then takes the University Oral Qualifying Examination, given by the doctoral committee. Assuming there is no more than one no pass vote, the student may initiate the procedure to become advanced to candidacy.

Lower Division Courses

50. Ancient Art. Lecture, three hours; quiz, one hour. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture.

51. Medieval Art. Lecture, three hours; quiz, one hour. Early Christian, Byzantine, Islamic, Carolingian, Ottoman, Romanesque, and Gothic art and architecture.

54. Modern Art. Lecture, three hours; quiz, one hour. Art and architecture from 1800 to the present in Europe and the U.S.

55A. Africa, Oceania, and Native America. Lecture, three hours; discussion, one hour. Comparative approach, emphasizing economic, cultural, and historical aspects of selected artistic traditions which developed outside the spheres of influence of major European and Asiatic civilizations.

55B. Arts of Pre-Columbian America. 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. 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. 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. Lecture, three hours; discussion, one hour. History of art and architecture in Western Europe from 1400 to 1750.

88A-88Z. Lower Division Seminars. Lecture, 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

101A. Egyptian Art and Archaeology. 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. Lecture, three hours. Prerequisite: course 50. Study of architecture, sculpture, painting, and minor arts during the Middle and New Kingdoms.

M102A. Minoan Art and Archaeology. (Same as Classics M153A.) Lecture, three hours. Prerequisite: course 50 or Classics 10 or equivalent. 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. (Same as Classics M153B.) Lecture, three hours. Prerequisite: course 50 or Classics 10 or equivalent. 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. (Same as Classics M153C.) Lecture, three hours. Prerequisites: course 50, Classics 10 or equivalent. 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. (Same as Classics M153D.) Lecture, three hours. Prerequisites: course 50, Classics 10 or equivalent. 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. (Same as Classics M153E.) Lecture, three hours. Prerequisites: course 50, Classics 10 or equivalent. 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. (Same as Classics M153F.) Lecture, three hours. Prerequisite: course 50 or Classics 20 or equivalent. Arts of Italic peninsula from ca. 1000 B.C. to end of the Roman Republic. P/NP or letter grading.

M102G. Roman Art. (Same as Classics M153G.) Lecture, three hours. Prerequisite: 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. (Same as Classics M153H.) Lecture, three hours. Prerequisites: 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. (Same as Classics M153I-M153J-M153K.) Lecture, three or four hours. Prerequisite: course 50 or Classics 10 or 20 or History 1A or equivalent. 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.

104A. Western Islamic Art. Lecture, three hours. From the Tigris and Euphrates Rivers to Spain, 7th to 16th century.

104B. Eastern Islamic Art. Lecture, three hours. From the Tigris and Euphrates Rivers through Afghanistan and parts of central Asia; Ottoman Empire.

C104C. Problems in Islamic Art. Lecture, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. Concurrently scheduled with course C214.

105A. Early Christian Art. Lecture, three hours. Prerequisite: course 51 or consent of instructor. Origins and development of architecture, sculpture, and painting of early Christianity to the iconoclastic controversy.

105B. Early Medieval Art. Lecture, three hours. Prerequisite: course 51 or consent of instructor. Art and architecture of Western Europe from the Migration period until A.D. 1000.

105C. Romanesque Art. Prerequisite: course 51. Art and architecture of Western Europe in the 11th and 12th centuries.

105D. Gothic Art. Lecture, three hours. Prerequisite: course 51. Art and architecture of Europe in the 13th century.

105E. Byzantine Art. Lecture, three hours. Prerequisite: course 51 or consent of instructor. 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. Lecture, three hours. Strongly recommended (but not prerequisite): 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. Lecture, three hours. Prerequisite: course 57 or consent of instructor. Art and architecture of the 14th century.

106B. Italian Art of the Quattrocento. Lecture, three hours. Prerequisite: course 57. Art and architecture of the 15th century.

106C. Italian Art of the Cinquecento. Lecture, three hours. Prerequisite: course 57. Art and architecture of the 16th century.

106D. Late Renaissance Art: Counter-Reformation. Lecture, three hours. Prerequisite: course 57 or consent of instructor. Painting, sculpture, and architecture of the late 16th and early 17th centuries considered in context of the Counter-Reformation.

108A-108B. Northern Renaissance Art. Lecture, three hours. Prerequisite: course 57. Course 108A is prerequisite to 108B. Painting and sculpture in the Northern Renaissance.

109A. Baroque Art. Lecture, three hours. Prerequisite: course 57. Art and architecture of Italy and Spain, 16th to late 17th century.

109B. Baroque Art. Lecture, three hours. Prerequisite: course 109A. Art and architecture of Northern Europe, 16th to late 17th century.

109C. European Art of the 18th Century. Lecture, three hours. Prerequisite: 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. Lecture, three hours.

110A. European Art of the 19th Century. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 54. Study of major developments in modern art, 1880s to 1930, including Seurat, Cezanne, Gauguin, Van Gogh, Art Nouveau, Fauvism, German expressionism.

110D. Contemporary Art. Lecture, three hours. Prerequisite: course 54. European and American art since World War II.

110E. Art and Politics in the Contemporary Americas: Post-World War II U.S. Art and Politics. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Prerequisite: 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. 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. 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. 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. 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.

114A. Early Art of India. 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. 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. 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. 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. 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. Lecture, three hours. Prerequisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C257.

C115B. Advanced Chinese Art. Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C258.

C115C. Advanced Japanese Art. Lecture, three hours. Prerequisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C259.

C115D. Art and Material Culture, Neolithic to 210 B.C. 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. 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. 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. Lecture, three hours. Prerequisite: course 55B or consent of instructor. 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. Lecture, three hours. Prerequisite: course 55B or consent of instructor. 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. Lecture, three hours. Prerequisite: course 55B or consent of instructor. 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.

118A. Arts of Oceania. Lecture, three hours. Prerequisite: course 55A or consent of instructor. Survey of arts of the major island groupings of the Pacific, emphasizing style-regions and broad historical relationships.

118C. Arts of Sub-Saharan Africa. Lecture, three hours. Survey, with emphasis on sculpture, of selected traditions within a style-region framework.

118D. Arts of Native North America. Lecture, three hours. Prerequisite: course 55A or consent of instructor. 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. Lecture, three hours. Prerequisite: course 118A or 118C or 118D or consent of instructor. 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. 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. 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. Lecture, three hours. Prerequisite: junior standing or consent of instructor. Selected aspects of art history explored through readings, discussion, research papers, and oral presentations. May be repeated twice.

197. Honors Course. Hours to be arranged. Prerequisites: 3.0 GPA overall, 3.5 in major, junior or senior standing, consent of instructor. Individual studies for majors. May be repeated once for credit.

199. Special Studies in Art (2 to 8 units). Hours to be arranged. Prerequisites: 3.0 GPA in major, senior standing, consent of instructor. Individual studies for majors. Eight units may be applied toward the major. P/NP or letter grading.

Graduate Courses

All courses may be repeated for credit (unless otherwise noted) on recommendation of the adviser; they are not open to undergraduate students.

200. Art Historical Theories and Methodologies. 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.

201. Topics in Historiography of Art History. 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.

202. Topics in Theory and Criticism in Art History. 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.

203. Museum Studies. Seminar, two hours. Various aspects of museum activities: concepts and historical evolution of art museums and collecting; methodology of exhibitions; problems involved in acquisition and evaluation of works of art.

204. Restoration, Preservation, and Conservation. Seminar, two hours. May not be repeated.

205. Studies in Prints. 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.

206. Studies in Drawings. 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.

210. Egyptian Art. Seminar, two hours. Prerequisites: 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.

211. Topics in Aegean Art. Seminar, two hours. Prerequisites: courses M102A and M102B, or consent of instructor. Art and architecture of Aegean Bronze Age (3000-1000 B.C.). Monuments or theoretical problems related to art and culture of Crete, Greece, the Cyclades, or Western Anatolia.

C212A. American Art before the Civil War. Lecture, three hours. Painting, sculpture, and architecture in the U.S. from Colonial period through the Civil War. Concurrently scheduled with course C112A.

C212B. American Art in the Gilded Age, 1860 to 1900. Lecture, three hours. Painting, sculpture, and architecture in the U.S. from the Civil War to turn of the century. Concurrently scheduled with course C112B.

C212C. American Art, 1900 to 1945. Lecture, three hours. Painting, sculpture, and photography in the U.S. from 1900 to 1945. Concurrently scheduled with course C112C. S/U or letter grading.

213. Advanced Studies in Islamic Art. 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.

C214. Problems in Islamic Art. Lecture, three hours. Prerequisite: consent of instructor. Monuments or theoretical problems related to Islamic culture and artistic production. Concurrently scheduled with course C104C.

C216A. Advanced Studies in African Art: Western Africa. 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 C119A.

C216B. Advanced Studies in African Art: Central Africa. 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 C119B.

217. Primitivism and Art. 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. S/U or letter grading.

C218A. Pre-Columbian Art of Mexico. Lecture, three hours. Prerequisite: course 55B or consent of instructor. 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 C117A.

C218B. Pre-Columbian Art of the Maya. Lecture, three hours. Prerequisite: course 55B or consent of instructor. 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 C117B.

C218C. Pre-Columbian Art of the Andes. Lecture, three hours. Prerequisite: course 55B or consent of instructor. 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 C117C.

219A. Oceanic Art. Discussion, two hours. Prerequisite: consent of instructor. Studies in selected topics in the art of Pacific islands.

219B. Pre-Columbian Art. Discussion, two hours. Prerequisite: consent of instructor. Studies in selected topics in art of pre-Hispanic Latin America.

219C. African Art. Discussion, two hours. Prerequisite: consent of instructor. Studies in selected topics in art of sub-Saharan Africa.

219D. Native North American Art. Discussion, two hours. Prerequisite: consent of instructor. Studies in selected topics in art of the American Indian.

220. Oceanic, Pre-Columbian, African, and Native North American Art. Discussion, two hours. Prerequisite: consent of instructor. Studies in selected topics comparing arts of Oceania, Africa, and pre-Columbian and Native North America.

221. Topics in Classical Art. 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.

223. Classical Art. Seminar, two hours. Studies in Greco-Roman art and archaeology. Studies of specific periods, sites, or artistic media.

225. Medieval Art. Seminar, two hours. Studies in selected topics in Byzantine and European medieval art.

226A-226B. Medieval Art and Architecture. Studies in selected topics in Byzantine and European medieval art. Seminar extends over two consecutive terms. In Progress grading.

229. Renaissance and Baroque Paleography. Seminar. Prerequisites: 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.

230. Italian Renaissance Art. Seminar, two hours. Prerequisite: knowledge of Italian. Study of various aspects of Leonardo's theoretical approach to art in terms of sources and impact on followers.

231. Leonardo and Renaissance Theory of Art. Seminar, two hours. Prerequisite: knowledge of Italian. Study of various aspects of Leonardo's theoretical approach to art in terms of sources and impact on followers.

235. Northern Renaissance Art. Seminar, two hours. Prerequisite: knowledge of German. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required.

240. Baroque Art. 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.

M241A-M241B. Seminars: Modern European History. (Same as History M230A-M230B.) Seminar, three hours. In Progress and S/U or letter grading.

244. Topics in European Art from 1700 to 1900. Lecture, two to three hours.

245. European Art from 1700 to 1900. Seminar, two hours.

246. Art and Architecture of Georgian England. Seminar, two hours.

253. Modern Art. 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.

C254. Latin American Art in the 20th Century. 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 C110H. S/U or letter grading.

255. American Art. Seminar, two hours. Prerequisite: course C112A or C112B or C112C or consent of instructor, depending on topic. Topics in American art from Colonial period to the present. Discussion of weekly readings, student oral presentations, and papers.

C257. Advanced Indian Art. Lecture, three hours. Prerequisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C115A.

C258. Advanced Chinese Art. Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C115B.

C259. Advanced Japanese Art. Lecture, three hours. Prerequisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C115C.

260A. Indian Art. Lecture, two hours. Advanced studies in secular and religious artistic traditions of India. S/U or letter grading.

260B. Chinese Art. Lecture, two hours. Advanced studies in secular and religious artistic traditions of China. S/U or letter grading.

260C. Japanese Art. Lecture, two hours. Advanced studies in secular and religious artistic traditions of Japan. S/U or letter grading.

C261A. Art and Material Culture, Neolithic to 210 B.C. 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 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. 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 C115E. S/U or letter grading.

C261C. Art and Material Culture of Late Imperial China, 906 to 1911. 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 C115F. S/U or letter grading.

265. Fieldwork in Archaeology (2 to 8 units). Participation in archaeological excavations or other archaeological research under supervision of the staff.

M270. Art Law. (Same as Law M301.) Prerequisite: consent of instructor. 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 units). Prerequisite: 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 units). Prerequisites: graduate standing and apprentice personnel employment as a teaching assistant, associate, or fellow. Required of all new teaching assistants during Fall Quarter of their TA 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 units). Prerequisite: 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 units). Prerequisite: consent of instructor.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 12 units). Prerequisite: consent of instructor. S/U grading.

598. Research for and Preparation of M.A. Thesis (2 to 12 units). Prerequisite: consent of instructor. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation (2 to 12 units). Prerequisite: consent of instructor. S/U grading.

Related Courses in Another Department

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

ASIAN AMERICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Professors

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Lucie C. Cheng, Ph.D. (*Sociology*)
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Jerry Kang, J.D., *Acting (Law)*
Snehendu B. Kar, Dr.P.H., M.Sc. (*Community Health Sciences*), *Chair*
Geraldine V. Padilla, Ph.D. (*Nursing*)
Stanley Sue, Ph.D. (*Psychology*)
Harry H.L. Kitano, Ph.D., *Emeritus (Social Welfare)*

Associate Professors

King-Kok Cheung, Ph.D. (*English*)
James E. Lubben, D.S.W. (*Social Welfare*)
Valerie J. Matsumoto, Ph.D. (*History*)
Robert A. Nakamura, M.F.A. (*Film and Television*)
Don T. Nakanishi, Ph.D. (*Education*)
Paul Ong, Ph.D. (*Urban Planning*)

Assistant Professors

Pauline Agbayani-Siewert, Ph.D. (*Social Welfare*)
Chih-Fun Cindy Fan, Ph.D. (*Geography*)
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*)
Ailee Moon, Ph.D. (*Social Welfare*)
Kyeongyoung Park, Ph.D. (*Anthropology*)
Michael Salman, Ph.D. (*History*)
Shu-mei Shih, Ph.D. (*East Asian Languages and Cultures*)
David T. Takeuchi, Ph.D. (*Psychiatry and Biobehavioral Sciences*)
Cindy Yee-Bradbury, Ph.D. (*Psychology*)
Henry Yu, Ph.D. (*History*)
Min Zhou, Ph.D. (*Sociology*)

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 and Pacific 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 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 specialization in the field.

A major goal of the program is to communicate the experiences of Asians as an American ethnic group. Courses examine the important issues and concerns of Asian Americans, including their history, social organization, and culture.

Bachelor of Arts Degree

The B.A. program provides a general introduction to Asian American studies for students who anticipate advanced work at the graduate level or careers in research, public service, and community work related to Asian Americans. Courses examine the important issues and concerns of Asian Americans, including their history, social organization, and culture. 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 American subgroup, two ethnic/race/gender relations courses, two courses on Asian or an Asian 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).

You 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 you must maintain an overall grade-point average of 2.0 in all courses.

Asian American Studies Specialization

The specialization augments study in a traditional field. Students participating in this program are required to complete both a departmental major and the Asian American studies specialization.

You 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 you must maintain an overall grade-point average of 2.0 in all courses.

Graduate Study

The following constitutes introductory information regarding the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

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 nonappointed 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.

Lower Division Course

21. Asians and Pacific Islanders in American Society. 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.

Upper Division Courses

100A-100B. Introduction to Asian American Studies. Introductory course on Asian American studies. **100A.** History of Asians in America; **100B.** Contemporary Asian American Communities.

101A. Field Studies Methods in Asian Pacific Communities. Lecture, three hours. Prerequisite: one course from Asian American Studies 100A 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. Discussion, 90 minutes; fieldwork, eight hours minimum. Prerequisite: course 101A or another Asian American studies course (except 199) or consent of instructor. 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. (Not the same as course 103 prior to Winter Quarter 1995.) Lecture, three hours; discussion, one hour. Limited to 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. (Not the same as course 105 prior to Fall Quarter 1994.) 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.

M112. Asian American Literature. (Formerly numbered M102.) (Same as English M102.) Prerequisite: satisfaction of Subject A requirement. Prose and poetry by Americans of Chinese, Japanese, Filipino, Korean, or other Asian origins. Study of interaction of autobiography and fiction, nourishing and limiting influences of mainstream American and Asian literary traditions, and conflict between ideological and literary criteria. P/NP or letter grading.

113. Asian Americans and the Law. (Formerly numbered 103.) 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. (Formerly numbered 105.) 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. (Formerly numbered M107.) (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. (Same as World Arts and Cultures M152.) Lecture, four hours; outside study, eight hours. Limited to 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.

M123. Asian Pacific Americans in the U.S. Economy. (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.

130A-130E. Asian American History and Experience. (Formerly numbered 195A-195E.) 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.

M132A. Korean American Literature. (Same as Humanities 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. (Same as Chinese M153 and Humanities 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.

M153. The U.S. and the Philippines. (Formerly numbered M196A.) (Same as History M153.) Lecture, three hours. Recommended (but not prerequisite): History 190A-190B, 190C. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in the 20th century.

M154. Chinese Immigration. (Formerly numbered M197D.) (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. (Formerly numbered M197B.) (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. (Formerly numbered M196A-196E.) 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. Seminar, three to four hours. Limited to seniors in Asian American studies. 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. (Formerly numbered 197.) Lecture, three to four hours. Prerequisite: junior/senior standing. Variable topics in Asian American studies on selected issues in education, literature, social process, public policy, and economic development. 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. 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 units). Prerequisites: course 100A or 100B or comparable knowledge in Asian American studies, junior or senior standing, consent of instructor. 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. Prerequisites: graduate standing, consent of instructor. 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. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. 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. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. Critical review of research methods, strategies, and philosophies in Asian American studies.

M261. Issues in Third World Literatures and Cultures. (Same as Comparative Literature M274.) Seminar, three hours; outside study, nine hours. Prerequisite: consent of instructor. Investigation of politics of power, gender, and race in the complex relationships between the so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

M297A-297Z. Topics in Asian American Studies. (Formerly numbered 297.) Prerequisite: graduate standing or consent of instructor. 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.

M297B. Asian Migration to the U.S. (Same as Urban Planning M242A.) 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.

M297C. Urbanization in Asia — Policy Issues and Problems. (Same as Urban Planning M242B.) 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.

490. Writing Workshop for Graduate Students (2 units). Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. 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 units). Hours to be arranged. Prerequisite: consent of instructor.

598. Research for and Preparation of M.A. Thesis (2 to 8 units). Prerequisite: consent of instructor. Preparation of research data and writing of M.A. thesis. S/U grading.

Related Courses in Other Departments

- Anthropology** M154. Women in Culture and Society
167. Urban Anthropology
177. Cultures of the Pacific
231. Asian Americans: Personality and Identity
274. Cultures of the Pacific Islands
Architecture and Urban Design 258. Urban Morphology
Education 204D. Minority Education in Cross-Cultural Perspective
253G. Seminar: The Asian American and Education
English M102. Asian American Literature
M107C. Special Topics in Women and Literature
119. Literature of California and the American West
M260A. Topics in Asian American Literature
Film and Television 128. Media and Ethnicity
Geography 142. Population Geography
144. Ethnicity in the American City
History M153. The U.S. and the Philippines
154A-154B. U.S. Urban History
155A-155B. American Working Class Movements
160A-160B. U.S. and Comparative Immigration History
161. Asians in American History
163. History of California
164. History of Los Angeles
184. 20th-Century China
187C. Japanese History: Modern, 1868 to the Present
200H. Advanced Historiography: U.S.
201H. Topics in History: U.S.
245. Colloquium: U.S. History
252A-252B. Seminars: Recent U.S. History to 1930

- 254A-254B. Seminars: U.S. Social and/or Intellectual History
- 256A-256B. Seminars: American Diplomatic History
- 257A-257B. Seminars: U.S. Urban History
- 258A-258B. Seminars: Working Class History
- 259A-259B. Seminars: Social History of Women in the U.S.
- 263A-263B. Seminars: History of the American West
- M264. History of American Education
- 282A-282B. Seminars: Chinese History
- 285A-285B. Seminars: Japanese History
- Library and Information Science** 111D. Ethnic Groups and their Bibliographies: Asian American History and Culture
- Political Science** 135. International Relations of China
136. International Relations of Japan
- M144A. Ethnic Politics: Chicano/Latino Politics
- M144B. Ethnic Politics: African American Politics
159. Chinese Government and Politics
160. Japanese Government and Politics
- C242. Chinese and East Asian Studies
- C243. Japanese and Western Pacific Studies
- Psychology** 175. Community Psychology
225. Seminar: Critical Problems in Social Psychology
- M228A. Proseminar: Political Psychology
- M228B. Seminar: Political Psychology
297. Issues in Social Development of the Minority Child
- Sociology** M153. Chinese Immigration
156. Ethnic and Status Groups
157. Social Stratification
158. Urban Sociology
160. Intergroup Conflict and Prejudice
188. Comparative Social Institutions of East Asia
234. Sociology of Community Organization
259. Social Structure and Economic Change: Historical and Comparative Perspectives
260. Economy and Society
261. Ethnic Minorities
- M262. Selected Problems in Urban Sociology
276. Selected Topics in Sociology of East Asia
291. Moral Solidarity in Communities
- Theater** 102E. Theater of Non-European World
- 202R. Seminar: East Asian Theater
- 202S. Seminar: South Asian Theater
- 202T. Seminar: Southeast Asian Theater
- Urban Planning** 197. Planning for Minority Communities
251. Planning for Multiple Publics
256. Social Impact Analysis

ATMOSPHERIC SCIENCES

College of Letters and Science

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Professors

Michael Ghil, Ph.D. (*Climate Dynamics*)
James McWilliams, Ph.D. (*Geophysical Fluid Dynamics*)

Carlos R. Mechoso, Ph.D. (*Atmospheric Dynamics*)
Richard M. Thorne, Ph.D. (*Atmospheric Physics*)
Richard Turco, Ph.D. (*Atmospheric Chemistry*), Chair
Roger M. Wakimoto, Ph.D. (*Atmospheric Dynamics*)
Michio Yanai, D.Sc. (*Atmospheric Dynamics*)
Akio Arakawa, D.Sc., *Emeritus*
James G. Edinger, Ph.D., *Emeritus*
George L. Siscoe, Ph.D., *Emeritus*
Sekharipuram V. Venkateswaran, Ph.D., *Emeritus*
Morton G. Wurtele, Ph.D., *Emeritus*

Associate Professor

J. David Neelin, Ph.D. (*Atmospheric Dynamics*)

Assistant Professors

Warren Blier, Ph.D. (*Atmospheric Dynamics*)
Robert Fovell, Ph.D. (*Atmospheric Dynamics*)
Suzanne Paulson, Ph.D. (*Atmospheric Chemistry*)

Adjunct Professors

David Halpern, Ph.D. (*Physical Oceanography*)
Lawrence Lyons, Ph.D. (*Atmospheric Physics*)

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.

Bachelor of Science Degree

Preparation for the Major

Required: Atmospheric Sciences 2A or 6A, 3A, Chemistry and Biochemistry 11A, Mathematics 31A or 31AQ, 31B, 32A, 32B, 33A, 33B, Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, Program in Computing 3.

The Major

Required: Atmospheric Sciences 94, 104A, 104B, 104C, C105, 161; two courses from Atmospheric Sciences CM140, C141, 143, 144, 146, 151, C152, C154, C162; two courses from Chemistry and Biochemistry 11B, 11C, 103, 110A, 110B, 113A, C113B, Mathematics 115A, 115B, 132, 135A, 135B, 136, 145, 146, M150A, 150B, Physics 110A, 110B, M122, 123, 131, 132, Statistics 154A, 154B. *Recommended:* Four units of Atmospheric Sciences 198 for students preparing for a career in the operational meteorology field.

Students preparing for graduate studies in atmospheric chemistry should take Chemistry and Biochemistry 11B, 103, Mathematics 115A, 135A, 136, Physics 8E, 131, 132; students preparing for graduate studies in upper atmosphere and space physics should take Mathematics 115A, 135A, Physics 8E, 110A, 110B, M122; students preparing for graduate studies in atmospheric dynamics and physics should take Atmospheric Sciences CM140, C141, C142, Mathematics 115A, 135A, 136, 145, Physics 8E, 131, 132.

Environmental Studies Sequences — The department offers two sequences of courses designed for students who wish to obtain a broader background in environmental problems, including air pollution, global climate change, and ozone depletion. One sequence is offered at the general education level (Atmospheric Sciences 2E, 3E, 6E) for all students seeking to fulfill GE requirements. Courses 2E/3E and 3E/6E fulfill the complementary course requirement; course 3E or 6E fulfills the laboratory and/or demonstration requirement. Completion of the three general education courses concludes the sequence.

The sequence of upper division courses (Atmospheric Sciences C142, 143, 144, 145, 146, 151) is designed for physical sciences, engineering, and life sciences majors or other qualified students. Completion of three of the courses constitutes fulfillment of the upper division sequence. Courses C142 or 144, 145, and 151 are recommended for students who wish to focus on air pollution; C142, 143, and 145 have a global climate change focus; and C142, 145, and 151 focus on ozone depletion.

Graduate Study

The following constitutes introductory information regarding graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

For the Master of Science 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 Department of Atmospheric Sciences at the address given at the beginning of this listing. 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 chosen 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 chosen 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. This 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

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 Department of Atmospheric Sciences at the address given at the beginning of this listing. 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 having selected the 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.

Lower Division Courses

1. Introduction to Weather Maps and Weather Forecasting. 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. 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.

2A. Air Pollution (5 units). Lecture, three hours; discussion, three hours. Preparation: major in physical sciences, life sciences, or engineering, or other majors who have completed Physics 6B and Mathematics 3A. Course for majors parallel to course 2; discussion section includes use of calculus. Discussion topics include composition of the atmosphere, air pollution, depletion of stratospheric ozone layer, global geochemical cycles, global greenhouse warming, polar ozone hole, nuclear winter.

2E. Air Pollution (5 units). 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. 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 units). Lecture, three hours; discussion, three hours. Enforced requisite: Physics 8B. 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.

3E. Introduction to the Atmospheric Environment (5 units). 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 (non-majors) grading.

4. California Weather and Climate. Lecture, three hours; discussion, one hour. Enforced requisite: 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. 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. 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 units). Lecture, three hours; discussion, three hours. Enforced requisite: Physics 8D. 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.

6E. Climate and Climatic Change (5 units). 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. 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. (Formerly numbered Honors Collegium 88.) 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. 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.

94. Survey of Atmospheric Sciences (2 units). Preparation: undergraduate physical sciences major. General introductory seminar on current research topics in atmospheric sciences. Students are directed in a library research project and prepare a brief class presentation/term paper under supervision of participating faculty member. P/NP or letter grading.

Upper Division Courses

104A. Atmospheric Thermodynamics. Lecture, three hours; discussion, two hours. Prerequisites: Mathematics 32B, Physics 8B. Basic thermodynamics, including first, second, and third laws. Atmospheric statics. Dry adiabatic processes. Phase changes of water and moist adiabatic processes. Introduction to cloud microphysics. Gravitational stability.

104B. Introduction to Dynamic Meteorology. Lecture, three hours; discussion, two hours. Prerequisite: course 104A. Kinematic properties of velocity field: streamlines and trajectories, vorticity and divergence. Equations governing atmospheric motions: equation of motion, equation of mass continuity, thermodynamic energy equation. Static equilibrium, pressure as vertical coordinate. Geostrophic flow. Circulation and vorticity. Quasi-geostrophic motion. Dynamics of extratropical cyclones, baroclinic instability, fronts.

104C. Introduction to Synoptic Meteorology. Laboratory, six hours. Prerequisite: course 104B. Weather map analysis. Thermodynamic diagrams. Satellite interpretation. Severe weather forecasting. Isentropic analysis.

C105. Advanced Synoptic Meteorology. Lecture, three hours; discussion, one hour. Prerequisites: course 104C and Program in Computing 3, or consent of instructor. Structure and analysis of the wave cyclone. Characteristics of frontal zones. Frontogenesis. Diagnosis of vertical velocity; quasi-geostrophic omega equation: derivation, applications, and alternative formulations. Sawyer/Eliassen equation. Diabatic effects on cyclogenesis. Modeling studies. Discussion of current research topics. Concurrently scheduled with course C227.

CM140. Introduction to Fluid Dynamics. (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.

C141. Introduction to Geophysical Fluid Dynamics. Lecture, three hours. Prerequisite: Physics 131 or consent of instructor. Recommended: course CM140. 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.

C142. Introduction to Atmospheric Science. Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3B or 31B, Physics 6B or 8B. Introductory course for physical sciences, life sciences, or engineering majors interested in environmental issues. Introduction to atmospheric environment, with emphasis on structure, thermodynamics, and dynamics of extratropical atmosphere. Concurrently scheduled with course C200B.

143. Physical Oceanography. Lecture, three hours; discussion, one hour. Prerequisite: 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.

144. Air Pollution Meteorology. Lecture, three hours; discussion, one hour. Prerequisite: course C142 or consent of instructor. Structure of surface layer of the atmosphere, including its temperature, humidity, and winds; properties of regional weather systems and implications for air pollution transport and dispersion; turbulence and diffusion in lower atmosphere; advective transport and deposition processes for air pollutants; air pollutant source/receptor relationships in urban and regional air-sheds.

145. Physics and Chemistry of Atmospheric Environment. Lecture, three hours; discussion, one hour. Prerequisite: Physics 6C or 8D or consent of instructor. Introductory course for physical sciences, life sciences, or engineering majors interested in environmental issues. Structure and composition of the atmosphere; atmospheric evolution; chemical and photochemical processes; aerosol and cloud microphysical processes; radiation transfer in clear, cloudy, and polluted air; human influences on atmospheric composition and chemistry; effects on global climate.

146. Remote Sensing of the Environment. Lecture, three hours. Prerequisite: Physics 6B or 8D or consent of instructor. 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.

151. Environmental Chemistry Laboratory. Lecture, two hours; laboratory, three hours. Laboratory experience for students who may 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.

C152. Physics of Clouds and Precipitation. Lecture, three hours. Recommended (but not prerequisite): Physics 110A. Thermodynamics of moist air, phase changes of water substance, latent heats, moist adiabatic processes; elementary cloud dynamics; cloud microstructure; microphysics of cloud droplets, nucleation phenomena, droplet hydrodynamics, coalescence and precipitation; ice physics; charge separation mechanisms; macrostructure of clouds and storms. Concurrently scheduled with course C203B.

C154. Introduction to Solar System Plasmas. Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 33A and Physics 8D, or consent of instructor. 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.

161. Numerical Methods in Atmospheric Sciences. Lecture, two hours; laboratory, three hours. Prerequisites: Mathematics 33B and Program in Computing 3, or consent of instructor. Numerical solutions of problems selected from atmospheric sciences. Matrix inversion. Solution of oscillation, decay, advection, and vorticity equations.

C162. Statistics in Atmospheric Sciences. Lecture, three hours; discussion, one hour. Prerequisite: Mathematics M150A or Statistics M152A or equivalent. 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.

195. Senior Paper. Prerequisite: senior standing in atmospheric sciences. 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.

198. Operational Meteorology (2 units). Laboratory, six hours. Prerequisites: course 104C, junior or senior standing in atmospheric sciences. 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.

199. Special Studies in Meteorology (2 or 4 units). Prerequisite: consent of instructor. Special individual studies.

Graduate Courses

C200A. Introduction to Fluid Dynamics. (Formerly numbered C200.) 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 CM140.

C200B. Introduction to Atmospheric Science. (Formerly numbered C201.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3B or 31B, Physics 6B or 8B. Intended for graduate students with little or no prior background in atmospheric sciences. Introduction to atmospheric environment, with emphasis on structure, thermodynamics, and dynamics of extratropical atmosphere. Concurrently scheduled with course C142.

C201A. Introduction to Geophysical Fluid Dynamics. (Formerly numbered C202.) 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 C141.

201B. Atmospheric Wave Motions. (Formerly numbered 210A.) Lecture, three hours. Prerequisite: course C141/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.

201C. Introduction to Atmospheric Turbulence and Convection. (Formerly numbered 226.) Lecture, three hours. Prerequisite: course C200A or consent of instructor. 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. (Same as Civil Engineering M262A.) Lecture, three hours. Prerequisite for undergraduates: Chemistry 11C. 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.

C203B. Physics of Clouds and Precipitation. (Formerly numbered 203B.) Lecture, three hours. Thermodynamics of moist air, phase changes of water substance, latent heats, moist adiabatic processes; elementary cloud dynamics; cloud microstructure; microphysics of cloud droplets, nucleation phenomena, droplet hydrodynamics, coalescence and precipitation; ice physics; charge separation mechanisms; macrostructure of clouds and storms. Concurrently scheduled with course C152.

203C. Atmospheric Radiation. Lecture, three hours. Survey of atmospheric radiation and radiative processes; thermal radiation, infrared radiative transfer in atmospheres, energy balance relationships; solar radiation, Rayleigh and Mie scattering, atmospheric optics; radiation climatology, energy balance and climate; remote sensing of atmospheres.

C205A. Introduction to Solar System Plasmas. 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 C154. 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. (Formerly numbered 205C.) 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. (Formerly numbered 205B.) 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. (Formerly numbered 210B.) Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite 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. Lecture, three hours. Prerequisites: courses 201B and 212A, or consent of instructor. 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. Lecture, three hours. Prerequisite: course 201C or consent of instructor. 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 for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department.

C213. Statistics in Atmospheric Sciences. Lecture, three hours; discussion, one hour. Prerequisite: Mathematics M150A or Statistics M152A or equivalent. 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 C162. 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. 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. Lecture, three hours. Prerequisites: course 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. 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. Lecture, three hours. Prerequisites: courses C200B, 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 warmings. Semiannual oscillations. Wave-mean flow interactions. Interactions between middle and lower atmosphere. 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. Lecture, three hours. Prerequisites: 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. 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. (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 Synoptic Meteorology. Lecture, three hours; discussion, one hour. Prerequisites: course 104C and Program in Computing 3, or consent of instructor. Structure and analysis of the wave cyclone. Characteristics of frontal zones. Frontogenesis. Diagnosis of vertical velocity; quasi-geostrophic omega equation: derivation, applications, and alternative formulations. Sawyer/Eliassen equation. Diabatic effects on cyclogenesis. Modeling studies. Discussion of current research topics. Concurrently scheduled with course C105. 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.

228. Mesometeorology. Lecture, three hours. Prerequisite: consent of instructor. 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. 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. Lecture, three hours. Prerequisites: courses 201C and 228, or consent of instructor. 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. Lecture, three hours. Prerequisite: course M203A or consent of instructor. 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. Lecture, three hours. Prerequisites: courses M203A and 230A-230B, or consent of instructor. 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. 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. Prerequisite: course C203B or consent of instructor. 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. Prerequisite: 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. 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. Lecture, three hours. Prerequisites: courses 203C and 240A, or consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisites: courses 203C and 240B, or consent of instructor. 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. Lecture, three hours. Prerequisite: course C205A or consent of instructor. 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. Lecture, three hours. Prerequisite: course C205A or consent of instructor. 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. 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. Lecture, three hours. Prerequisite: course 250B or consent of instructor. 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.

Special Studies

270. Seminar: Atmospheric Sciences (2 units). Lecture, one hour. May be repeated for credit. S/U or letter grading.

271. Seminar: Atmospheric Dynamics (2 units). Lecture, one hour. May be repeated for credit. S/U or letter grading.

M272A-M272B-M272C. Seminars: Climate Dynamics (2 to 4 units each). (Same as Earth and Space Sciences M270A-M270B-M270C and Geography M270A-M270B-M270C.) Lecture, two hours. Prerequisite: consent of instructor. 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 units). Lecture, one hour. May be repeated for credit. S/U or letter grading.

274. Seminar: Atmospheric Chemistry (2 units). Lecture, one hour. May be repeated for credit. S/U or letter grading.

M275A-M275B-M275C. Seminars: Space Physics (2 units each). (Same as Earth and Space Sciences M288A-M288B-M288C.) Lecture, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

276. Seminar: Mesoscale Processes (2 units). 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 units). Individual meetings with instructor to be arranged. Content varies from year to year. S/U grading.

283. Special Topics in Atmospheric Physics (2 units). Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

284. Special Topics in Atmospheric Chemistry (2 units). 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 units). 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 units each). Prerequisite: consent of instructor. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

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 units).

Prerequisite: 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 Studies for Graduate Students (2 to 8 units).

597. Preparation for Comprehensive Examinations (2 to 8 units).

598. Research and Preparation of M.S. Thesis (2 to 8 units).

599. Research for Ph.D. Dissertation (2 to 8 units).

Related Courses in Other Departments

Astronomy 81, 82, 180

Biomathematics 202

Chemical Engineering 102, 108A, C240

Chemistry and Biochemistry 103, 110A, 110B, C123A-C123B, 215D, 223C, 225

Civil and Environmental Engineering 163

Computer Science 10C

Earth and Space Sciences M140, 154, 202, 203, 204, 261, 265

Electrical Engineering 103, 161, 162A, M185

Mathematics 131A-131B, 132, 135A-135B, 136, 141A-141B, 142, 145, 146, M150A-150B, 151, 250C, 265A-265B, 266A, 266B-266C, 267A-267B, 269A-269B-269C, 271A, 271B, 271C, 274A, 274B, 276A-276B, 276C

Mechanical, Aerospace, and Nuclear Engineering 103, 131A, 150A, 150B, 192A, 192B, 192C, 250A, 250B, 250C, 251A, 252A, 252B, 259A

Physics 108, 110A, 110B, 112, 115A, 115B, M122, 131, 132, 210A, 210B, 215A, 215B, 222A-222B-222C, 231A, 231B, 231C

Statistics M152A, 152B

BIOLOGICAL CHEMISTRY

School of Medicine

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Professors

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.

Dohn G. Glitz, Ph.D., *Vice Chair*

Michael Grunstein, Ph.D.

Harvey R. Herschman, Ph.D.

Bruce D. Howard, M.D.

Kevin McEntee, Ph.D.

David I. Meyer, Ph.D.

Elizabeth F. Neufeld, Ph.D., *Chair*

Leonard H. Rome, Ph.D., *Vice Chair*

David S. Sigman, Ph.D.

S. Larry Zipursky, Ph.D.

Professors Emeriti

Roslyn B. Alfin-Slater, Ph.D.

Robert J. DeLange, Ph.D.

Samuel Eiduson, Ph.D.

Robert M. Fink, Ph.D.

Isaac M. Harary, Ph.D.

John G. Pierce, Ph.D.

George J. Popjak, M.D., D.Sc.

Sidney Roberts, Ph.D.

Emil L. Smith, Ph.D.

Marian E. Swendseid, Ph.D.

Irving Zabin, Ph.D.

Patrice J. Zamenhof, Ph.D.

Stephen Zamenhof, Ph.D.

Associate Professors

Reid C. Johnson, Ph.D.

Gregory S. Payne, Ph.D.

Assistant Professors

Michael F. Carey, Ph.D.

John J. Colicelli, Ph.D., *in Residence*

Stanley Nelson, Ph.D.

Ke Shuai, Ph.D.

Alexander van der Bliet, Ph.D.

Geraldine A. Weinmaster, Ph.D.

Instructor

Felice D. Kurtzman, M.P.H.

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The department only rarely and under special circumstances accepts students into the Master of Science program.

Areas of Study

Consult the department.

Course Requirements

All graduate students must take the first-year 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 S/U or letter grade; 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 a student enters the master's program, the comprehensive examination plan is preferred. Only in exceptional situations is a student approved for the thesis plan. In either plan the student 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 the student 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 through UCLA ACCESS to Programs in Molecular and Cellular 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 ACCESS Program Office, 172 MBI, UCLA, 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, Neurobiology M209A, and 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 two-unit seminar courses and Biology 201.

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 courses 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. 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. It is expected that the oral qualifying examination will be completed before the beginning of the third year of graduate work.

Upper Division Courses

M140. Cell Biology: Cell Cycle (5 units). (Same as Biology M140.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 100A or Life Sciences 3, Chemistry 11 series (may be taken concurrently), Life Sciences 4 or equivalent. Not open for credit to students with credit for Biology 100B or C139 or former Biology 143. 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 units). (Same as Chemistry CM153G.) Lecture, five hours. Prerequisites: Chemistry 110A, 153A, 153B, 153C, 156, or equivalent. 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.

CM159A. Mechanisms in Regulation of Transcription I (2 units). (Same as Chemistry CM159A.) First five weeks. Lecture, four hours; outside study, two hours. Prerequisites: Chemistry 153B and 154, or consent of instructor. 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 units). (Same as Chemistry CM159B.) Second five weeks. Lecture, four hours; outside study, two hours. Prerequisite: 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. Macromolecular Metabolism and Subcellular Organization (6 units). (Same as Biology CM169.) Lecture, five hours. Prerequisites: Chemistry 153A, 153B, 153C, consent of instructor. Recommended: course CM153G. Cell cycle; DNA replication and repair; structure and properties of cellular organelles; regulation of cell division; cell transformation; normal and aberrant expression of oncogenes; molecular aspects of development. Concurrently scheduled with course CM267.

CM178. Molecular Genetics (6 units). (Same as Biology CM178.) Lecture, five hours. Prerequisites: Biology 100B or C139 or M140, Chemistry 153A, 153B, Life Sciences 3, 4, consent of instructor. 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.

195. Current Research in Biological Chemistry (2 units). Prerequisites: upper division standing, consent of instructor (based on personal interview). 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 units). Laboratory, four to 20 hours. Prerequisites: upper division standing, consent of instructor (based on written research proposal and consultation with instructor). Individual research projects carried out under direction of a faculty member. P/NP or letter grading.

Graduate Courses

201A-201B. Biological Chemistry (5 units each). Prerequisites: organic chemistry; consent of instructor required for nonmedical students. 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. Biological Chemistry Laboratory (3 units). Discussion, one hour; laboratory, six hours. Prerequisite: consent of instructor required for nonmedical students. Experiments illustrating techniques and procedures in medically related biochemistry; analysis of experimental results. S/U or letter grading.

205. Biological Chemistry and Nutrition Lecture (Dental Students) (6 units). Lecture, six hours; computer laboratory. Prerequisite: dental student standing. 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 units each). Prerequisite: consent of instructor. 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. (Formerly numbered M221A.) (Same as Neurobiology M221, Neuroscience M240, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Prerequisite: 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. (Same as Physiology M223.) Lecture, two hours; discussion, two hours. Prerequisite: course CM253 or consent of instructor. 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.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biology M233, Chemical Engineering M233, Chemistry M233, Microbiology M233, Microbiology and Immunology M233, and Radiological Sciences M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

M237. Molecular and Cellular Foundations of Disease. (Same as Pathology M237.) Lecture, two hours; discussion, two hours. Prerequisites: 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 units). (Formerly numbered M248.) (Same as Biology CM248 and Microbiology M248.) Lecture, five hours. Prerequisite: course CM153G or Chemistry CM153G or equivalent. 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.

251A-251B-251C. Seminars: Transcriptional Regulation (2 units each). Prerequisite: consent of instructor. Advanced courses on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U or letter grading.

CM253. Macromolecular Structure (6 units). (Formerly numbered M253.) (Same as Chemistry CM253.) Lecture, five hours. Prerequisites: Chemistry 110A, 153A, 153B, 153C, 156, or equivalent. 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.

M255. Biological Catalysis. (Same as Biology CM252, Chemistry CM255, and Pharmacology M255.) Prerequisites: Biology 100A or Life Sciences 3, 100B or C139 or M140, Chemistry 110A, 153A, 153B, or equivalent, consent of instructor. 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 units). (Same as Chemistry M257.) Prerequisites: Chemistry 110A and 153A, or consent of instructor. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules.

CM259A. Mechanisms in Regulation of Transcription I (2 units). (Same as Chemistry CM259A.) First five weeks. Lecture, four hours; outside study, two hours. Prerequisite: course CM253 or CM267 or consent of instructor. 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. In Progress grading (credit to be given only on completion of course CM259B).

CM259B. Mechanisms in Regulation of Transcription II (2 units). (Same as Chemistry CM259B.) Second five weeks. Lecture, four hours; outside study, two hours. Prerequisite: 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.

M263. Metabolism and Its Regulation. (Same as Chemistry M263.) Lecture, three hours. Prerequisites: courses 201A-201B, or Chemistry 153B, 153C, or 156, and 110A, or equivalent, or consent of instructor. 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 units each). (Same as Chemistry M264A-M264B-M264C.) Prerequisite: consent of instructor. 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 units each). (Same as Biology M266A-M266B-M266C.) Prerequisite: consent of instructor. 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. Macromolecular Metabolism and Subcellular Organization (6 units). (Formerly numbered M267.) (Same as Biology CM223 and Chemistry M267.) Lecture, five hours. Prerequisites: Chemistry 153A, 153B, 153C, consent of instructor. Recommended: course CM153G. Cell cycle; DNA replication and repair; structure and properties of cellular organelles; regulation of cell division; cell transformation; normal and aberrant expression of oncogenes; molecular aspects of development. Concurrently scheduled with course CM169.

M298. Seminar: Current Topics in Molecular Biology (2 units). (Same as Biology M298, Chemistry M298, Microbiology M298, Microbiology and Immunology M298, and Molecular Biology M298.) Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. Program. Each student conducts or participates in discussions on assigned topics. May be repeated for credit.

596. Directed Individual Study and Research (2 to 12 units). Hours to be arranged. Prerequisite: consent of instructor. S/U grading.

597. Preparation for Examinations (2 to 4 units). Prerequisite: consent of graduate adviser. Individual study for Ph.D. qualifying examinations or M.S. comprehensive examination. S/U grading.

598. Preparation of M.S. Thesis. Prerequisite: consent of graduate adviser. 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 units). Prerequisite: consent of graduate adviser. Preparation of research data and writing of Ph.D. dissertation. S/U grading.

BIOLOGY

College of Letters and Science

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<http://www.lifesci.ucla.edu/bio/>
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Donald G. Buth, Ph.D.
David J. Chapman, Ph.D., D.Sc.
William R. Clark, Ph.D., *Cochair*
Martin L. Cody, Ph.D.
Franz Engelmann, Ph.D.
John H. Fessler, Ph.D.
Arthur C. Gibson, Ph.D.
Robert B. Goldberg, Ph.D.
Elma González, Ph.D.
Malcolm S. Gordon, Ph.D.
William M. Hamner, Ph.D.
Ann M. Hirsch, Ph.D.
Harumi Kasamatsu, Ph.D.
James A. Lake, Ph.D.
Judith A. Lengyel, Ph.D.
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Leonard Muscatine, Ph.D.
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Charles C. Taylor, Ph.D.
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Eduardo Zeiger, Ph.D.

Professors Emeriti

David Appleman, Ph.D.
Albert A. Barber, Ph.D.
George A. Bartholomew, Ph.D.
Joseph Cascarano, Ph.D.
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Thomas W. James, Ph.D.
J. Lee Kavanau, Ph.D.
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Charles A. Schroeder, Ph.D.
Richard W. Siegel, Ph.D.
Fritiof S. Sjostrand, Ph.D.
Clara M. Szego, Ph.D.
Henry J. Thompson, Ph.D.
J. Philip Thornber, Ph.D.
Peter P. Vaughn, Ph.D.
Boyd W. Walker, Ph.D.
Samuel G. Wildman, Ph.D.

Associate Professors

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Paul H. O'Lague, Ph.D.
Richard K. Vance, Ph.D.
Blair Van Valkenburgh, Ph.D.

Assistant Professors

Renato J. Aguilera, Ph.D.
Utpal Banerjee, Ph.D.
Jeanne M. Erickson, Ph.D.
Volker Hartenstein, Ph.D.
David Jacobs, Ph.D.

Frank A. Laski, Ph.D.
Peter N. Nonacs, Ph.D.
Karam Singh, Ph.D.
Robert Wayne, Ph.D.

Lecturers

Roger Bohman, Ph.D.
Carolee Caffrey, Ph.D.
Jaap Hillenius, Ph.D.
Steve Strand, Ph.D., *Senior*

Scope and Objectives

Studies in biology touch every aspect of life, and seeking answers to the problems of living organisms is a major challenge to modern biology. To meet this challenge, the Biology Department offers a wide spectrum of undergraduate and graduate instruction in population, organismic, developmental, cell, and molecular biology. All of these subject areas relate in some way to practical problems facing contemporary society, and all influence individual and collective decisions on matters ranging from environmental degradation to viruses and cancer.

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.

Bachelor of Science in Biology

The Bachelor of Science degree is divided into four areas of concentration which build on similar lower division introductory courses and differ primarily in the upper division requirements. The first area of concentration — general biology (GB) — is designed for students who desire exposure to a wide range of biological subjects and for most students who will later seek admission to health sciences-related professional schools. The remaining three areas of concentration — ecology, behavior, and evolution (EBE), marine biology (MB), and plant biology (PB) — provide more specialized instruction and strong preparation for employment or subsequent graduate study in the respective disciplines.

Preparation for the Majors

Life Sciences Core Curriculum (effective Fall Quarter 1995) — *Required:* Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL.

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. If you receive a grade of D or F₂ in two core curriculum courses, either in separate courses or repetitions of the same course, you are subject to dismissal from the major.

Transfer Students — In order to be admitted as biology majors, transfer students who have 80 or more units must have completed Life Sciences 1, 2, 3, or equivalent, one year of general chemistry with laboratory, and at least two of the following: (1) one year of calculus, (2) one year of calculus-based physics, or (3) two organic chemistry courses with laboratory.

General Biology (GB) Concentration

This concentration 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. The concentration emphasis is breadth of training to expose students to all levels of modern biology.

Preparation for the Major: Life sciences core curriculum.

The Major: Three laboratory courses (Biology 5L, 101A, 103, 105, 110, 153/153L, 158, 162, 166, 167, M170; course 5L strongly recommended); two morphology and systematics/ecology, behavior, and evolution courses (Biology 103, 105, 110, 116, 120, 122, 129, 130, 135, 153/153L, Microbiology and Molecular Genetics 101); two developmental and molecular biology/physiology courses (Biology 121, 128, C134A or 134B, 138, C141, 146, 158, 162, 166, 167, 171, 179); two additional upper division biology courses; Chemistry and Biochemistry 153A, 153L; four additional upper division courses in biology, chemistry, mathematics (except Mathematics 104, 106), microbiology, physics, physiological science, or from Biomathematics 110, Biostatistics 100B, 100C, Earth and Space Sciences 116, Geography 112.

Ecology, Behavior, and Evolution (EBE) Concentration

This concentration is appropriate for students preparing for graduate study in ecology, behavior, and evolution. 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. This provides suitable background for such fields as environmental biology, animal behavior, conservation, forestry, teaching, museum work, and governmental positions dealing with environmental issues of wide importance and impact.

Preparation for the Major: Life sciences core curriculum; Mathematics 31A, 31B, and 32A must be taken to satisfy the calculus requirement.

The Major: One morphology and systematics course (Biology 103, 105, 110, or 130); one physiology course (Biology 146, 162, 166, or 167); one additional laboratory course (Biology 5L, 103, 105, 110, 146, 162, 166, or 167); three ecology, behavior, and evolution courses (Biology C119, 120, 122, 129, 135); 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 biology, chemistry, geography, geology, mathematics (except Mathematics 104, 106), microbiology, or physics (recommended: taxon-oriented courses such as Biology 107, 111, 112, 113A, 114, 115, 152; other courses in ecological, behavioral, and evolutionary processes such as Biology 116, 117, 122, M127, 128, C134A, 168, in addition to courses listed above).

Marine Biology (MB) Concentration

This concentration is designed for students who wish to specialize in the area of marine sciences. Completion of this concentration 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 concentration provides valuable field experience with concomitant individual research opportunities in marine biology.

Preparation for the Major: Life sciences core curriculum; Statistics 50 or equivalent; Earth and Space Sciences 15 or Atmospheric Sciences 6 or 6A.

The Major: Biology C109, Chemistry and Biochemistry 153A; one laboratory course (Biology 5L, 110, 153/153L, 158, or M170); one marine organismic biology course (Biology 101A, 105, or 112); one physiology course (Biology 128, 162, 166, or 167); one ecology, behavior, or evolution course (Biology 116, C119, 120, 122, 129, or 135); one field quarter consisting of four courses from the Marine Biology Quarter (MBQ) or equivalent field courses given elsewhere (for a 16-unit equivalent — see undergraduate adviser); two physical, chemical, or geological oceanography courses from Anthropology M116Q, Atmospheric Sciences CM140, 143, Chemistry and Biochemistry 103, Earth and Space Sciences 100, 116, 119, 153, Geography 100, 101, 103, 113, 114, 123, 130, Mechanical, Aerospace, and Nuclear Engineering 103 (strongly recommended), 150A.

Plant Biology (PB) Concentration

This concentration prepares students for postgraduate programs in plant biology, including environmental biology, ecology, agricultural sciences, and plant molecular, developmental, 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.

The Major: Biology 146 or 162, Chemistry and Biochemistry 153A; one laboratory course (Biology 5L, 101A, 103, 105, 110, 153/153L, 158, 162, 166, 167, or M170); one plant morphology or anatomy course (Biology 101A, 103, or 152); two molecular or cellular plant biology courses (Biology 121, C141, 150); one ecology or evolution course (Biology 120, 122, or 128); one field quarter course involving research in plant biology (Biology 118, 124, 128, or 148) or a laboratory internship (Biology 190 series or 199) which requires a written paper on some aspect of plant research; two additional upper division courses in biology, chemistry, computer science, geography, or microbiology.

Additional Requirements

(1) A maximum of eight units of Biology 190 or four units of Biology 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.

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 Biology 190A-190B.

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 Biology 103, 107, 113B, 114, 115, 118, 124, C125, C126,

131, 132, and 134B. The Marine Biology Quarter occurs during Fall Quarter and includes some combination of Biology 102, C104, 123, 147, 148, 163, 164, and 165. To participate, you must enroll in all courses in the respective program. It is strongly recommended that you complete Biology C109 or C215 prior to applying for MBQ. Participants in both programs are selected by personal interview during Winter Quarter. Although most participants are upper division biology majors, both programs are available to any upper division student with adequate biological background. Information and applications are available in the Undergraduate Advising Office.

Bachelor of Science in Cell and Molecular Biology

The Bachelor of Science degree in Cell and Molecular Biology (CMB) 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 in both 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 (effective Fall Quarter 1995) — *Required:* Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL.

Effective Fall Quarter 1995 for all entering freshmen and transfer students, 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. If you receive a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, you are subject to dismissal from the major.

Transfer Students — In order to be admitted as cell and molecular biology majors, transfer students who have 80 or more units must have completed one year of general biology for majors equivalent to Life Sciences 1, 2, and 3, 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.

The Major

Required: Biology 100B or C139 or M140, 138 or C141, and four units from C174A through C174F; Chemistry and Biochemistry 110A, 153A, 153L, 156; a minimum of three elective core courses from Biology CM156, 157, CM160, CM169, M170, 171, any four units of C174A through C174F not used to satisfy the

requirement above, M175A, CM178, M185A, CM185B; 12 additional units selected from the following: any biology course listed above not used to satisfy the core requirement, Biology 110, 121, 142, 146, 150, 162, 166, M175B, M175C, 176, 188, Chemistry and Biochemistry 153C, Microbiology and Molecular Genetics 101, 102, C104A, C104B, C104C, C159; eight units of upper division laboratory experience selected from Biology 155, 158, 162, 166, 190A through 190D, 199.

Additional Requirements

(1) A maximum of eight units of Biology 190 or 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied. All 190 research must be performed in CMB faculty laboratories.

(2) Courses applied toward requirements for preparation for the major and the major must be taken for a letter grade. CMB majors must earn a C- or better in each 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The department offers Master of Arts and Doctor of Philosophy degrees in Biology, with specialization in a wide spectrum of fields. Applicants who plan to enter graduate school are urged to seek the advice of staff 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 or Biochemistry, Cell, and Molecular Biology is required.

Three letters of recommendation are required. These should be from professors, supervisors, or others who may provide an evaluation of 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 Biology, at the address given at the beginning of this listing.

The department is organized into two divisions. Applications should be directed to either Molecular, Cell, and Developmental Biology (Division I) or Biology (Division II). The major fields and subdisciplines are listed under faculty interests in the departmental brochure. *

Students are admitted in the Fall Quarter only. Applications to Biology (Division II) are reviewed by the division's admissions committee which advises prospective sponsors about the desirability of admission. Division I does not accept students whose sole objective is a master's degree.

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. For Division II students, opportunities are also available off campus for intensive study of marine biology at marine laboratories in the region in the Fall Quarter and of field biology in the Spring Quarter.

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 their guidance committee.

Comprehensive Examination Plan

Students who select this plan must take a three-hour examination prepared and graded by their 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 faculty mem-

bers concerned and from the thesis committee.

Doctoral Degree

Admission

See Admission under Master's Degree above.

Each division separately determines admission of applicants to its own Ph.D. program. Applicants are admitted in the Fall Quarter only. Division I admits applicants only through the review process of UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, with the exception of applicants in the area of plant molecular biology, who may apply either through ACCESS or directly to the department. Applications to Division II are reviewed by the division's admissions committee which advises prospective sponsors about the desirability of admission.

Major Fields or Subdisciplines

See Areas of Study under Master's Degree above.

Course Requirements

Division I students are required to take a minimum of four graduate-level courses (200 series), preferably in the first year (see Graduate Affairs Office for course listing), and are strongly encouraged to rotate laboratory and/or course experience with several faculty members during the first year of study as an aid to choosing a permanent adviser. Division II Ph.D. students must complete a minimum of 20 units of graduate-level courses (200 series). In either division, students must enroll for full-time study, as defined by the Graduate Division.

Written and Oral Qualifying Examinations

Departmental Written Qualifying Examination (Division I). The departmental written qualifying examination is taken during the first two years in residence and is prerequisite to the doctoral oral qualifying examination. Students are required to complete and submit four written research proposals, prepared in conjunction with seminar courses in the M298 series.

Departmental Written Qualifying Examination (Division II). In order to assess students' knowledge as incoming students and as an aid in advising students in their studies, they are required to complete the departmental written qualifying examination at an early point in their graduate career.

The examination is taken in the latter half of the Spring Quarter of the first year. The examination consists of two parts, I and II. Part I is designed to test the ability to critically read and evaluate the literature in a designated area of specialty. Part II examines the breadth of academic knowledge and understanding (conceptual and synthetic) of the areas that define the subjects within integrative biology). The expected level of performance is that of a graduate student at the end of the first year.

Part I: Two weeks prior to the examination, students are provided with three papers in a specialty area which they designate from the following: (1) morphology and morphogenesis; (2) ecology and behavior; (3) evolution; (4) cell biology and physiology; (5) molecular biology and genetics. The three papers are selected by the guidance committee. On the day of the examination, students are provided with one of three papers, chosen by the departmental written qualifying examination committee, and are given three hours to provide a thorough critical analysis of the paper and demonstrate how the work compares and relates to similar work in the field.

Part II: During the Fall Quarter of the first year, students are provided with several questions assembled by the departmental written qualifying examination committee that define the breadth of knowledge expected of a first-year graduate student in the division. In the Spring Quarter of the first year, one week after the administration of Part I, students are provided with three questions taken from this list. All students receive the same questions and have four and one-half hours to provide written answers.

Both parts of the examination are graded Ph.D. pass, master's pass, or fail. Students who do not pass each part at the level required for their degree objective have two further opportunities to repeat the examination part to secure the required grade. These opportunities occur during the Spring Quarter of their second and third years. Students who do not pass both parts in three attempts are normally recommended to the Graduate Division for dismissal.

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 requires dismissal. The repeat is graded pass/fail. The examination must be completed by the end of the third year following first registration. Following successful completion of this examination, students are advanced to candidacy.

Lower Division Courses

If you have not completed the prerequisites indicated in the following course descriptions, you may be dropped from any of the courses at the discretion of the instructor.

2. Principles of Modern Biology. Lecture, three hours; laboratory, two hours. Designed for nonmajors. Not open to students with credit for former course 5 or 9 or Life Sciences 1 or 3. Major themes in biology, including evolution, behavior, ecology, cell biology, photosynthesis, genetics, organismal diversity, and energetics as they relate to events occurring on our Earth today. P/NP or letter grading.

5L. Organismic and Environmental Biology Laboratory. Discussion, two hours; laboratory, four hours. Enforced requisite: Life Sciences 1. Not open for credit to students with credit for course 101A, 101B, 105, 110, 153L, 158, 162, 166, 167, or 168. Introductory biology laboratory, including selected topics on genetics and molecular biology, anatomy, physiology, behavior, and ecology of plants and animals.

6. Ecology, Evolution, and Behavior. Lecture, three hours; discussion, two hours. Enforced requisite: Mathematics 3A or 31A. Not open to students with credit for Life Sciences 1. Survey of principles of population and community ecology, behavioral ecology, population genetics, and evolution.

10. Plants and Civilization. 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. 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. 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. 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. Lecture, three hours; discussion, two hours, or field trips, three to four hours. Recommended (but not requisite): course 2. Not open for credit to students with credit for course 6 or 122 or Life Sciences 1. Introduction to natural history of Western North America, especially Southern California. Classification, distribution, and ecology of common plants and animals.

25. Oceans. 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.

30. Biology of Cancer. 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. Introduction to interdisciplinary debate surrounding the personal and societal response to AIDS and other sexually transmitted diseases. P/NP or letter grading.

50. Desert Life. 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.

70. Genetic Engineering and Society. Lecture, three hours; discussion, two hours. Designed for nonmajors. Not open to students with credit for former course 9 or 108 or 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. 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.

88A. Lower Division Seminar: Conservation of Biodiversity. Discussion, three hours; one weekend field trip. Introduction to patterns of biological diversity; selection, management, and use of natural reserves; human aspects on diversity; and effects of governmental and nongovernmental actions on biological conservation. P/NP or letter grading.

88B. Lower Division Seminar: Origin of Life. Seminar, three hours. Training in science not required. Biological evolution as a central element in Earth history; theories of the origin of life based on observations, experimental simulations, and speculations. Students are guided in making class presentations and in writing papers. P/NP or letter grading.

88C. Lower Division Seminar: Frontiers of Molecular Biology — Historical Perspective. Seminar, three hours. Limited to freshmen who have not completed former course 9 or 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 will use 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. 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. 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 units). 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.

88G. Lower Division Seminar: Foundations of Molecular Biology (2 units). Seminar, 75 minutes. Enforced requisite: Life Sciences 3. Not open to students with credit for course 100A, Chemistry 153B, or Life Sciences 4. Coverage of some major scientific discoveries leading to development of modern molecular biology. Discussion of research discoveries in context of contemporary views and their impact on the field. P/NP or letter grading.

M88H. Lower Division Seminar: Limits of Biological Design through Physical Principles. (Same as Physics M88.) Lecture, three hours. Enforced requisites: Chemistry 11A, 11B, Life Sciences 1, 3, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 6A, 6B, and 6C, or 8A, 8B, 8C, and 8D. 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.

Upper Division Courses

If you have not completed the prerequisites indicated in the following course descriptions, you may be dropped from any of the courses at the discretion of the instructor.

100A. Introduction to Developmental Molecular Biology. Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 11 series (may be taken concurrently). Not open for credit to students with credit for former course 144. Introduction to principles of prokaryote and eukaryote molecular biology and their application to information storage and retrieval. Chromosome structure and function, gene transcription, RNA processing, basic principles of developmental biology, DNA synthesis and repair, gene regulation.

100B. Introduction to Cell Biology. Lecture, three hours; discussion, one hour. Prerequisites: course 100A or Life Sciences 3, Life Sciences 4 or equivalent, Chemistry 11 series (may be taken concurrently). Not open for credit to students with credit for course C139 or M140 or former course 143. 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.

101A. Biology of Lower Plants (6 units). Lecture, four hours; laboratory, six hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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 units). Lecture, three hours; laboratory, six hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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. Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. Morphology, systematics, life histories and natural history, ecology, behavior, and physiology of marine invertebrates; emphasis on local invertebrates of Southern California and their habitats. Given off campus at a marine science center.

103. Plant Evolution and Systematics. Lecture, three hours; laboratory, three hours. Prerequisite: course 2 or Life Sciences 1 or equivalent or consent of instructor. Evolution, systematics, morphology, principles of taxonomy, phytogeography, phylogenetic analysis, speciation, and natural history of plants. P/ NP or letter grading.

C104. Experimental Invertebrate Zoology (6 units). Lecture, two hours; laboratory, 12 hours. Prerequisites: Life Sciences 1 or equivalent, consent of instructor. 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 units). Lecture, three hours; laboratory/field trips, six hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. Introduction to systematics, evolution, natural history, morphology, and physiology of invertebrates.

106. Experimental Marine Invertebrate Biology (4 or 6 units). Lecture, two hours; laboratory, 12 hours. Prerequisites: courses 105, and 166 or 167 (either may be taken concurrently), or equivalent, or consent of instructor. 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 units). Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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. Lecture, three hours; laboratory, three hours; weekend field trips. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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 units). Lecture, three hours; laboratory, five hours. Prerequisite: Life Sciences 1 or equivalent. 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. Lecture, three hours; demonstration/field trips/discussion, three hours. Prerequisite: Life Sciences 1 or equivalent. Adaptations, behavior, and ecology of vertebrates.

112. Ichthyology. Lecture, two hours; laboratory, six hours; field trips. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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. Lecture, three hours; laboratory, one hour; weekend field trips. Prerequisite: Life Sciences 1 or equivalent. 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. Prerequisite: Life Sciences 1 or equivalent. 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. Lecture, two hours; laboratory/discussion/field trips, six hours. Prerequisites: course 111, consent of instructor. Limited enrollment. Systematics, distribution, physiology, behavior, and ecology of birds.

115. Mammalogy. Lecture, three hours; laboratory, four hours. Prerequisite: course 110 or 111 or equivalent or consent of instructor. Evolution, ecology, behavior, and physiology of mammals.

116. Conservation Biology. Lecture, three hours; discussion, two hours. Prerequisite: Life Sciences 1 or equivalent. 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. Lecture, three hours; laboratory, three hours. Prerequisite: 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 units). Lecture, one hour; field trip, 10 hours. Prerequisites: completion of preparation for the major courses, consent of instructor. 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours; discussion, two hours. Prerequisites: Life Sciences 1 or equivalent, Mathematics 3A and 3B, or 31A. Recommended: Life Sciences 4 or equivalent. Designed for biology 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. Lecture, three hours; discussion, one hour. Prerequisites: Life Sciences 3 and 4 or equivalent. Not open to students with credit for course 100A or former course 144. Molecular biology, with emphasis on evolutionary aspects. DNA replication, RNA transcription, protein synthesis, gene expression, and molecular evolution.

122. Ecology. Lecture, three hours; laboratory, three hours. Prerequisites: Life Sciences 1 or equivalent, and Mathematics 3A and 3B, or 31A, or consent of instructor. Highly recommended: Mathematics 31B, 32A. Recommended for biology 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.

123. Ecology of Marine Communities. Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. Field study of natural history and ecology of marine organisms and communities, involving independent research project. Given off campus at a marine science center.

124. Field Ecology (4 or 8 units). Lecture, two hours; laboratory or field trip, 10 hours. Prerequisite: Life Sciences 1 or equivalent. 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 units). (Formerly numbered 125.) Prerequisite: Life Sciences 1 or equivalent. 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 units). Prerequisites: course 6 or Life Sciences 1, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or consent of instructor. Not open for credit to students with credit for course 129. 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, Plants, and Society. (Same as Geography M127.) Lecture, three hours; field trip. Prerequisites: Chemistry 11A, 11B/11BL, and 11CL, or equivalent, or consent of instructor. General treatment of soil development and morphology and physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation, and cultural aspects. Use of soil profiles examined on field trip to explain developmental phenomena.

128. Plant Physiological Ecology (4 or 8 units). 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. Study of plant/environment interactions under natural conditions. Emphasis on transpiration and photosynthesis, leaf temperatures, and water movement in soil/plant/atmosphere continuum. Eight-unit course covers same basic lecture material in five intensive weeks, followed by extended field trips where students do individual research projects.

129. Animal Behavior. Lecture, three hours; discussion, two hours. Prerequisites: Life Sciences 1 and 4 or equivalent. 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. (Formerly numbered 202.) Lecture, three hours; discussion, two hours. Prerequisite: course 6 or Life Sciences 1. Recommended: courses 120, 135. 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 units). Lecture, two hours; laboratory or field trip, eight hours. Prerequisite: course 6 or 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 units). Lecture, two hours; laboratory/field trip, 10 hours. Prerequisite: Life Sciences 1 or equivalent. 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. Lecture, three hours. Prerequisite: course 6 or 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. (Formerly numbered C134.) Lecture, three hours; laboratory, one hour; field trips, four hours. Prerequisite: Life Sciences 1 or equivalent. 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 units). (Formerly numbered C134.) Prerequisite: Life Sciences 1 or equivalent. 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.

135. Population Genetics. Lecture, three hours; discussion, one hour. Prerequisite: Life Sciences 4 or equivalent. 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.

138. Developmental Biology. Lecture, three hours; discussion, one hour. Prerequisites: course 100A or Life Sciences 3, and Life Sciences 4 or equivalent. Strongly recommended: course 100B or C139 or M140. Cellular and molecular basis of animal embryology.

C139. Molecular Cell Biology (6 units). Prerequisites: course 100A or Life Sciences 3, Chemistry 153A, consent of instructor. Not open for credit to students with credit for course 100B or M140 or former course 143. 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 units). (Same as Biological Chemistry M140.) Lecture, three hours; discussion, one hour. Prerequisites: course 100A or Life Sciences 3, Chemistry 11 series (may be taken concurrently), Life Sciences 4 or equivalent. Not open for credit to students with credit for course 100B or C139 or former course 143. 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. (Formerly numbered 141.) Lecture, three hours; discussion, one hour. Prerequisites: Life Sciences 1, 3, and 4, or equivalent. 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 units). Prerequisites: course 138, consent of instructor. Undergraduate seminar on topics in developmental biology. Reading and group discussions on current research. P/NP or letter grading.

146. Physicochemical Biology. Lecture, three hours; discussion, one hour. Prerequisites: Life Sciences 1 and 3 or equivalent, or consent of instructor, Physics 6C or equivalent. Physicochemical analysis of physiology of cells and organelles, with emphasis on membranes, thermodynamics of solute and water movement, light absorption, and subcellular energy transduction.

147. Biological Oceanography. Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Prerequisites: Chemistry 11A, 11B/11BL, and 11CL, or consent of instructor, Life Sciences 1 and 3 or equivalent. 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. Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Prerequisites: Chemistry 11A, 11B/11BL, and 11CL, or consent of instructor, Life Sciences 1 and 3 or equivalent. 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.

150. Plant Chemical and Molecular Communication. Lecture, three hours; discussion, two hours. Prerequisite: completion of preparation for the major courses. 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.

C151. Tropical Ecology. Prerequisite: course 6 or 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 C221. P/NP or letter grading.

152. Functional Plant Anatomy. Lecture, three hours; laboratory, six hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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.

153. Cellular Physiology: Functional Histology. Prerequisites: Chemistry 11A, 11B/11BL, 11CL, Life Sciences 1 and 3 or equivalent, Mathematics 3A, 3B, 3C, Physics 6A, 6B, 6C. Emphasis on how cellular organelles (nucleus, mitochondria, smooth and rough endoplasmic reticulum, golgi apparatus, lysosomes, cytoskeleton, plasma membrane, extracellular matrix) contribute to function of tissues and organs in vertebrates.

153L. Laboratory for Cellular Physiology: Functional Histology (2 units). Laboratory, four hours. Corequisite: course 153. Exploration of microanatomy of vertebrate tissues and organs.

155. Genetics Methods. Lecture, two hours; laboratory, eight hours; outside study, two hours. Gene mapping and detection and analysis of gene variants by means of inheritance patterns.

CM156. Human Genetics. (Same as Microbiology CM156.) Lecture, three hours; discussion, one hour. Prerequisites: course 100A or Life Sciences 3, Life Sciences 4 or equivalent. Strongly recommended: course 100B 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.

157. Gene Manipulation: Genetic Engineering. Lecture, three hours; discussion, two hours. Prerequisites: courses 100A or Life Sciences 3, 138, Life Sciences 4 or equivalent, consent of instructor. Strongly recommended: course 100B or C139 or M140. Survey of methods and applications of recombinant DNA research as applied to both basic scientific research and the biotechnology industry.

158. Cell Biology (6 units). Lecture, three hours; laboratory, six hours. Prerequisites: Chemistry 11A, 11B/11BL, 11CL, Life Sciences 1, 3, and 4, or equivalent. Cell biology of eukaryotic cells, with emphasis on correlation of structure and function at molecular, organellar, and cellular levels.

C159. Computational Biology. Lecture, three hours; laboratory, one hour. Prerequisites: Life Sciences 1 and 4, or consent of instructor. 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.

CM160. Biological Catalysis. (Same as Chemistry CM155.) Prerequisites: courses 100A or Life Sciences 3, 100B or C139 or M140, Chemistry 110A, 153A, 153B, or equivalent, consent of instructor. 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.

162. Plant Physiology (6 units). Lecture, four hours; laboratory, four hours. Prerequisites: Chemistry 153A, 153L, Life Sciences 1 and 3 or equivalent. 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.

163. Biology of Marine Tetrapods. Five-week intensive course. Lecture, five hours; laboratory and fieldwork, 15 hours. Prerequisites: Chemistry 11A, 11B/11BL, 11CL, Life Sciences 1 and 3 or equivalent. 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. Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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. Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Prerequisites: Chemistry 11A, 11B/11BL, and 11CL, or consent of instructor, Life Sciences 1 and 3 or equivalent. Recommended: Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL. Introduction to physiological adaptations of marine vertebrates to major physicochemical variables in the oceans of the world and to major marine habitats. Laboratory work emphasizes marine vertebrates of Southern California waters. Given off campus at a marine science center.

166. Animal Physiology (6 units). Lecture, three hours; laboratory, five hours. Prerequisites: Chemistry 11A, 11B/11BL, 11CL, Life Sciences 1 or 3 or equivalent. Not open for credit to students with credit for course 167 or former course 170. Introduction to physiological principles, with emphasis on organ systems and intact organisms.

167. Regulatory Physiology (6 units). Lecture, three hours; laboratory, five hours. Prerequisites: Chemistry 11A, 11B/11BL, 11CL, Life Sciences 1 and 3 or equivalent. Not open for credit to students with credit for course 166 or former course 170. Introduction to whole animal and organ physiology. Primary considerations to neuronal and endocrine regulations of body functions and integration of organ systems.

168. Insect Physiology. Lecture, two hours; laboratory, six hours. Prerequisite: course 158 or 166 or 167 or equivalent. Survey of physiology of insects, with emphasis on functional adaptations.

CM169. Macromolecular Metabolism and Subcellular Organization (6 units). (Same as Biological Chemistry CM169.) Lecture, five hours. Prerequisites: Chemistry 153A, 153B, 153C, consent of instructor. Recommended: Chemistry CM153G. Cell cycle; DNA replication and repair; structure and properties of cellular organelles; regulation of cell division; cell transformation; normal and aberrant expression of oncogenes; molecular aspects of development. Concurrently scheduled with course CM223.

M170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (Same as Chemistry CM170.) Lecture, three hours; discussion, two hours; outside study, seven hours. Prerequisites: Chemistry 153A and 153B, or Life Sciences 3 or equivalent, and Chemistry 153L. Recommended: Chemistry 153C, 154, Life Sciences 4 or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: course 166 and Life Sciences 3 or equivalent, or consent of instructor. Strongly recommended: course 100B 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.

M173. Anatomy and Physiology of Sense Organs. (Formerly numbered 173.) (Same as Physiological Science M173.) Lecture, three hours; discussion, one hour. Prerequisites: courses 171 (or Physiological Science 111A) or M175A-M175B (or Physiological Science M180A-M180B) or equivalent. 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.

C174A-C174F. Advanced Topics in Cell and Molecular Biology (2 units each). (Formerly numbered 174A-174F.) Lecture, three hours; discussion, one hour. Series of five-week two-unit courses on recent developments in fields of cell and molecular biology. Two courses to be presented in succession in same term whenever offered; students may take either or both. Concurrently scheduled with courses C222A-C222F.

C174A. Molecular Evolution. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. Current developments in the field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data.

C174B. Molecular Biology of Cell Nucleus. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression.

C174C. Eukaryotic DNA Replication and Cell Cycle Control. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. Enzymatic mechanisms of DNA replication, protein kinases and cell cycle control, regulation of genes encoding DNA replication proteins.

C174D. Molecular Biology of Extracellular Matrix. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. 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.

C174F. Molecular Parasitology. 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.

M175A-M175B-M175C. Neuroscience: From Molecules to Mind (5 units each). (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. Prerequisites: Chemistry 132A, Life Sciences 2 or equivalent, Physics 6B or 8C. Not open for credit to students with credit for Physiological Science 111A. Students with credit for Biology 171 may enroll on a P/NP basis; course 171 may not be taken concurrently with this course. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement.

M175B. Molecular and Developmental Neuroscience. Prerequisites: course 171 (or Physiological Science 111A or Psychology 115) or M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A), 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.

M175C. Behavioral and Cognitive Neuroscience. Prerequisite: course 171 (or Physiological Science 111A or Psychology 115) or M175B (or Neuroscience M101B or Physiological Science M180B or Psychology M117B). Neural mechanisms underlying motivation, learning, and cognition.

176. Advanced Topics in Animal Virus/Host Interaction. Lecture, four hours; discussion, one hour; outside study, seven hours. Prerequisites: course 100A or Life Sciences 3, Life Sciences 4 or equivalent. Recommended: Chemistry 153B, 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.

CM178. Molecular Genetics (6 units). (Same as Biological Chemistry CM178.) Lecture, five hours. Prerequisites: course 100B or C139 or M140, Chemistry 153A, 153B, Life Sciences 3, 4, consent of instructor. 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.

179. Invertebrate Endocrinology. Lecture, three hours. Prerequisite: course 158 or 166 or 167 or consent of instructor. Comprehensive treatment of invertebrate endocrinology.

C180. Molecular and Cellular Immunology. Lecture, three hours; discussion, one hour. Prerequisites: courses 100A or Life Sciences 3, 100B or C139 or M140, Chemistry 153A, consent of instructor. 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.

181. Parasitology and Symbiosis (6 units). Lecture, three hours; laboratory, six hours. Prerequisites: Life Sciences 1 and 3 or equivalent. Introduction to principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man.

M185A. Immunology (5 units). (Same as Microbiology M185A and Microbiology and immunology M185A.) Lecture, three hours; discussion, 90 minutes; outside study, 11½ hours. Prerequisites: Life Sciences 3 and 4 or equivalent. Recommended prerequisites or corequisites: course 100B or C139 or M140, Chemistry 153A, 153L. Not open for credit to students with credit for course C180/CM261. Introduction to experimental immunobiology and immunohistochemistry; cellular and molecular aspects of humoral and cellular immune reactions.

CM185B. Intermediate Immunology. (Same as Microbiology CM185B.) Lecture, three hours; discussion, one hour. Prerequisite: course M185A or equivalent. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM285.

188. Seminar: Biology and Society (2 units). Prerequisite: consent of instructor. 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.

M189A-M189B. Theoretical Behavioral Ecology. (Same as Anthropology M189A-M189B.) Lecture, three hours. Prerequisites: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course M189A or consent of instructor is prerequisite to M189B. 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.

190A-190D. Honors Research in Biology (2 to 4 units each). Prerequisites: senior standing, consent of undergraduate adviser. Individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with 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 Biology Department majors.

M191. Biological Bases of Psychiatric Disorders. (Same as Neuroscience M130, Physiological Science M181, Psychiatry M191, and Psychology M117J.) Prerequisite: course 171 or Neuroscience M101A or Physiological Science 111A or Psychology 115 or consent of instructor. 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.

192. Teaching Practicum in Biology (1 to 4 units). Prerequisites: junior or senior biology major, consent of department. 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 biology or cell and molecular biology majors. May be repeated once for credit. P/ NP or letter grading.

193. Teaching Practicum in Cell and Molecular Biology (1 to 4 units). Prerequisites: junior or senior cell-and molecular biology major, consent of department. 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 cell and molecular biology majors. May be repeated once for credit. P/ NP or letter grading.

199. Special Studies (2 to 16 units). Prerequisite: consent of instructor and undergraduate adviser based on 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 Biology Department majors.

Graduate Courses

Consent of instructor is required for admission to all graduate courses. Additional prerequisites are stated in the course descriptions.

200A. Seminar: Integrative Biology (1 unit). (Formerly numbered 200.) Limited to and required of all first-year integrative biology graduate students. Orientation to integrative biological research through attendance at integrative biology division's weekly seminar series. S/U grading.

200B. Research Trends in Integrative Biology (2 units). (Formerly numbered 200.) Lecture, one hour; discussion, two hours. Limited to and required of all first-year integrative biology graduate students. Orientation to integrative biological research through attendance at integrative biology division's weekly seminar series, together with weekly discussions of recently published articles on related topics.

201. Use of the Computer in Biology (2 units). Lecture, two hours; laboratory, one hour. Introduction to use of IBM PC microcomputer and VAX minicomputer in biological research. S/U grading.

203. Marine Botany and Physiology. Lecture, two hours; discussion, one hour; laboratory, six hours; experimental project. Prerequisites: graduate standing, consent of instructor. 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. Lecture, four hours; discussion, one hour. Prerequisite: consent of instructor. Consideration of current research in experimental phyecology. 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. Lecture, four hours; laboratory, eight hours. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, three hours. Prerequisite: 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. Lecture, two hours; laboratory, eight hours. Prerequisites: course 110 or equivalent, consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: course 105 or 107 or equivalent, consent of instructor. 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. Lecture, two hours; laboratory, two hours; fieldwork, two hours. Prerequisites: course 114 or equivalent, consent of instructor. 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).

211. Physiology and Ecology of Digestion. Lecture, two hours; discussion, two hours; laboratory, two hours. Prerequisite: course 166 or 167 or equivalent. Introduction to function of digestive systems and intestinal adaptations to diet, stage of development, and nutritional state. Principles of digestion and membrane transport emphasized in lecture and discussion sections; modern techniques taught in laboratory. Students conduct individual projects in lab and field.

C212. Experimental Invertebrate Zoology (6 units). Lecture, two hours; laboratory, 12 hours. Prerequisites: Life Sciences 1 or equivalent, consent of instructor. Advanced treatment of physiology, behavior, and ecology of invertebrates, with emphasis on independent laboratory and field investigations. Concurrently scheduled with course C104.

C214. Physiological Ecology of Desert Animals. Lecture, three hours; laboratory, one hour; field trips, four hours. Prerequisite: Life Sciences 1 or equivalent. 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. Lecture, three hours; laboratory, three hours; weekend field trips. Prerequisite: Life Sciences 1 or equivalent or consent of instructor. 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. Lecture, two hours; laboratory, six hours. Prerequisites: course 122 or 129 or equivalent, consent of instructor. 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. Lecture, four hours; discussion, one hour. Prerequisites: graduate standing, consent of instructor. 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. Lecture, four hours; discussion, one hour. Prerequisites: graduate standing, consent of instructor. 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. Lecture, three hours. Prerequisites: 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.

CM220. Molecular Cell Biology (6 units). (Not the same as course C220 prior to Fall Quarter 1994.) (Same as Neurobiology M209A and Physiology M209A.) Prerequisite: consent of instructor. Not open for credit to students with credit for course 100B or M140 or former course 143. 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.

C221. Tropical Ecology. Prerequisite: course 6 or 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 C151.

C222A-C222F. Advanced Topics in Cell and Molecular Biology (2 units each). Lecture, three hours; discussion, one hour. Series of five-week two-unit courses on recent developments in fields of cell and molecular biology. Two courses to be presented in succession in same term whenever offered; students may take either or both. Concurrently scheduled with courses C174A-C174F:

C222A. Molecular Evolution. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. 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. S/U or letter grading.

C222B. Molecular Biology of Cell Nucleus. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Original research proposal required.

C222C. Eukaryotic DNA Replication and Cell Cycle Control. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. Enzymatic mechanisms of DNA replication, protein kinases and cell cycle control, regulation of genes encoding DNA replication proteins. Original research proposal required.

C222D. Molecular Biology of Extracellular Matrix. Prerequisites: course 100B or C139 or M140, Chemistry 153B, Life Sciences 4 or equivalent. Recommended: course 13B. 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.

C222F. Molecular Parasitology. 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.

CM223. Macromolecular Metabolism and Subcellular Organization (6 units). (Same as Biological Chemistry CM267 and Chemistry M267.) Lecture, five hours. Prerequisites: Chemistry 153A, 153B, 153C, consent of instructor. Recommended: Chemistry CM153G. Cell cycle; DNA replication and repair; structure and properties of cellular organelles; regulation of cell division; cell transformation; normal and aberrant expression of oncogenes; molecular aspects of development. Concurrently scheduled with course CM169.

224. Marine Molecular Biology (8 units). Lecture, three hours; laboratory, eight hours. Prerequisites: background in marine sciences, basic cell biology and biochemistry, consent of instructor. 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 units). Prerequisite: Life Sciences 1 or equivalent. 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.

M226A-M226B. Principles of Microbial Pathogenesis. (Same as Microbiology M226A-M226B and Microbiology and Immunology M226A-M226B.) Lecture, one hour; discussion, three hours. Prerequisites: Microbiology and Immunology 202A, 202B, 202C, and 202D, or equivalent, or consent of instructor. 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.

C227. Behavioral Ecology (4 or 8 units). Prerequisites: course 6 or Life Sciences 1, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, or consent of instructor. Not open for credit to students with credit for course 129. 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.

228. Prokaryotic and Eukaryotic Gene Systems (2 units). Presentations concerning current experimental approaches in study of DNA replication, organization, transcription, and translation.

M229. Cellular Biology of Host/Pathogen Interactions (6 units). (Same as Microbiology M229 and Microbiology and Immunology M229.) Lecture, four hours; discussion, 90 minutes. Prerequisite: Biological Chemistry CM253 or consent of instructor. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and hosts.

M230B. Structural Molecular Biology. (Same as Chemistry M230B.) Lecture, three hours; discussion, one hour. Prerequisites: Physics 6C, Mathematics 3C, consent of instructor. 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 units). (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.

M231A-M231B-M231C. Advanced Evolutionary Biology. (Formerly numbered 231A-231B-231C.) (Same as Earth and Space Sciences M243A-M243B-M243C.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Series of advanced studies of concepts and methods in evolutionary biology. Topics may include speciation, extinction, coevolution, fossil record, rates of evolution, contributions of molecular biology in evolutionary studies, and development of evolutionary thought. Students encouraged to take each course in sequence. Themes vary from year to year. May be repeated for credit. S/U or letter grading. **M231A.** Mechanisms of Evolution. Prerequisites: courses 120 and/or 135 or equivalent; **M231B.** Patterns of Evolution; **M231C.** Molecular Evolution.

232. Advanced Ecology. Lecture, three hours; discussion, one hour; field trip, three hours. Prerequisite: course 122 or equivalent. 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.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biological Chemistry M233, Chemical Engineering M233, Chemistry M233, Microbiology M233, Microbiology and Immunology M233, and Radiological Sciences M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

234. Genetic Control of Development. (Formerly numbered 234A.) 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.

236. Seminar: Marine Molecular Biology. Discussion, 10 hours. Prerequisites: course 224, consent of instructor. Seminar on current issues and work in marine molecular biology. Given off campus at a marine science center.

M237. Introduction to Cellular Physiology and Biophysics (6 units). (Same as Physiological Science M212 and Physiology M212.) Lecture, five hours. Prerequisites: Physiological Science 111A or Physiology M209A or equivalent, graduate standing, consent of department and instructor; for upper division undergraduates: consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: Life Sciences 1, 3, and 4, or equivalent. 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.

240. Physiology of Marine Animals. Lecture, four hours; discussion, one hour. Prerequisite: graduate standing or consent of instructor. 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.

242. Topics in Neurobiology. Lecture, three hours. Prerequisite: course 171 or equivalent. Selected current problems in neurobiology discussed in depth, with emphasis on analysis of original papers. May be repeated for credit.

243. Animal Communication. Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3C, Physics 6C, consent of instructor. 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. Lecture, two hours; laboratory, five hours. Prerequisite: course 168 or consent of instructor. Detailed discussion of current problems in insect physiology, with advanced laboratory.

M246. Computer Analysis of Genetic Organization. (Same as Microbiology M246.) Lecture, two hours; laboratory, six hours. Prerequisite: Life Sciences 4 or Microbiology C159 or equivalent. 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.

247. Advanced Plant Biology. Lecture, three hours; discussion, two hours. Prerequisite: course C141 or 162 or equivalent. 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.

CM248. Molecular Genetics (6 units). (Formerly numbered M248.) (Same as Biological Chemistry CM248 and Microbiology M248.) Lecture, five hours. Prerequisite: Chemistry CM153G or Biological Chemistry CM153G or equivalent. 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.

251. Seminar: Systematics (2 units). Discussion, two to four hours. Prerequisite: consent of instructor. 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.

CM252. Biological Catalysis. (Same as Biological Chemistry M255, Chemistry CM255, and Pharmacology M255.) Prerequisites: courses 100A or Life Sciences 3, 100B or C139 or M140, Chemistry 110A, 153A, 153B, or equivalent, consent of instructor. 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.

253. Seminar: Plant Structure (2 units).

254. Seminar: Plant Morphogenesis (2 units).

255. Seminar: Invertebrate Zoology (2 units).

CM256. Human Genetics. (Same as Microbiology CM256.) Lecture, three hours; discussion, one hour. Prerequisites: course 100A or Life Sciences 3, Life Sciences 4 or equivalent. Strongly recommended: course 100B 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.

257A. Gene Manipulation: Genetic Engineering. (Formerly numbered 257.) Lecture, three hours; discussion, two hours. Prerequisite: 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 units). Lecture, 90 minutes; discussion, one hour. Prerequisite: 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.

M258A. Molecular Genetic Mechanisms of Immune Response (2 units). (Same as Microbiology M258A and Microbiology and Immunology M258A.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on immunoglobulin I and II, oncogenes of immune system, T cell antigen receptor, and loci affecting differentiation. S/U or letter grading.

M258B. Biology of B Cells: Development, Repertoire, and Activation (2 units). (Same as Microbiology M258B and Microbiology and Immunology M258B.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on B cell development, repertoire, and growth and differentiative regulation. S/U or letter grading.

M258D. Molecular Interactions in Immune Responses (2 units). (Same as Microbiology M258D and Microbiology and Immunology M258D.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on immunology of antibodies, antigens, and complement, antigenic recognition, antibody restriction. S/U or letter grading.

M258E. Immunopathology: Immunology of Disease (2 units). (Same as Microbiology M258E and Microbiology and Immunology M258E.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on tolerance and autoimmunity, autoimmune disease models, immune complex disease, immediate hypersensitivity and its cellular basis, and natural and acquired immune deficiency disease. S/U or letter grading.

M258F. Immune Regulation (2 units). (Same as Microbiology M258F and Microbiology and Immunology M258F.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on idiotype networks, suppressor T cells, tolerance at T and B cell levels, and Ir gene control. S/U or letter grading.

259. Seminar: Herpetology (2 units). Discussion, three hours. Prerequisite: consent of instructor. 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 units).

CM261. Molecular and Cellular Immunology. (Formerly numbered M261.) (Same as Microbiology M261 and Microbiology and Immunology M261.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or consent of instructors. 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.

262. Seminar: Vertebrate Paleontology (2 units).

263. Seminar: Population Genetics (2 or 4 units). Discussion, three to six hours. Prerequisite: consent of instructor. Seminar on topics of current interest in population genetics, such as kin selection, sociobiology, cultural evolution, conservation genetics, etc.

264. Seminar: Stomatal Function. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. 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 units).

M266A-M266B-M266C. Seminars: Molecular Embryology (2 units each). (Same as Biological Chemistry M266A-M266B-M266C.) Prerequisite: consent of instructor. 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.

267. Seminar: Current Topics in Evolutionary Ecology (2 units).

268. Seminar: Population Biology (2 units).

269. Seminar: Animal Ecology (2 units). Discussion, three hours. Advanced study of specific topics in animal ecology and related fields.

270. Seminar: Environmental Physiology (2 units). S/U grading.

271. Seminar: Phycology and Mycology (2 units). Prerequisite: course 101A or equivalent or consent of instructor. 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 units).

273. Seminar: Entomology (2 units). 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 units). Discussion of theoretical and empirical aspects of topics in behavioral ecology. S/U or letter grading.

C275. Computational Biology. Lecture, three hours; laboratory, one hour. Prerequisites: Life Sciences 1 and 4 and graduate study, or consent of instructor. 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.

276. Seminar: Molecular Genetics (2 units). Topics vary each term.

277. Seminar: Genetics (2 units).

278. Seminar: Molecular Genetics of Development (2 units). Prerequisites: graduate standing, consent of instructor. Topics vary from year to year, with focus on establishment of position and pattern during embryogenesis by interaction of signal transduction systems and transcription factors. S/U or letter grading.

281. Seminar: Molecular Biology (2 units).

282. Seminar: Ichthyology (2 units). Prerequisite: course 111 or 112. Student presentations and discussion of specific topics in ichthyology. Theme varies from year to year. May be repeated for credit.

283. Seminar: Topics in Cell Biology (2 units). 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 units). Lecture, 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. (Formerly numbered CM285B.) (Same as Microbiology CM285 and Microbiology and Immunology M285.) Lecture, three hours; discussion, one hour. Prerequisite: course M185A or equivalent. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM185B.

286. Seminar: Plant Development (2 units). Lecture, one hour; discussion, two hours. Prerequisites: 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.

288. Seminar: Plant Cell Biology (2 units). Recommended (but not prerequisite): course 162.

289. Current Topics in Plant Molecular Biology (2 units). (Formerly numbered 296.) 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.

M290. Seminar: Comparative Physiology (2 units). (Formerly numbered 290.) (Same as Physiological Science M290.) Seminar, two and one-half hours. Prerequisite: consent of instructor. 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 units).

292. Seminar: Molecular Evolution (2 units). Discussion, three hours. Detailed analysis of current understanding of evolution of molecular sequences and structures.

296AA-296AZ. Advanced Topics in Molecular, Cellular, and Developmental Biology (2 units each). Discussion, three hours. Prerequisite: consent of instructor. 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.

296BA-296BZ. Seminars: Integrative Biology — Cellular, Organismic, and Population (1 to 4 units each). Discussion, three hours. Prerequisite: consent of instructor. 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.

297. Advances in Molecular Analysis of Plant Development and Plant/Microbe Interactions (2 units). Prerequisite: consent of instructor. 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.

M298. Seminar: Current Topics in Molecular Biology (2 units). (Same as Biological Chemistry M298, Chemistry M298, Microbiology M298, Microbiology and Immunology M298, and Molecular Biology M298.) Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. Program. Each student conducts or participates in discussions on assigned topics. May be repeated for credit.

299. Seminar: Parasitology (2 units).

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: graduate standing. 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 units). Prerequisite: graduate standing. 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.

501. Cooperative Program (2 to 8 units). Prerequisite: 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 12 units).

596F. Directed Individual (or Tutorial) Studies (2 to 8 units). Given off campus at a marine science center.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 12 units). 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 units).

599. Ph.D. Dissertation Research and Writing (2 to 12 units).

Lecturer

Jeffrey Gornbein, Ph.D.

Adjunct Professors

Janet D. Elashoff, Ph.D.
Alan B. Forsythe, Ph.D.
Arthur Peskoff, Ph.D.

Adjunct Assistant Professors

Julian Cook, Ph.D.
Eli Engel, M.D., Ph.D.
Hong Qian, Ph.D.
Janet S. Sinsheimer, 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree**Admission**

High academic achievement in one scientific or mathematical field is required. It is not nec-

BIOMATHEMATICS

School of Medicine

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Michael E. Phelps, Ph.D.
Wilfrid J. Dixon, Ph.D., *Emeritus*
Robert I. Jennrich, Ph.D., *Emeritus*

Associate Professors

Karim F. Hirji, Ph.D., *in Residence*
Elliot M. Landaw, M.D., Ph.D., *Vice Chair*
Nathaniel Schenker, Ph.D.
A. James Sneyd, Ph.D.

essary 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, at the address given at the beginning of this listing.

Admission to the Master of Science in Biomathematics program follows admission to the Graduate Division and approval by the departmental graduate admissions committee.

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 these five courses were completed as an undergraduate, the student may petition the department to count them in fulfillment of this requirement of specific background in biomathematics; however, in accord with Academic Senate regulations, they cannot be applied toward the minimum requirements stated below for the master's degree.

The master's candidate 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 advisory 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. 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 Graduate Admissions Office forms, 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, at the address given at the beginning of this listing.

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, 207, 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. These 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-

matics 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 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 will be provided in requirements for the field of major biological emphasis; supplemental coursework will be 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 feasi-

bility 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.

Upper Division Courses

106. Introduction to Cellular Modeling. Lecture, four hours; computer laboratory, two hours. Prerequisites: Mathematics 32A, some computer programming, consent of instructor (undergraduates). 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. Lecture, four hours; computer laboratory, two hours. Prerequisites: Mathematics 32A, some computer programming, consent of instructor (undergraduates). 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.

110. Elements of Biomathematics. Lecture, three hours; laboratory, three hours. Prerequisite: 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. Introduction to Computational Statistics. (Same as Biostatistics M153A-M153B and Statistics M153A-M153B.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 115A, Statistics 152B. Linear and nonlinear regression analysis using package programs. Emphasis on relation between statistical theory, numerical results, and analysis of data. **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. 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. 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. 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. Lecture, three hours; discussion, two hours. Prerequisite: Biostatistics 100C or 100D or Statistics 152B or equivalent. 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.

190HA-190HB. Honors Research in Biomathematics. Prerequisites: upper division standing, consent of instructor and department chair. 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 units). Prerequisites: upper division standing, consent of instructor. 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 units). Prerequisite: consent of instructor. Series of presentations by faculty members on research frontiers in biomathematics. S/U or grading.

201. Deterministic Models in Biology. Prerequisite: 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. Prerequisite: knowledge of calculus, linear algebra, and 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.

203. Stochastic Models in Biology. Prerequisite: Mathematics M150A 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.

204. Biomedical Data Analysis. Prerequisite: consent of instructor. 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. Prerequisite: knowledge of differential equations and electrostatics, or consent of instructor. Review of electrostatics; potential problems in rectangular, spherical, and cylindrical coordinates; modeling subthreshold 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. Lecture, four hours; computer laboratory, two hours. Prerequisites: ordinary, partial differential equations, and one computer programming course or consent of instructor. 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.

207. Models in Genetics. (Formerly numbered 207A, 207B.) Lecture, three hours; discussion, one hour. Prerequisite: upper division probability and statistics; knowledge of basic genetics principles helpful. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. Content varies from year to year.

208A. Modeling in Neurobiology for Mathematicians. (Formerly numbered 208.) Lecture, four hours; laboratory, two hours. Prerequisites: 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. (Formerly numbered 208.) Lecture, four hours; laboratory, two hours. Prerequisites: 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.

211. Advanced Topics in Differential Equation Modeling in Biology. Prerequisite: course 201 or consent of instructor. Advanced topics in mathematical physiology, population biology, pattern formation, and biological excitable systems. Analytical and numerical approaches. Taught from research papers. S/U or letter grading.

220. Kinetic and Steady State Models in Pharmacology and Physiology. Recommended: knowledge of linear algebra, differential equations, and 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. (Same as Radiological Sciences M230.) Prerequisite: consent of instructor. 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. (Same as Biostatistics M210.) Lecture, three hours; discussion, one hour. Prerequisites: Biostatistics 100B or 110B, Statistics 152C or equivalent. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations.

M232. Statistical Analysis of Incomplete Data. (Same as Biostatistics M232.) Lecture, three hours; discussion, one hour. Prerequisite: Statistics 152C or equivalent. 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. (Same as Biostatistics M234.) Lecture, three hours; discussion, one hour. Prerequisites: Biostatistics 200C, Statistics 152C. 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.

M270. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (Same as Computer Science M296B and Medicine M270D.) Lecture, four hours; outside study, eight hours. Prerequisite: Computer Science M296A or consent of instructor. 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.

273. Stochastic Modeling in Molecular Cellular Biophysics. Lecture, three hours; discussion, one hour. Prerequisite: Mathematics M150A 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.

M280. Statistical Computing. (Same as Biostatistics M280 and Mathematics M280.) Lecture, three hours. Prerequisites: Mathematics 115A, Statistics 152C, or equivalent. 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.

M281. Survival Analysis. (Same as Biostatistics M215.) Lecture, three hours; discussion, one hour. Prerequisites: Biostatistics 110B, Statistics 152C. Statistical methods for analysis of survival data. S/U or letter grading.

M282. Analysis of Repeated Measures Designs (5 units). (Same as Biostatistics M236.) Lecture, four hours; discussion, two hours. Prerequisites: 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 units). 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 units). Prerequisite: consent of graduate adviser. Individual study. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation (2 to 12 units). Prerequisite: consent of instructor. S/U grading.

BIOSTATISTICS

School of Public Health

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Hong Qian, Ph.D.
Janet Sinsheimer, Ph.D.
Hongyu Zhao, 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants to the Master of Science program in Biostatistics 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.

See the Master of Public Health (M.P.H.) Admission section under Public Health Schoolwide Programs. Admission requirements for the Master of Science in Biostatistics are the same as for the M.P.H.

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.

Two-Year Plan. Unless previously taken, the following courses must be included in the degree program: Biostatistics 110A, 110B, 115, 200A, 200B-200C, M215, 240A, 240B, 402A, 402B, 596; any three special topics courses from Biostatistics M210 through 214, 230, 231, M232, M234; and all courses numbered 250 and above, such that at least one of these three courses is in the 200 series; Statistics M152A, 152B.

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.

One-Year Plan. The one-year plan is recommended only for exceptional students who have had a year course in probability and theoretical statistics plus one or more courses in applied statistics.

The following courses must be included in the degree program: Biostatistics 200A, 200B-200C, M215, 240A, 240B, 402A, 402B; two special topics courses in the numbered course

sequence defined in the two-year plan; Biostatistics 596.

A written report and written comprehensive examination covering the above course material must be passed.

Comprehensive Examination Plan

The written comprehensive examination covers the content of the required courses. 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 are those currently specified by the Graduate Division. Normally, students receive an M.S. in Biostatistics at UCLA before admission to the Ph.D. program.

See the Doctor of Public Health (Dr.P.H.) Admission section under Public Health School-wide Programs. Admission requirements for the Ph.D. in Biostatistics are the same as for the Dr.P.H.

Major Fields or Subdisciplines

Consult the graduate adviser.

Course Requirements

Unless previously taken, the following courses must be included in the degree program: Biostatistics M250A-M250B, 251, 255; Mathematics 276A-276B; and at least three special topics courses from the Biostatistics 230, 270, and 280 series. Some substitution is accepted from courses in mathematics and biomathematics. 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 biology, epidemiology, infectious diseases, medicine, microbiology, pharmacology, physiology, psychology, zoology, or public health. Students are required to participate in the biostatistics consulting laboratory for one term each year and in the advanced seminar in biostatistics each year.

Written and Oral Qualifying Examinations

Written qualifying examinations in biostatistics and mathematical statistics are taken before advancement to candidacy and can be repeated once only. The mathematical statistics examination is taken in the spring of the first year in residence; if failed, it must be retaken the following October. The written qualifying examination is taken in Fall Quarter of the second year.

A doctoral committee is nominated when the student is ready to take the University Oral Qualifying Examination. The doctoral committee consists of at least four faculty members who hold professorial appointments. Two of the faculty must be tenured. Two of the four must hold appointments in Public Health; one must be an outside member who holds no appointment in Public Health; one of the four must be from the minor field.

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. A failed examination may be repeated once. 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.

Upper Division Courses

100A. Introduction to Biostatistics. Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisites: upper division standing, one biological or physical sciences course. 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.

100B. Introduction to Biostatistics. Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisite: course 100A or equivalent. Not open for credit to students with credit for course 110B. Introduction to analysis of variance, linear regression, and correlation analysis.

100C. Introduction to Biostatistics. Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisite: course 100B or equivalent. Design of experiments, analysis of variance, multiple and polynomial regression analysis with biomedical applications.

100D. Introduction to Biostatistics. Lecture, three hours; laboratory, two hours. Prerequisite: course 100B or equivalent. Introduction to concepts of probability used in biomedical sciences. Enumeration statistics and nonparametric methods. Comparison of nonparametric with analogous parametric tests. Discussion of power and sample size.

110A. Basic Biostatistics. (Formerly numbered 101A.) Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisite: Mathematics 31B or equivalent. 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.

110B. Basic Biostatistics. (Formerly numbered 101B.) Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisite: 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.

115. Topics in Estimation. (Formerly numbered 110C.) Lecture, three hours; discussion, one hour. Prerequisites: Statistics M152A, 152B. Small and large sample properties of common estimation techniques arising in biostatistical application.

M153A-M153B. Introduction to Computational Statistics. (Formerly numbered M101D-M101E.) (Same as Biomathematics M153A-M153B and Statistics M153A-M153B.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 115A, Statistics 152B. Linear and nonlinear regression analysis using package programs. Emphasis on relation between statistical theory, numerical results, and analysis of data. **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 units). Prerequisites: senior standing, consent of instructor and department chair (based on written proposal outlining course of study). 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.

Graduate Courses

200A. Biostatistics. Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisites: courses 100A, 100B, and 100C, or 110A, 110B, and 115. Topics in methodology of applied statistics, such as design, analysis of variance, regression. S/U or letter grading.

200B-200C. Biostatistics. Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisites: 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.

M210. Statistical Methods for Categorical Data. (Formerly numbered M201E.) (Same as Biomathematics M231.) Lecture, three hours; discussion, one hour. Prerequisites: course 100B or 110B, Statistics 152C or equivalent. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations.

212. Distribution Free Methods. (Formerly numbered 201F.) Lecture, three hours; discussion, one hour. Prerequisites: course 100B or 110B, Statistics 152C, or equivalent. Theory and application of distribution free methods in biostatistics.

213. Statistical Simulation Techniques. (Formerly numbered 201G.) Lecture, three hours; discussion, one hour. Prerequisites: Statistics 152C, one computer programming course. Techniques for simulating important statistical distributions, with applications in biostatistics. S/U or letter grading.

214. Finite Population Sampling. (Formerly numbered 201H.) Lecture, three hours. Prerequisites: course 110B, Statistics 152B. Theory and methods for sampling finite populations and estimating population characteristics. S/U or letter grading.

M215. Survival Analysis. (Formerly numbered M201K.) (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Prerequisites: course 110B, Statistics 152C. Statistical methods for analysis of survival data. S/U or letter grading.

216. Introduction to Statistical Methods for Biological Assays. (Formerly numbered 201M.) Lecture, three hours. Prerequisite: Statistics 152B. 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. (Formerly numbered 201J.) Lecture, three hours; discussion, one hour. Prerequisite: course 100C. Topics in biostatistics not covered in other courses.

230. Statistical Graphics. (Formerly numbered 202J.) Lecture, three hours; discussion, two hours. Prerequisites: courses 110A, 110B, 200A, or equivalent. 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. (Formerly numbered 202G.) Lecture, three hours; discussion, one hour. Prerequisites: courses 200C, M250A, Statistics 152C. Methods and theory of simultaneous statistical inference.

M232. Statistical Analysis of Incomplete Data. (Formerly numbered M202F.) (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Prerequisite: Statistics 152C or equivalent. 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 units). (Formerly numbered 202K.) Prerequisites: courses 110A, 110B, M215, Mathematics M150A-150B, 151, or equivalent. 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. (Formerly numbered M202H.) (Same as Biomathematics M234.) Lecture, three hours; discussion, one hour. Prerequisites: course 200C, Statistics 152C. Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

235. Causal Inference. Lecture, three hours; discussion, one hour. Prerequisite: 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.

M236. Analysis of Repeated Measures Designs (5 units). (Same as Biomathematics M282.) Lecture, four hours; discussion, two hours. Prerequisites: 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.

240A. Research Resources in Biostatistics (2 units). Lecture, three hours. Introduction to various resources available in statistical research, such as how to obtain access to current index in statistics and introduction to SUN workstation laboratory. Report on research paper in a recent statistics journal required. S/U or letter grading.

240B. Seminar for Second-Year Biostatistics Master's Students (2 units). Lecture, three hours. How to give an oral presentation on research results, including audiovisual techniques for a scientific talk and organization for short and long talks. Presentation of a paper from their current research related to their master's report required of students. S/U or letter grading.

245. Advanced Seminar: Biostatistics (2 units). (Formerly numbered 204F.) Prerequisite: course 200C. Current research in biostatistics. May be repeated for credit. S/U grading.

M250A-M250B. Linear Statistical Models. (Formerly numbered M205A-M205B-M205C.) (Same as Mathematics M279A-M279B.) Lecture, three hours; discussion, one hour. Prerequisite: 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. S/U or letter grading.

251. Multivariate Biostatistics. (Formerly numbered 206A-206B.) Lecture, three hours; discussion, one hour. Prerequisite: course M250A or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 276A-276B or consent of instructor. 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.

270. Stochastic Processes. (Formerly numbered 207E.) Lecture, three hours. Prerequisites: upper division mathematics, including statistics and probability. Stochastic processes applicable to medical and biological research.

271. Mathematical Epidemiology. (Formerly numbered 207F.) Lecture, three hours. Prerequisites: course 270 or equivalent, upper division mathematics (including statistics and probability). Mathematical theory of epidemiology with deterministic and stochastic models and problems involved in applying the theory.

275. Advanced Survival Analysis. (Formerly numbered 207K.) Lecture, three hours; discussion, one hour. Prerequisites: course 255, Mathematics 276A-276B. 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. (Formerly numbered 207M.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 276A-276B. 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.

277. Robustness and Modern Nonparametrics. Lecture, three hours. Prerequisite: Mathematics 276A. Topics include M-estimation, influence curves, breakdown point, bootstrap, jackknife, smoothing, nonparametric regression, generalized additive models, density estimation.

M280. Statistical Computing. (Formerly numbered M207J.) (Same as Biomathematics M280 and Mathematics M280.) Lecture, three hours. Prerequisites: Mathematics 115A, Statistics 152C, or equivalent. 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.

285. Advanced Topics: Recent Developments. (Formerly numbered 207L.) 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.

295. Application of Statistical Theories in Biomedical Research. Lecture, three hours; discussion, one hour. Prerequisite: Statistics 152C or 154B. 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.

296A-296Z. Seminars: Research Topics in Biostatistics. Discussion, two hours. Prerequisite: consent of instructor. 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 units). 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.

402A. Principles of Biostatistical Consulting (2 units). Lecture, one hour; discussion, one hour. Prerequisites: course 100B or 110B and Statistics 152B. Presentation of structural format for statistical consulting. Role of statistician and client. Reviews of actual statistician/client interactions and case studies.

402B. Biostatistical Consulting. Discussion, two hours; laboratory, two hours. Prerequisite: course 402A. Principles and practices of biostatistical consulting. May be repeated for credit. S/U grading.

403. Computer Management of Health Data. Lecture, three hours; laboratory, two hours. Prerequisites: at least one statistics course, two research methodology courses, Program in Computing 1 or equivalent, consent of instructor. Concepts of health data management, design and maintenance of large databases on tapes or disks; computing tools and techniques facilitating data retrieval for statistical analysis, tabulation and report generation useful to biostatisticians, health planners, and other health professionals.

404. Principles of Sampling. Lecture, three hours; discussion, one hour. Prerequisites: course 100B, Epidemiology 100, or equivalent. 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.

405. Demographic Materials and Methods. Lecture, three hours; laboratory, two hours. Prerequisite: 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. S/U or letter grading.

406. Applied Multivariate Biostatistics. Lecture, three hours; laboratory, one hour. Prerequisites: course 100B, at least two other upper division research courses. 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.

410. Statistical Methods in Clinical Trials. (Formerly numbered 401E.) Lecture, three hours; discussion, two hours. Prerequisite: course 100C or 100D or Statistics 152C or equivalent. 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 nondivision majors.

411. Statistical Methods for Longitudinal Data. (Formerly numbered 401F.) Lecture, three hours. Prerequisites: course 100C or 100D or Statistics 152C or equivalent, Epidemiology 100. Design and analysis of longitudinal or panel studies. S/U grading optional for non-division majors.

412. Statistical Methods for Case-Control Studies. (Formerly numbered 401G.) Lecture, three hours. Prerequisites: courses 100C and 100D, or 115. Statistical designs, sampling statistics, and analytic models of case-control studies. Special topics such as exploratory analyses, multiplicity of analyses, cross-validation, small sample performance of variance estimators, measurement error in the covariates, and incomplete data. S/U or letter grading.

419. Special Topics: Applied Statistics. (Formerly numbered 401H.) Lecture, three hours; discussion, one hour. Prerequisite: course 100C. Special topics in applied statistics not covered in other courses in professional series.

420. Database Management Systems. (Formerly numbered 203A.) Lecture, three hours; laboratory, two hours. Prerequisite: course 403 or equivalent. 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.

421. Systems Analysis for Health Data. (Formerly numbered 203B.) Lecture, three hours; laboratory, two hours. Prerequisite: course 420. Health data computer processing as a total system; review of selected health information systems, statistical packages, and computer languages; design, development, testing, and maintenance of a computer system for managing health data.

495. Teacher Preparation in Biostatistics (2 units). Prerequisites: 18 units of cognate courses in area of specialization, consent of department chair. 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 units). Prerequisite: 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.

502. UCLA/Hawaii Western Consortium Exchange (4 to 16 units). Prerequisite: 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 at University of Hawaii, Manoa, as part of UCLA/UH Western Consortium Exchange Program. Only the equivalent of eight quarter units taken at UH may be applied toward degree. Extra units may be applied toward department requirements by petition to Public Health Student Affairs Office. UH letter-graded courses appear on UCLA transcript with letter grades, while UH Cr/NCR-graded courses appear as S/U grades. Grade points from these courses are not counted in UCLA grade-point average.

596. Directed Individual Study or Research (2 to 8 units). Prerequisite: graduate standing. 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.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations (2 to 8 units). Prerequisite: graduate standing. 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 units). 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 units). May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

BUSINESS AND ADMINISTRATION

*Interdepartmental Program
College of Letters and Science*

UCLA
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Additional Coursework for Students Interested in Business and Administration

The specialization in business and administration 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, as well as a sequence of courses.

For example, if you are interested in international business, you 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 major will give you 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.

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. You 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. You also are required to seek guidance from a field studies coordinator in choosing and researching your topic.

To enter the specialization, you must file a petition with the College Counseling Service in the

College of Letters and Science. If you do not complete the program prior to graduation, you 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 your transcript and diploma when you 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 your 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 A, 1, 38A, 38B, 104); two courses from English 4, 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 formal reasoning:* Anthropology 180, 186, Computer Science 141, Economics 141, 147A, 147B, Geography 171, Philosophy 9, 31, 32, Political Science 102, Program in Computing 10A, 10B, 10C, Psychology M142, 144, 150, 151, Sociology 104, 112, 113; (2) *administration:* Political Science M105, 142C, 143A, 143B, 145D, 146B, 146C, 146D, 151, 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, 187A

(4) *Economy and Society* — Anthropology 60, 60P, 150, 167, History 149A, 149B, Political Science M141D, 142B, Psychology 175, Sociology 158, 168, 173

(5) *Economic Systems* — Economics 110, 180, 190, Political Science 124, 129, 130, Sociology 173

(6) *Professional Writing* — English 100,* 131A* through 131D,* 136A,* 136B*

(7) *Accounting* — Management 120A, 120B, 122, 123, 124, 127, 128

(8) *Artificial Intelligence* — Economics 141, 142, 148, Mathematics 142, 149, 172A, 172B

(9) *Operations Research* — Mathematics
115A, 115B, 141A, 141B

(10) *Labor Studies* — History 155A, 155B,
Political Science 142C, Psychology M137E,
Sociology 171

CÉSAR E. CHÁVEZ CENTER IN CHICANA AND CHICANO STUDIES

*Center for Interdisciplinary Instruction
College of Letters and Science*

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Professors

Juan Gómez-Quíñones, Ph.D. (*History*)
Fernando M. Torres-Gil, Ph.D. (*Social Welfare*)

Associate Professors

Héctor Calderón, Ph.D. (*Spanish*)
Leobardo Estrada, Ph.D. (*Urban Planning*)
Camille Guerin-Gonzales, Ph.D. (*Chávez Center*)
Guillermo Hernández, Ph.D. (*Spanish*)
Steven J. Loza, Ph.D. (*Ethnomusicology and
Systematic Musicology*)
José Monleón, Ph.D. (*Spanish*)
Vilma Ortiz, Ph.D. (*Sociology*)
Raymund A. Paredes, Ph.D. (*English*)
Raymond A. Rocco, Ph.D. (*Political Science*)
Edward E. Telles, Ph.D. (*Sociology*)

Assistant Professors

Alicia Gaspar de Alba, Ph.D. (*Chávez Center*)
Raul Hinojosa-Ojeda, Ph.D. (*Urban Planning*)
Chon A. Noriega, Ph.D. (*Film and Television*)
Sonia Saldivar-Hull, Ph.D. (*English*)
Otto Santa Ana, Ph.D. (*Chávez Center*)
Daniel G. Solorzano, Ph.D. (*Education*)
Abel Valenzuela, Ph.D. (*Chávez Center*)
Edit Villarreal, M.F.A. (*Theater*)

Lecturer

Richard Chabran, M.L.S.

Visiting Professor

Jose Luis Valenzuela (*Theater*)

Scope and Objectives

Today there is a demand for individuals with extensive knowledge of the Chicano community. Opportunities exist in both the public and private sector that call for men and women academically prepared and aware of the history, culture, and current problems facing Chicano/Latino communities. The B.A. degree in Chicana and Chicano Studies provides students with the language and cross-cultural studies background that will enhance their qualifications for positions in schools, governmental organizations, and private enterprise.

Bachelor of Arts Degree

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 110W; Library and Information Science 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 — Prerequisite: senior standing. 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 a Chicana and Chicano studies 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 termination 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 specialization complements study in a traditional field. Students participating in this program are required to complete both a departmental major and the Chicana and Chicano studies specialization. You 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).

Lower Division Courses

10A. Introduction to Chicano Life and Culture. 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. 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. 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. (Same as Education M102.) Prerequisite: consent of instructor. 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. (Same as Theater M103C.) Lecture, three hours. Prerequisite: upper division standing. 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. (Same as Theater M103D.) Lecture, three hours. Prerequisite: upper division standing. Study of recent trends in Chicano theater as reflected in works of contemporary Chicano dramatists and theater artists.

M105. The Chicano Experience in Literature. (Same as English M105.) Prerequisite: satisfaction of Subject A requirement. Study of literature in English by and about Chicanos. Survey of depiction of the Chicano experience in American literature generally, with emphasis on development of Chicano literature itself, its cultural backgrounds, and distinctive uses of language.

M108A. Music of Latin America: Mexico, Central America, and the Caribbean Isles. (Same as Ethnomusicology M108A.) Lecture, three hours. Prerequisite: consent of instructor. Survey of traditional and contemporary musical culture.

M110. Chicana Feminism. (Same as Women's Studies M132A.) Lecture, three hours. Prerequisite: Women's Studies 10 or consent of instructor. 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 units). (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. (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. (Same as Ethnomusicology M116.) Lecture, three hours. Prerequisite: consent of instructor. 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. 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. 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. Lecture, three hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity.

125. U.S./Mexico Relations. 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. 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. 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.

133. Chicana Lesbian Literature. 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 Chicano/Chicana and Latino/Latina Cultures. Lecture, three hours. Cultural studies analyzing exhibitions of "minority" art that have occupied space in mainstream museums across the U.S. since the mid-1980s. Guiding questions include what mission does multiculturalism serve in the art world and how is multiculturalism an ethnographic method.

M145A-M145B. Introduction to Chicano Literature. (Formerly numbered M145.) (Same as Spanish M145A-M145B.) Lecture, three hours. Prerequisite: Spanish 25 or 25A. Recommended: Spanish 136B. 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. (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. (Same as Political Science M144A.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: Political Science 40, and one 140-level political science course or one upper division course on race or ethnicity from history, psychology, or sociology, or consent of instructor. 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. (Same as Women's Studies M132B.) Prerequisite: Women's Studies 10 or consent of instructor. 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. (Same as Sociology M155.) Lecture, three hours; discussion, one hour. Prerequisites: Sociology 1 and junior standing, or consent of instructor. 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. (Same as History M159A.) 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. (Same as History M159B.) 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. Language of U.S. Ethnic Minorities and Social Issues. Lecture, three hours. Overview of elements of, and social issues associated with, language use of urban ethnic populations. Topic include bilingual language acquisition, language change/decay, societal attitudes (including educational) toward nonstandard varieties, and sexism in language.

161. Sociolinguistics of U.S. Latinos. Lecture, three hours. Prerequisite: course 160. Development of major elements (and political issues) regarding Chicano/Chicana language. Topics include histories of American English, Mexican Spanish, and Chicano English/Spanish; Chicano language varieties and their complex sociolinguistic communities; bilingualism and education; issues of social instructions (e.g., law, medicine).

162. Urban Linguistic Methods. Lecture, three hours. Prerequisite: course 161. For ethnic- and self-understanding and community research, interviews are a critical but not instinctual technique. Introduction to oral history and sociolinguistic techniques — sampling, interviewing, observation. Group work required.

165. Language in Education. Lecture, three hours. Examination of language issues pertinent to educational systems, including language inequity, literacy, testing, and socialization, as well as institutional ideologies.

M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest. (Same as Anthropology M172T.) Lecture, three hours. Prerequisite: Anthropology 9 or consent of instructor. Ethnography of social and cultural adaptations of Hispanic peoples in the U.S. Southwest: their respective social organization, economic and political institutions, sacred and secular belief systems, and expressive cultures. P/NP (undergraduates), S/U (graduates), or letter grading.

197A-197Z. Special Topics in Chicana and Chicano Studies. Lecture, three hours. Some sections may require prior coursework or consent of instructor. Lecture or seminar format on selected topics in Chicana and Chicano studies. May be repeated for credit.

199. Independent Studies (2 to 4 units). Prerequisites: courses 10A, 10B, upper division standing, consent of interdepartmental Chicana and Chicano Studies Program faculty. Intensive directed research program. May be repeated for a maximum of eight units.

Related Courses in Other Departments

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)

M154. Women in Culture and Society

162. Contemporary American Indian Problems

172R. Cultures of the Pueblo Southwest

M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest

Art History C117A. Pre-Columbian Art of Mexico

C117B. Pre-Columbian Art of the Maya

English M102. Asian American Literature

M104A. Early Afro-American Literature

106. Native American Literary Studies

Ethnomusicology and Systematic Musicology

106A-106B-106C. Music of the American Indians

108B. Music of Latin America: Latin South America

M110A-M110B. The 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 Elite

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.

144. Urban Poverty and Public Policy in the U.S.

156. Ethnic and Status Groups

160. Intergroup Conflict and Prejudice

161. Comparative American Indian Societies

186. Latin American Societies

196A-196B. 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 Science

UCLA

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Professors

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Professor of Chemical Engineering)

Ken Nobe, Ph.D.

Selim M. Senkan, Ph.D., *Chair*

Vincent L. Vilker, Ph.D.

A.R. Frank Wazzan, Ph.D., *Dean*

Eldon L. Knuth, Ph.D., *Emeritus*

Lawrence B. Robinson, Ph.D., *Emeritus*

William D. Van Vorst, Ph.D., *Emeritus*

Associate Professors

Robert F. Hicks, Ph.D.

Vasilios Manousiouthakis, Ph.D.

Harold G. Monbouquette, Ph.D.

Adjunct Professor

Gary S. Selwyn, Ph.D.

Scope and Objectives

The Department of Chemical Engineering conducts undergraduate and graduate programs of teaching and research in the areas of thermodynamics, mass transfer, catalysis, semiconductor materials processing, electrochemistry and corrosion, high-temperature chemical kinetics and reaction engineering, combustion science, environmental reaction engineering, cryogenics and low-temperature processes, biochemical engineering, computer-aided process design and control, particle technology, pollution control, 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 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.

Bachelor of Science Degree

The goal of the ABET-accredited chemical engineering curriculum is to provide a high quality, professionally oriented education in modern chemical engineering. The bioengineering 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 (193 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 113A, 132A, 132B/132BL.

(3) Two elective courses from Chemical Engineering 110, C111, 112, 113, C115, C116, C118, 119, C125, C140 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 your faculty adviser.

(4) Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL; Civil and Environmental Engineering 15A and 15B or Mechanical, Aerospace, and Nuclear Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B/8BL, 8C/8CL, 8D/8DL.

(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; Biology 100A or 108 or Microbiology and Molecular Genetics 101; Chemistry and Biochemistry 132A, 132B/132BL, 153A, 153L, 156.

(3) Two elective courses (Chemical Engineering C115 and C125; another chemical engineering elective may be substituted for one of these with approval of your faculty adviser); one upper division biology elective selected from Biology C141, 157, C174A through C174F (any two), M185A or one upper division microbiology elective selected from Microbiology and Molecular Genetics 102, C104A/C104B, C111, C112, C159.

(4) Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL; Biology 5, 9; Civil and Environmental Engineering 15A and 15B or Mechanical, Aerospace, and Nuclear Engineering 20;

Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D.

(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 (198 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 113A, 132A, 132B/132BL.

(3) Two elective courses from Chemical Engineering 113, C118, 119, C140 (another chemical engineering elective may be substituted for one of these with approval of your faculty adviser) and three advanced chemistry electives in the environmental field from Atmospheric Sciences M203A, Biology M127, Chemistry and Biochemistry 103, Environmental Health Sciences 240, 241, 261 (other advanced chemistry courses may be selected in consultation with your faculty adviser).

(4) Atmospheric Sciences 2A; Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL; Civil and Environmental Engineering 15A and 15B or Mechanical, Aerospace, and Nuclear Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B/8BL, 8C/8CL, 8D/8DL.

(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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Go-phor via the Internet.

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program 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 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 in the Curricula and Courses section of this catalog.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing or to the Office of the Associate Dean for Academic and Student Affairs, School of Engineering and Applied Science, UCLA, 6426 Boelter Hall, Box 951609, Los Angeles, CA 90095-1601.

Areas of Study

Consult the department.

Course Requirements

The requirements for a Master of Science degree in Chemical Engineering are a thesis and at least 36 units (nine courses). Chemical Engineering 200, 210, and 220 are required for all master's degree candidates. Two courses may be 598 courses involving work on the thesis. Twelve units of the remaining requirements should be taken from courses offered by the Chemical Engineering Department, with at least eight units at the 200 level. The remaining four units may be taken from any field of sciences, mathematics, or engineering.

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 Chemical Engineering Graduate Student Affairs Office for approval before the student's second quarter of residence.

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 Ph.D. program in Chemical Engineering are required to take the General Test of the Graduate Record Examination (GRE).

Admission to the Ph.D. program in Chemical Engineering requires a 3.25 grade-point average and successful completion of preliminary oral and written examinations administered by the faculty of the Chemical Engineering Department.

The preliminary oral examination tests the candidate's understanding of the fundamentals in the areas of thermodynamics, transport phenomena, and chemical kinetics and reactor design. It is recommended that the candidate take the three major field core courses covering these subjects, Chemical Engineering 200, 210, and 220, in preparing for this examination. Students whose first degree is in chemi-

cal engineering take the examination at the end of the first year in residence. Students whose first degree is not in chemical engineering (e.g., chemistry) take this examination at the end of the second year in residence.

The preliminary written examination consists of an original proposition prepared by the candidate submitted in written form, and defended orally before a departmental examination committee. The subject of the proposition must fall outside the area of the student's M.S. and planned Ph.D. research project but within the scope of the chemical engineering major field. The preliminary written examination is to be completed within a period of one month, at the beginning of the Fall Quarter following the student's successful completion of the preliminary oral examination.

Major Fields or Subdisciplines

Consult the department.

Course Requirements

The program of study for the Ph.D. program requires satisfying the chemical engineering major field and breadth requirements and a minor field requirement. The breadth requirement broadens the student's background in chemical engineering beyond the dissertation area and major field core courses and can be satisfied by a selection of 12 units of coursework offered by the Chemical Engineering Department. All of these units must be in letter-graded courses, and at least eight units must be 200-level courses. The minor field requirement is satisfied by taking 12 units of coursework outside the Chemical Engineering Department. All of these units must be in letter-graded courses, and at least four units should be 200-level courses. These courses may be taken in any field of science, mathematics, or engineering but must reflect a coherent body of knowledge. Each student must confer with the graduate adviser to plan an integrated program of study early in the first year.

A program of study to fulfill the major field, breadth, and minor field requirements must be submitted for approval to the Chemical Engineering Student Affairs Office no later than one quarter after successful completion of the preliminary written examination. The student must maintain a 3.3 or better grade-point average in courses which are used to satisfy the breadth and minor field requirements.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in the Curricula and Courses section of this catalog.

Written and Oral Qualifying Examinations

The Ph.D. preliminary written examination consists of an original proposition prepared by the candidate submitted in written form, and defended orally before a departmental examination committee. The oral presentation and defense generally take one to two hours.

The subject of the proposition must fall outside the area of the student's Ph.D. research project but within the scope of the major field (chemical engineering). The topic should be set with the approval of the examination committee and may originate with the student or as a result of discussion with the committee members.

The proposition should be original in one or more of the following categories: (1) it involves a novel analysis of data published by other investigators; (2) it proposes and describes a novel commercial process, an instrument, or an experiment; (3) it develops a new mathematical model or method of analysis; (4) in some cases it may involve the conduct of an experimental project.

In addition to its creative aspects, the proposition should demonstrate the student's understanding of the literature and underlying science of the subject. A literature review in itself is not acceptable.

The examination is to be completed within a period of one month during the Fall Quarter following the student's successful completion of the Ph.D. preliminary oral examination.

The chair of the examination committee reports in writing to the department chair who in turn notifies the candidate on the outcome of the Ph.D. preliminary examination. Copies of these statements are placed in the candidate's file.

Failing the Ph.D. preliminary written examination may result in dismissal from the Ph.D. program.

After completion of the program of study as approved by the graduate adviser, the student must pass the University Oral Qualifying Examination conducted by a doctoral committee consisting of at least four faculty members nominated by the Department of Chemical Engineering in accordance with the regulations of the Graduate Division.

Lower Division Course

2. Technology and the Environment. 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.

Upper Division Courses

100. Introduction to Chemical Engineering. Lecture, four hours; discussion, one hour; outside study, seven hours. Prerequisites: course M105A (may be taken concurrently), Mathematics 33A. Introduction to analysis and design of industrial chemical processes. Material and energy balances.

101A. Momentum Transfer. Lecture, four hours; discussion, one hour; outside study, seven hours. Prerequisites: 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.

101B. Heat Transfer. Lecture, four hours; discussion, one hour. Prerequisite: 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.

101C. Mass Transfer. Lecture, four hours; discussion, one hour. Prerequisites: 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.

102. Chemical Engineering Thermodynamics. Prerequisites: courses 100, M105A. Thermodynamic properties of pure substances and solutions. Phase equilibrium. Chemical reaction equilibrium.

103. Separation Processes. Prerequisites: 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.

104A. Chemical Engineering Laboratory I (6 units). Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. Prerequisites: 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.

104B. Chemical Engineering Laboratory II (6 units). Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. Prerequisites: 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.

M105A. Introduction to Engineering Thermodynamics. (Same as Mechanical, Aerospace, and Nuclear Engineering M105A.) Lecture, four hours; recitation, one hour. Prerequisites: Mathematics 32B, Physics 8B. 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.

106. Chemical Reaction Engineering. Prerequisites: courses 100, 101C, 102. Fundamentals of chemical kinetics and catalysis. Introduction to analysis and design of homogeneous and heterogeneous chemical reactors.

107. Process Dynamics and Control. Prerequisites: 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.

108A. Process Economics and Analysis. Prerequisites: 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.

108B. Chemical Process Computer-Aided Design and Analysis. Prerequisites: 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.

109. Mathematical Methods in Chemical Engineering. Lecture, four hours; recitation, two hours; outside study, six hours. Prerequisite: 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.

110. Intermediate Engineering Thermodynamics. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

C111. Cryogenics and Low-Temperature Processes. (Formerly numbered 111.) Lecture, four hours; outside study, eight hours. Prerequisites: 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.

112. Polymer Processes. Prerequisites: course 101A, Chemistry 132A. 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.

113. Air Pollution Engineering. Lecture, four hours; preparation, two hours; outside study, six hours. Prerequisites: courses 101C and 102, or consent of instructor. 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.

C114. Electrochemical Processes and Corrosion. Lecture, four hours; other, eight hours. Prerequisites: 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.

C115. Biochemical Reaction Engineering. Lecture, four hours; outside study, eight hours. Prerequisites: courses 101C and 106, or Chemistry 156, or consent of instructor. 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.

C116. Surface and Interface Engineering. Prerequisites: courses 101C, 102, 106. Description of thermodynamics and kinetics of surface phenomena: nucleation, growth, and coalescence of films; adsorption, desorption, diffusion, and reaction of gases on surfaces. Application of these concepts to electronic materials processing and catalyst design. May be concurrently scheduled with course C216.

C118. Multimedia Environmental Assessment. Lecture, four hours; preparation, two hours; outside study, six hours. Prerequisites: courses 101C and 102, or consent of instructor. 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.

119. Pollution Prevention for Chemical Processes. Lecture, four hours; recitation, one hour; preparation/outside study, seven hours. Prerequisite: course 108A or consent of instructor. Waste audits and emission inventories, process design and process flowsheeting for waste minimization, economic analysis of environmental projects, life-cycle analyses.

C125. Bioseparations and Bioprocess Engineering. Lecture, four hours; outside study, eight hours. Prerequisites: courses 101C and 103, or Chemistry 156, or consent of instructor. 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.

C140. Fundamentals of Aerosol Technology. Lecture, four hours; outside study, eight hours. Prerequisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C240.

CM165. Bioprocess Technology. (Same as Microbiology CM165.) Lecture, two hours; laboratory, eight hours; outside study, two hours. Prerequisites: course C115, Chemistry 156, and Microbiology 101, or consent of instructor. 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.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, consent of instructor. 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.

Graduate Courses

200. Advanced Engineering Thermodynamics. Prerequisite: course 102 or equivalent. 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.

210. Advanced Chemical Reaction Engineering. Prerequisites: courses 101C, 106, or equivalent. 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.

C211. Cryogenics and Low-Temperature Processes. (Formerly numbered 211.) Lecture, four hours; outside study, eight hours. Prerequisites: 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.

C214. Electrochemical Processes and Corrosion. Lecture, four hours; other, eight hours. Prerequisites: 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.

C215. Biochemical Reaction Engineering. Lecture, four hours; outside study, eight hours. Prerequisites: courses 101C and 106, or Chemistry 156, or consent of instructor. 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.

C216. Surface and Interface Engineering. Prerequisites: courses 101C, 102, 106. Description of thermodynamics and kinetics of surface phenomena: nucleation, growth, and coalescence of films; adsorption, desorption, diffusion, and reaction of gases on surfaces. Application of these concepts to electronic materials processing and catalyst design. May be concurrently scheduled with course C116.

217. Electrochemical Engineering. Prerequisite: 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.

C218. Multimedia Environmental Assessment. Lecture, four hours; preparation, two hours; outside study, six hours. Prerequisites: courses 101C and 102, or consent of instructor. 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.

220. Advanced Mass Transfer. Prerequisite: course 101C or equivalent. 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.

223. Design for Environment. Lecture, four hours; outside study, eight hours. Prerequisite: graduate standing in chemical engineering, materials science and engineering, or Master of Engineering program. 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.

C225. Bioseparations and Bioprocess Engineering. Lecture, four hours; outside study, eight hours. Prerequisites: courses 101C and 103, or Chemistry 156, or consent of instructor. 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.

230. Reaction Kinetics. Prerequisites: courses 106, 200, or equivalent. 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.

231. Molecular Dynamics. Prerequisite: course 106 or 110. Analysis and design of molecular-beam systems. Molecular-beam sampling of reactive mixtures in combustion chambers or gas jets. Molecular-beam studies of gas-surface interactions, including energy accommodations and heterogeneous reactions. Applications to air pollution control and to catalysis.

232. Combustion Processes. Prerequisite: course 106, 200, or Mechanical, Aerospace, and Nuclear 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.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biological Chemistry M233, Biology M233, Chemistry M233, Microbiology M233, Microbiology and Immunology M233, and Radiological Sciences M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

C240. Fundamentals of Aerosol Technology. (Formerly numbered 240.) Lecture, four hours; outside study, eight hours. Prerequisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C140.

250. Computer-Aided Chemical Process Design. Prerequisite: 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.

260. Non-Newtonian Fluid Mechanics. Prerequisite: 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.

CM265. Bioprocess Technology. (Same as Microbiology CM265.) Lecture, two hours; laboratory, eight hours; outside study, two hours. Prerequisites: course C115, Chemistry 156, and Microbiology 101, or consent of instructor. 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.

290A-290Z. Special Topics (2 to 4 units each). Prerequisites: consent of instructor, additional prerequisites for each offering as 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. (Same as Urban Planning M262A and Environmental Health Sciences M249.) Lecture, three hours. Prerequisites: Urban Planning 260A and 260B, or consent of instructor. 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.

298A-298Z. Research Seminars (2 to 4 units each). Prerequisites: consent of instructor, additional prerequisites for each offering as 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 units). Prerequisite: graduate standing in chemical engineering. 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 units). Prerequisite: 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 units). Prerequisites: graduate standing in chemical engineering, consent of instructor. 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 units). Prerequisites: graduate standing in chemical engineering, consent of instructor. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). Prerequisites: graduate standing in chemical engineering, consent of instructor. 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). Prerequisites: graduate standing in chemical engineering, consent of instructor. 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). Prerequisites: graduate standing in chemical engineering, consent of instructor. Usually taken after student has been advanced to candidacy. S/U grading.

Richard E. Dickerson, Ph.D. (*Biochemistry, Molecular Biology*)

David S. Eisenberg, D.Phil. (*Physical Chemistry, Molecular Biology*)

Juli 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*)

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. Kaesz, 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*). Chair

Raphael D. Levine, Ph.D. (*Physical Chemistry*)

Harold G. Martinson, Ph.D. (*Biochemistry, Molecular Biology*)

Malcolm F. Nicol, Ph.D. (*Physical Chemistry*)

C. Kumar N. Patel, Ph.D.

Emil Reiser, Ph.D. (*Biochemistry, Molecular Biology*)

David S. Sigman, Ph.D. (*Organic and Biological Chemistry*)

Joan S. Valentine, Ph.D. (*Inorganic Chemistry and Biochemistry*)

John T. Wasson, Ph.D. (*Geochemistry, Chemistry*)

Richard L. Weiss, Ph.D. (*Biochemistry*)

R. Stanley Williams, Ph.D. (*Physical Chemistry*)

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.

Mostafa A. El-Sayed, Ph.D.

Paul S. Farrington, Ph.D.

Clifford S. Garner, Ph.D., D.Sc.

E. Russell Hardwick, Ph.D.

Thomas L. Jacobs, Ph.D.

John M. Jordan, 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.

Kenneth N. Trueblood, Ph.D.

Charles A. West, Ph.D.

Associate Professors

Robert W. Armstrong, Ph.D. (*Organic and Bioorganic Chemistry*)

Sabeeha Merchant, Ph.D. (*Biochemistry, Molecular Biology*)

Assistant Professors

Delroy A. Baugh, Ph.D. (*Physical Chemistry*)

• James U. Bowie, Ph.D. (*Biochemistry*)

Catherine F. Clarke, Ph.D. (*Biochemistry*)

Albert J. Courey, Ph.D. (*Biochemistry*)

Miguel Garcia-Garibay, Ph.D. (*Organic Chemistry*)

Robin L. Garrell, Ph.D. (*Physical and Analytical Chemistry*)

James W. Gober, Ph.D. (*Biochemistry*)

James R. Heath, Ph.D. (*Physical Chemistry*)

Andrea J. Liu, Ph.D. (*Physical Chemistry*)

Craig A. Merlic, Ph.D. (*Organic and Organometallic Chemistry*)

David C. Myles, Ph.D. (*Organic and Bioorganic Chemistry*)

Daniel Neuhauser, Ph.D. (*Physical Chemistry*)

Yves Rubin, Ph.D. (*Organic and Bioorganic Chemistry*)

Todd O. Yeates, Ph.D. (*Biochemistry*)

Lecturers

Max Kopelevich, Ph.D. (*Chemistry*)

Betty A. Luceigh, Ph.D. (*Chemistry*)

John K.M. Mouser, Ph.D. (*Chemistry*)

Arlene A. Russell, Ph.D. (*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 or UCLA students with more than 84 quarter units are accepted into the departmental majors only if they have completed the following courses or their equivalents: the entire Chemistry and Biochemistry 11 series, Mathematics 31A, 31B, 32A, Physics 8A, 8C/8CL, and 8D/8DL, or 6A, 6B, and 6C (or a year of calculus-based physics). For *biochemistry* majors, a year of biology may replace the physics. For *chemistry* majors, Mathematics 32B is recommended.

Students with more than 105 quarter units are accepted into the departmental majors only if they have completed the following courses or their equivalents: the entire Chemistry and Biochemistry 11 series and one term of organic chemistry, Mathematics 31A, 31B, 32A, Physics 8A, 8C/8CL, and 8D/8DL, or 6A, 6B, and 6C (or a year of calculus-based physics). *Biochemistry* majors also should have completed a course in the biology of organisms; *chemistry* majors should have completed 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 132A. Transfer students should consult the department's Undergraduate Advising Office in 4016 Young Hall for assistance with the articulation of transfer coursework.

CHEMISTRY AND BIOCHEMISTRY

College of Letters and Science

UCLA

3010 Young Hall

Box 951569

Los Angeles, CA 90095-1569

(310) 825-3958

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*)

Donald J. Cram, Ph.D. (*Saul Winstein Professor of Organic Chemistry, University Professor*)

Preliminary Examination for Chemistry and Biochemistry 11A

If you wish to enroll in Chemistry and Biochemistry 11A or 11AH, you must pass the Chemistry Diagnostic Test. The examination is administered at all first-year sessions of the summer Orientation Program and on the following dates: Monday, September 25, 1995, for Fall Quarter 1995; Thursday, November 16, 1995, for Winter Quarter 1996; and Thursday, March 1, 1996, for Spring Quarter 1996. Consult the department for times and locations.

If your performance on the examination does not qualify you for immediate admission to Chemistry and Biochemistry 11A, but you wish to enroll in a subsequent term, you may be eligible for enrollment in Los Angeles Valley College (LAVC) Chemistry 17. This course is given at UCLA during Fall Quarter specifically for UCLA students preparing for Chemistry and Biochemistry 11A. If you successfully complete LAVC course 17, you are entitled to admission to course 11A for the next three terms. Offered on a Passed/Not Passed basis, LAVC course 17 carries no UCLA graduation credit but does displace four units on your Study List. It is *not* an acceptable substitute for course 11A.

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 11A equivalency, or may take course 11A or 11AH at UCLA. Everyone planning to take Chemistry and Biochemistry 11A or 11AH must take the Chemistry Diagnostic Test. If you received a score of 3 on the AP Chemistry Test, you receive eight units of chemistry credit but no course equivalency.

Credit Limitations

You may not take or repeat a chemistry or biochemistry course for credit if it is a requisite for a more advanced course for which you already have credit. This applies in particular to the repetition of courses (e.g., if you wish to repeat Chemistry and Biochemistry 11A, you must do so before completing course 11B).

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, indi-

vidual 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 4016 Young Hall.

Bachelor of Science in Chemistry

This program is for students who intend to pursue a career in chemistry.

Chemistry Concentration

Preparation for the Major: Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL; Mathematics 31A, 31B, 32A, 32B, 33A; Physics 8A, 8C/8CL, and 8D/8DL (8B/8BL strongly recommended), or 6A, 6B, and 6C. Physics 8 series is strongly recommended for students with interest in physical chemistry, biophysical chemistry, or physical organic chemistry. If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

The Major: Chemistry and Biochemistry 110A, 110B, 113A, 114 (or 114H), 132A, 132B/132BL, 132C/132CL, either 136 or 144, 153A, 153L, 173, and two other upper division or graduate courses in the department, including at least one additional laboratory course from 136, 144, 154, 174, 184.

Physical Chemistry Concentration

This concentration is designed primarily for students who are interested in attending graduate school in physical chemistry/physics.

Preparation for the Major: Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8C/8CL, 8D/8DL. To be admitted, you 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: Chemistry and Biochemistry 110A, 110B, 113A, 114, 132A, 132B/132BL, 153A, 173; one additional upper division chemistry, electrical engineering, or physics laboratory course; and four 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. Consult the Undergraduate Advising Office for a list of approved electives.

Physics 8CL and 8DL must be taken prior to Chemistry and Biochemistry 132BL and 114, respectively.

By your junior year, you 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.

Bachelor of Science in Biochemistry

This 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 11A, 11B/11BL, 11C/11CL; Life Sciences 2, 3, 4; Mathematics 31A, 31B, 32A (33A strongly recommended); Physics 6A, 6B, and 6C, or 8A, 8C/8CL, and 8D/8DL (8B/8BL strongly recommended). Physics 8 series is recommended for students with interest in biophysical chemistry. If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

The Major

Required: Chemistry and Biochemistry 110A, 132A, 132B/132BL, 132C/132CL, 153A, 153B, 153C, 153L, 154, 156, Microbiology and Molecular Genetics 101, 101L; one additional upper division or graduate course in chemistry and biochemistry; two elective upper division or graduate courses (eight units) in biology, chemistry and biochemistry, mathematics, microbiology, or physics, which must be approved by the undergraduate adviser. Consult the Undergraduate Advising Office for a list of approved electives.

Bachelor of Science in General Chemistry

This program is for students who wish to acquire considerable chemical background 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 medicine, dentistry, or public health. This major cannot be taken as part of a double major.

Preparation for the Major

Required: Chemistry and Biochemistry 11A, 11B/11BL, 11C/11CL; Mathematics 31A, 31B, 32A, 33A; Physics 6A, 6B, and 6C, or 8A, 8C/8CL, and 8D/8DL. If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

You must complete the preparation courses with at least a 2.0 grade-point average.

The Major

Required: Chemistry and Biochemistry 110A, 132A, 132B/132BL, 132C/132CL, 153A, 153L; 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 your interests and objectives. Your proposal should specify which courses you 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

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 may be obtained by writing to the address given at the beginning of this listing.

Areas of Study

Biochemistry; 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 remainder 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, 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. The M.S. in Biochemistry may be obtained by the thesis plan or the comprehensive examination plan. 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. Specific course requirements vary for each plan (see below).

Comprehensive Examination Plan

Chemistry. In exceptional cases, the comprehensive examination plan is used in lieu of a thesis. Under this plan, chemistry 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. For biochemistry students, 20 of the total 36 upper division and graduate units must be at the graduate level and include two of the following courses: Chemistry and Biochemistry CM253, M263, or M267 (10 to 12 units). Biochemistry students may apply six units of Chemistry and Biochemistry 258 and six units of Chemistry and Biochemistry 268 to the graduate course requirement and to the total course requirement. Courses must be approved by the biochemistry graduate adviser. With the exception of Chemistry and Biochemistry 258 and 596, all courses must be taken on a letter grade basis. The written requirements associated with the Winter and Spring Quarter student seminars must be satisfactorily completed.

Thesis Plan

Chemistry. The thesis plan is the preferred method of attaining the M.S. in Chemistry.

Biochemistry. For biochemistry students, 20 of the 36 required units must be at the graduate level and include two of the following courses: M253, M263, or M267 (10 to 12 units).

Doctoral Degrees

Admission

In addition to the University minimum requirements, an excellent undergraduate record is required of all applicants. 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. The main purpose of the orientation requirement is to help the student and the student's 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; the student plans a course program in consultation with the biochemistry graduate adviser.

Chemistry students are encouraged to become familiar with research activities of all faculty in the student's area of interest and to join a research group as soon as possible.

Biochemistry 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 address given at the beginning of this listing. Students may also be admitted to the biochemistry program through UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, Los Angeles, CA 90095-1570, (310) 206-6051.

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 173; (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 132A, 132B, 132C, 136; (2) Chemistry and Biochemistry C243A, 244A; (3) Chemistry and Biochemistry C243B or 244B; (4) one additional Chemistry and Biochemistry course from physical chemistry (C213B, 245) or inorganic chemistry (173, 174, C275, C276A) or biochemistry (153C); (5) two courses from Chemistry and Biochemistry 207, 232, 236, 241A through 241Z, 242, 245, C281; (6) 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); (5) two courses (for letter grade credit) from Chemistry and Biochemistry 215C, 215D, 223C, 225; (6) two courses (with S/U grading option) from 215C, 215D, 221A through 221F, 223C, 225, C243A, C276A, 277, Physics 105A, 110A, 110B, 131, 132, 140, or upper division mathematics courses (subject to approval). Substitutions may be made with consent of the physical chemistry area adviser.

Biochemistry. Candidates should normally complete as a minimum the coursework indicated below. Some of these 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 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) Two of the following courses (10 to 12 units): Chemistry and Biochemistry CM253, M263, M267.

(3) Additional upper division or graduate courses to total 24 units, including units from item 2 above but not from items 4, 5, and 6 below. Eighteen units must be completed in the first year. Other courses may be substituted for Chemistry and Biochemistry M267 with the permission of the graduate adviser. These courses should be chosen in consultation with the biochemistry graduate or Ph.D. adviser.

(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. 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 the 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 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 oral qualifying examination is to be attempted during the sixth quarter of residence by all biochemistry students and by chemistry students completing the written qualifying examinations by the end of 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 student's overall record at UCLA as reflected in coursework and examinations, and the student's research ability and productivity.

Lower Division Courses

2. Introductory Chemistry. Lecture, two hours; discussion, two hours. Not open to students with credit for course 11A. Concept of submicroscopic world of chemistry, ranging from protons to proteins in subject matter.

9. Beginning a Career in Molecular Sciences (1 unit). 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.

10A. General Chemistry for Life Sciences Majors. Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: high school chemistry or equivalent background and three and one-half years of high school mathematics, successful completion of Chemistry Diagnostic Test. Introduction to physical chemistry needed for the life sciences. Quantum chemistry, atoms, atomic properties, and chemical bonding in molecules. Equilibria and thermodynamics through the first law. P/NP or letter grading.

10B. General Chemistry for Life Sciences Majors (2 units). First five weeks. Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 10A (C – or better). Introduction to physical chemistry needed for the life sciences. Entropy, free energy, electrochemistry, and kinetics. P/NP or letter grading.

10BL. General and Organic Chemistry Laboratory for Life Sciences Majors (2 units). Lecture, one hour; laboratory, three hours; outside study, 2 hours. Enforced requisites: courses 10A (C – or better), 10B and 10C (corequisites). 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.

10C. Organic Chemistry for Life Sciences Majors (2 units). Second five weeks. Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 10B or 11B (C – or better). Introduction to organic compounds, functional groups, transition metal coordination chemistry, bioorganic and bioinorganic chemistry, isomerism, and stereochemistry. P/NP or letter grading.

10D. Organic Chemistry for Life Sciences Majors. Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course 10C (C – or better). Introduction to organic chemistry. Molecular orbital theory and photochemistry, structural characterization via spectroscopy, general classes of organic reactions. P/NP or letter grading.

10DL. General and Organic Chemistry Laboratory for Life Sciences Majors (3 units). Lecture, one hour; laboratory, six hours; outside study, two hours. Enforced requisites: courses 10B, 10BL, and 10C (C – or better), 10D (corequisite). Builds on techniques taught in course 10BL. 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.

11A. General Chemistry. Lecture, four 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 Test. Recommended: high school physics. Required of all majors in chemistry and biochemistry. (Students lacking prerequisites may qualify for admission by exceptional performance on Chemistry Diagnostic Test.) Atomic picture of matter; periodicity of chemical properties; types of chemical reactions; reaction stoichiometry; chemical reaction calculations; quantum theory; atomic and molecular structure and bonding.

11AH. General Chemistry (Honors). Lecture, four hours; discussion, one hour. Preparation: high school chemistry and physics or equivalent background and three and one-half years of high school mathematics. (Students lacking preparation may qualify for admission by exceptional performance on Chemistry Diagnostic Test.) All students who intend to take this course must take the Chemistry Diagnostic Test (enrollment is usually limited to students who have passed the examination). Honors course parallel to course 11A.

11B. General Chemistry. Lecture, three hours; discussion, one hour. Enforced requisite: course 11A (or 11AH, C – or better). Kinetic theory and thermodynamics of gas phase; thermochemistry; molecular interactions in liquids and solids; acid-base and solubility equilibria; free energy and reactivity.

11BH. General Chemistry (Honors). Lecture, three hours; discussion, one hour. Enforced requisite: course 11AH (B – or better). Honors course parallel to course 11B.

11BL. General Chemistry Laboratory (2 units). Laboratory, four hours; video laboratory, one hour. Enforced requisites: courses 11A and 11B (corequisite), (C – or better). Use of the balance; volumetric techniques; equilibria; thermochemistry; quantitative analysis using volumetric and potentiometric procedures; Beer's law.

11C. General Chemistry (3 units). Lecture, two hours. Enforced requisite: course 11B (or 11BH, C – or better). Chemical kinetics; electrochemistry; main group and transition metal reactivity; coordination chemistry; special topics such as carbon chemistry, polymers, ceramics, biological molecules.

11CH. General Chemistry (Honors). Lecture, three hours; discussion, one hour. Enforced requisite: course 11BH (B – or better). Honors course parallel to course 11C, but at a more advanced level.

11CL. General Chemistry Laboratory (3 units). Lecture, one hour; laboratory, six hours. Enforced requisite: course 11BL (C – or better). Rates of reactions; quantitative volumetric analysis; qualitative inorganic analysis; inorganic synthesis; column chromatography; colorimetric analysis. P/NP or letter grading.

15. Survey of Organic Chemistry and Biochemistry. Enforced requisite: course 11A (C – or better). Not open to students with credit for 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 unit). 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.

88A-88Z. Lower Division Seminars (2 units each). (Formerly numbered 88.) 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 units). To be arranged. May be repeated for a maximum of eight units.

Upper Division Courses

103. Environmental Chemistry. Lecture, four hours; discussion, one hour. Prerequisites: courses 110A, 132A, 132B/132BL, 153A, and 153L, or consent of instructor. 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.

110A. Physical Chemistry: Chemical Thermodynamics. Lecture, four hours; discussion, one hour. Prerequisites: course 11C, Physics 8A, 8C, and 8D, or 6A, 6B, and 6C, Mathematics 31A, 31B, 32A or 3C (for life sciences majors). Fundamentals of thermodynamics, chemical and phase equilibria, thermodynamics of solutions, electrochemistry.

110B. Physical Chemistry: Introduction to Statistical Mechanics and Kinetics. Lecture, four hours; discussion, one hour. Prerequisites: course 110A and Mathematics 32B, or consent of instructor. Strongly recommended: course 113A (for biochemistry majors course 156 may be substituted). 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.

113A. Physical Chemistry: Introduction to Quantum Mechanics. Lecture, four hours; discussion, one hour. Prerequisites: course 11C, Physics 8A, 8C, and 8D, or 6A, 6B, and 6C, Mathematics 31A, 31B, 32A, 33A (may be taken concurrently). 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.

C113B. Physical Chemistry: Introduction to Molecular Spectroscopy. Lecture, four hours; discussion, one hour. Prerequisite: 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.

114. Physical Chemistry Laboratory. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 11CL, 110A, 110B, and 113A, or consent of instructor. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes spectroscopy, thermodynamic measurements, and chemical dynamics.

114H. Physical Chemistry Laboratory (Honors). Lecture, two hours; laboratory, eight hours. Prerequisites: courses 11CL, 110A, 110B, and 113A, with grades of B or better, or consent of instructor. 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.

C115A-C115B. Quantum Chemistry. Lecture, four hours; discussion, one hour. Prerequisites: 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 prerequisite 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. Prerequisite: course 110B. Recommended: course 113A, Physics 8D. Topics of considerable research interest presented at level suitable for students who have completed junior-year courses in physical chemistry.

C123A-C123B. Classical and Statistical Thermodynamics. Lecture, four hours; discussion, one hour. Prerequisite: 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. Lecture, three hours. Prerequisites: courses 110A, 110B, 113A, working knowledge of FORTRAN IV or PL/1. 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.

132A. Organic Chemistry. Lecture, three hours; discussion, one hour. Prerequisites: courses 11B or 11BH, and 11CL (may be taken concurrently), with grades of C – or better, or consent of instructor. Structures and properties of organic molecules; chemical bond and its relation to organic molecular structure, stereochemistry, and reactivity; mechanisms and stereochemistry of organic reactions; physical/organic study of a chemical reaction; synthesis, properties, and reactions of alkanes, alkenes, alkynes, alkyl halides, ethers, and alcohols.

132AH. Organic Chemistry (Honors). Lecture, three hours; discussion, one hour. Prerequisites: courses 11B or 11BH, and 11CL (may be taken concurrently), with grades of B – or better, or consent of instructor. Honors course parallel to course 132A.

132B. Organic Chemistry. Lecture, three hours; discussion, one hour. Prerequisite: course 132A or 132AH with a grade of C – or better or consent of instructor. Corequisite: course 132BL. Introduction to infrared, ZH, and ZCC NMR spectroscopy; structure, reactivity, and spectroscopic properties of carbonyl and carboxyl derivatives, aromatic compounds, and amines; concepts of aromaticity; amino acids and the peptide bond.

132BH. Organic Chemistry (Honors). Lecture, three hours; discussion, one hour. Prerequisite: course 132A or 132AH with a grade of B – or better or consent of instructor. Honors course parallel to course 132B.

132BL. Organic Chemistry Laboratory (2 units). Lecture, one hour; laboratory, three hours. Prerequisites: courses 11CL, and 132A or 132AH, with grades of C – or better or consent of instructor. Corequisite: course 132B. Basic experimental techniques in organic synthesis (distillation, extraction, crystallization reaction setup and workup) and organic analytical chemistry (melting and boiling point, refractive index, chromatography, IR, NMR, GC). One-step synthesis of known organic compounds on microscale level.

132C. Organic Chemistry. Lecture, three hours; discussion, one hour. Prerequisites: courses 132B or 132BH, and 132BL, with grades of C – or better, or consent of instructor. Introduction to electron absorption and mass spectroscopy; modern NMR spectroscopy; pericyclic reactions; molecular orbital theory; polymers and organic materials; organic chemistry of silicon, phosphorus, and sulfur; organic synthesis; concepts and design; building blocks of biological systems: amino acids and the peptide bond, lipids, carbohydrates, and heterocycles; bioorganic chemistry; molecular modeling.

132CH. Organic Chemistry (Honors). Lecture, three hours; discussion, one hour. Prerequisite: course 132B or 132BH with a grade of B – or better or consent of instructor. Honors course parallel to course 132C.

132CL. Organic Chemistry Laboratory (2 units). Lecture, one hour; laboratory, four hours. Prerequisites: courses 132B or 132BH, and 132BL, with grades of C – or better, or consent of instructor. Corequisite: course 132C. Modern techniques in organic synthetic and analytical chemistry. Micro-preparative and semi-preparative scale single and multistep synthesis of known organic molecules. One- and two-dimensional multinuclear NMR techniques. CAS online literature search and written synthesis proposal.

136. Organic Structural Methods. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 132A, 132B/132BL, and 132C/132CL, or equivalent, with grades of C – or better, or consent of instructor. Laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques.

C143A. Structure and Mechanism in Organic Chemistry. Lecture, three hours; discussion, one hour. Prerequisites: courses 110B, 113A, and 132C/132CL (may be taken concurrently), or equivalent, with grades of C- or better, or consent of instructor. 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.

C143B. Mechanism and Structure in Organic Chemistry. Lecture, three hours; discussion, one hour. Prerequisite: course C143A with a grade of C- or better or consent of instructor. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C243B.

144. Practical and Theoretical Introductory Organic Synthesis. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 132C/132CL or equivalent. 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.

153A. Biochemistry: Introduction to Structure, Enzymes, and Metabolism. Lecture, three hours; discussion, one hour; tutorial, one hour. Prerequisite: course 132B or 132BH with a grade of C- or better. Structure of proteins, carbohydrates, and lipids; enzyme catalysis and principles of metabolism, including glycolysis, citric acid cycle, and oxidative phosphorylation.

153B. Biochemistry: DNA, RNA, and Protein Synthesis. Lecture, three hours; discussion, one hour; tutorial, one hour. Prerequisite: course 153A. Nucleotide metabolism; DNA replication; DNA repair; transcription machinery; regulation of transcription; RNA structure and processing; protein synthesis and processing.

153BH. Biochemistry: DNA, RNA, and Protein Synthesis (Honors). Lecture, three hours; discussion, two hours. Prerequisite: course 153A. Honors course parallel to course 153B.

153C. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation. Lecture, three hours; discussion, one hour. Prerequisite: course 153A or consent of instructor. Metabolism of carbohydrates, fatty acids, amino acids, and lipids; photosynthetic metabolism and assimilation of inorganic nutrients; regulation of these processes.

CM153G. Macromolecular Structure (6 units). (Same as Biological Chemistry CM153G.) Lecture, five hours. Prerequisites: courses 110A, 153A, 153B, 153C, 156, or equivalent. 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.

153L. Biochemical Methods I (2 units). (Formerly numbered 153AL.) Lecture, one hour; laboratory, four hours. Prerequisites: courses 132B or 132BH, 132BL, 153A (may be taken concurrently). Integrated term-long project involving purification of an enzyme from meat obtained at local butcher, followed by characterization of purified enzyme, with emphasis on enzyme kinetics.

154. Biochemical Methods II. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 153A, 153B, and 153L, or consent of instructor. 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. (Formerly numbered C155.) (Same as Biology CM160.) Prerequisites: courses 110A, 153A, 153B, Biology 100A or Life Sciences 3, 100B or C139 or M140, or equivalent, consent of instructor. 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. Lecture, four hours; discussion, one hour. Prerequisites: 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 units). (Same as Biological Chemistry CM159A.) First five weeks. Lecture, four hours; outside study, two hours. Prerequisites: courses 153B and 154, or consent of instructor. 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 units). (Same as Biological Chemistry CM159B.) Second five weeks. Lecture, four hours; outside study, two hours. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisite: course 153C or equivalent or consent of instructor. 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 units). First five weeks. Lecture, three hours; discussion, one hour. Prerequisites: 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. (Same as Biology M170.) Lecture, three hours; discussion, two hours; outside study, seven hours. Prerequisites: courses 153A and 153B, or Life Sciences 3 or equivalent, and course 153L. Recommended: courses 153C, 154, Life Sciences 4 or equivalent. 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.

173. Structural Inorganic Chemistry. Lecture, three hours; discussion, one hour. Prerequisite: course 110A. Recommended: courses 113A or 156, and 132B/132BL. Introductory survey of structure and bonding in inorganic compounds; molecular stereochemistry; donor/acceptor interactions; coordination compounds of transition metals; elements of crystal-field and ligand-field theory.

174. Inorganic and Metalorganic Laboratory Methods. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 132A, 132B/132BL, and 173, or consent of instructor. Synthesis of inorganic compounds, including air-sensitive materials; dry-box, vacuum line, and high-pressure techniques; Schlenk methods; chromatographic and ion exchange separations.

C175. Inorganic Reaction Mechanisms. Lecture, three hours. Prerequisites: courses 110A, 110B, 113A, 173, or equivalent. 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.

C176. Group Theory and Applications to Inorganic Chemistry. Lecture, three hours; discussion, one hour. Prerequisites: courses 113A, 173, or equivalent. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C276A.

C180. Solid-State Chemistry. Lecture, three hours. Prerequisite: course 173 or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: courses 110A, 132A, 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.

184. Chemical Instrumentation. Lecture/quiz, two hours; laboratory, eight hours. Prerequisite: 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. Prerequisites: two terms of course 199 on related material, consent of undergraduate adviser and research director. 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 unit). Prerequisites: four units of course 199B, consent of instructor and department. To be arranged with faculty member who will direct 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 units each). Hours to be arranged. Prerequisite: consent of undergraduate adviser (chemistry).

199A. Directed Individual Studies or Research for Undergraduate Students (2 to 8 units). (Formerly numbered 199A-199ZZ.) Prerequisites: junior standing with at least 3.0 GPA in the major or senior standing or consent of instructor, consent of department chair. To be arranged with faculty member who will direct 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 units). (Formerly numbered 199A-199ZZ.) Prerequisites: eight units of course 199A, junior standing with at least 3.0 GPA in the major or senior standing or consent of instructor, consent of department chair. To be arranged with faculty member who will direct 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

205. Introduction to Chemistry of Biology. Lecture, three hours. Overview of biochemistry, pharmacology, and physiology, with emphasis on chemical interactions at molecular level.

206. Chemistry of Biology Seminar (2 units). 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. Lecture/discussion, three hours. Prerequisite or corequisite: course C243A or consent of instructor. 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. Lecture, four hours; discussion, one hour. Prerequisite: 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.

C215A-C215B. Quantum Chemistry: Methods. Lecture, four hours; discussion, one hour. Prerequisites: 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 prerequisite 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. Lecture, three hours; discussion, one hour. Prerequisites: course C215B, Physics 131, or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: course C215B, Physics 131, or equivalent. 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 units). 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 (2 units each). Discussion, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered 220A.)

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.

221A-221Z. Advanced Topics in Physical Chemistry (2 to 4 units each). Prerequisite: consent of instructor. 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. Lecture, four hours; discussion, one hour. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisites: courses C215B, C223B, Physics 131, or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: 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. (Same as Microbiology M227 and Microbiology and Immunology M227.) Lecture, three hours; discussion, one hour. Prerequisite: course CM253 or consent of instructor. Molecular and cellular biology of bacteria and bacteriophages.

228. Chemical Physics Seminar (2 units). 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 units). Lecture, 90 minutes. Intended primarily for entering physical chemistry graduate students. S/U grading.

M230B. Structural Molecular Biology. (Same as Biology M230B.) Lecture, three hours; discussion, one hour. Prerequisites: Physics 6C, Mathematics 3C, consent of instructor. 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 units). (Same as 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.

232. Stereochemistry and Conformational Analysis. Lecture/discussion, three hours. Prerequisite or corequisite: course C143A or consent of instructor. Molecular symmetry, chirality, prochirality, stereochemistry in vinyl polymers, atropisomerism, diastereomeric interactions in solution, conformations of acyclic and cyclic molecules.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biological Chemistry M233, Biology M233, Chemical Engineering M233, Microbiology M233, Microbiology and Immunology M233, and Radiological Sciences M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

235A-235Z. Seminars: Research in Organic Chemistry (2 units each). Discussion, three hours. Prerequisite: consent of instructor. 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.

236. Spectroscopic Methods of Organic Chemistry. Lecture, three hours. Prerequisite or corequisite: course C243A or consent of instructor. 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 units each). Prerequisite or corequisite: course C243A or equivalent or consent of instructor. Each course encompasses a recognized specialty in organic chemistry, generally taught by a staff member whose research interests embrace that specialty.

- 242. Organic Photochemistry.** Lecture/discussion, three hours. Prerequisite or corequisite: course C243A or consent of instructor. Interactions of light with organic molecules; mechanistic and preparative photochemistry.
- C243A. Organic Chemistry: Structure and Mechanics.** Lecture, three hours; discussion, one hour. Prerequisites: courses 110B, 113A, and 132C/132CL (may be taken concurrently), or equivalent, with grades of C- or better, or consent of instructor. 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.** Lecture, three hours; discussion, one hour. Prerequisite: course C243A or consent of instructor. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C143B.
- 244A. Organic Synthesis: Methodology and Stereochemistry.** 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.** Lecture, three hours. Prerequisite or corequisite: course C243A or consent of instructor. 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.** Lecture, three hours; discussion, one hour. Prerequisite or corequisite: course C243A or consent of instructor. 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 units).** 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 units).** 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.** Introduction to organic chemistry research. Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry. Intended primarily for first-year graduate students as preparation for cumulative examinations. S/U grading.
- 249B. Problems in Advanced Organic Chemistry (2 units).** (Formerly numbered 249.) Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry, with emphasis on current literature. Intended primarily for first- and second-year graduate students as preparation for cumulative examinations. May be repeated for credit. S/U grading.
- 250. Topics in Biochemistry and Molecular Biology of Animal Cells.** Lecture, three hours. Prerequisites: courses 132A, 132B/132BL, 132C/132CL, or equivalent, 153A, 153B, 153C, courses in genetics and molecular biology, consent of instructor. 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.
- 251A-251Z. Advanced Topics in Biochemistry (2 units each).** Prerequisite: consent of instructor. Each course encompasses a recognized specialty in biochemistry, generally taught by a staff member whose research interests embrace that specialty.
- CM253. Macromolecular Structure (6 units).** (Formerly numbered M253.) (Same as Biological Chemistry CM253.) Lecture, five hours. Prerequisites: courses 110A, 153A, 153B, 153C, 156, or equivalent. 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.
- 254. Advanced Biochemical Methods.** Lecture, two hours; laboratory, eight hours. Prerequisite: course 156 or consent of instructor. 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.** (Formerly numbered M255.) (Same as Biological Chemistry M255, Biology CM252, and Pharmacology M255.) Prerequisites: courses 110A, 153A, 153B, Biology 100A or Life Sciences 3, 100B or C139 or M140, or equivalent, consent of instructor. 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 units each).** Discussion, three hours. Prerequisite: consent of instructor. 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.
- M257. Physical Chemistry of Biological Macromolecules (2 units).** (Same as Biological Chemistry M257.) Prerequisites: courses 110A and 153A, or consent of instructor. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules.
- 258. Biochemistry Student Seminar (2 units).** Seminars presented by graduate students on topics of current biochemical interest. May be repeated for credit. S/U grading.
- CM259A. Mechanisms in Regulation of Transcription I (2 units).** (Formerly numbered 259.) (Same as Biological Chemistry CM259A.) First five weeks. Lecture, four hours; outside study, two hours. Prerequisite: course CM253 or M267 or consent of instructor. 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. In Progress grading (credit to be given only on completion of course CM259B).
- CM259B. Mechanisms in Regulation of Transcription II (2 units).** (Formerly numbered 259.) (Same as Biological Chemistry CM259B.) Second five weeks. Lecture, four hours; outside study, two hours. Prerequisite: course CM259A. Eukaryotic general transcription 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.
- C261A. Plant Biochemistry.** Lecture, three hours; discussion, one hour. Prerequisite: course 153C or equivalent or consent of instructor. 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.** Lecture, three hours. Prerequisites: courses 153B and 153C, or equivalent, or consent of instructor. 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.** (Same as Biological Chemistry M263.) Lecture, three hours. Prerequisites: course 110A, one course from 153B, 153C, 156, or Biological Chemistry 201A-201B, or equivalent, or consent of instructor. 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 units each).** (Same as Biological Chemistry M264A-M264B-M264C.) Prerequisite: consent of instructor. 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 units).** First five weeks. Lecture, three hours; discussion, one hour. Prerequisites: 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 units).** Prerequisites: courses CM259A and CM259B, or consent of instructor. 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. Macromolecular Metabolism and Subcellular Organization (6 units).** (Same as Biological Chemistry CM267 and Biology CM223.) Lecture, five hours. Prerequisites: courses 153A, 153B, 153C, consent of instructor. Recommended: course CM153G. Cell cycle; DNA replication and repair; structure and properties of cellular organelles; regulation of cell division; cell transformation; normal and aberrant expression of oncogenes; molecular aspects of development.

268. Biochemistry Research Seminar (2 units). 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. Lecture, three hours; discussion, two hours; outside study, seven hours. Prerequisites: courses 153A and 153B, or Life Sciences 3 or equivalent and course 153L. Recommended: courses 153C, 154, Life Sciences 4 or equivalent. 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.

271A-271Z. Advanced Topics in Inorganic Chemistry (2 to 4 units each). Prerequisite: consent of instructor. 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 units each). Discussion, three hours. Prerequisite: consent of instructor. 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.

C275. Inorganic Chemistry: Reaction Mechanisms. Lecture, three hours. Prerequisites: courses 110A, 110B, 113A, 173, or equivalent. 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.

C276A. Inorganic Chemistry: Group Theory and Spectroscopy. Lecture, three hours; discussion, one hour. Prerequisites: courses 113A, 173, or equivalent. 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 the Characterization of Inorganic Compounds. Lecture, three hours. Prerequisite: course C276A or consent of instructor. 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. 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 units). Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

279. Bioinorganic Chemistry. Lecture, three hours. Prerequisites: courses 110A and either 156 or 173. Role of metal ions in biology; introduction to metalloenzymes and metalloproteins; metal ion interactions with nucleic acids; metal ion metabolism.

C280. Solid-State Chemistry. (Formerly numbered 280.) Lecture, three hours. Prerequisite: course 173 or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: courses 110A, 132A, 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.

282. Introduction to Inorganic Chemistry Research (2 units). Lecture, 90 minutes. Discussion of current research in inorganic chemistry, intended primarily for entering inorganic chemistry graduate students. S/U grading.

M298. Seminar: Current Topics in Molecular Biology (2 units). (Same as Biological Chemistry M298, Biology M298, Microbiology M298, Microbiology and Immunology M298, and Molecular Biology M298.) Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. Program. Each student conducts or participates in discussions on assigned topics. May be repeated for credit.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). 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 units). Lecture, 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 units). To be arranged with faculty member who will direct 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 units). Prerequisite: consent of graduate adviser (chemistry). S/U grading.

598. Research for and Preparation of M.S. Thesis (2 to 16 units). 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 units). 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*

UCLA
6532 Boelter Hall
Box 951595
Los Angeles, CA 90095-1595
(310) 825-5534

Professors

Bruce S. Dunn, Ph.D. (*Materials Science and Engineering*), Chair
M. Frederick Hawthorne, Ph.D. (*Chemistry and Biochemistry*)
Richard B. Kaner, Ph.D. (*Chemistry and Biochemistry*)
John D. Mackenzie, Ph.D. (*Materials Science and Engineering*)
Malcolm F. Nicol, Ph.D. (*Chemistry and Biochemistry*)
King-Ning Tu, Ph.D. (*Materials Science and Engineering*)
R. Stanley Williams, Ph.D. (*Chemistry and Biochemistry*)
Jeffrey I. Zink, Ph.D. (*Chemistry and Biochemistry*)

Assistant Professors

Mark S. Goosky, Ph.D. (*Materials Science and Engineering*)
James R. Heath, 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.

Bachelor of Science Degree

Preparation for the Major

Required: Chemistry and Biochemistry 11A or 11AH, 11B or 11BH, 11BL, 11C or 11CH, 11CL, English 3, Materials Science and Engineering 14, Mathematics 31A, 31B, 32A, 32B, 33A, Physics 8A, 8B or 8BH, 8C or 8CH, 8CL, 8D or 8DH, 8DL, Program in Computing 10A.

The Major

Required: Chemistry and Biochemistry 110A, 110B, 113A, C113B or C115A-C115B, 114, 132A, 173, eight units from C123A, C123B, 132B or 132BH, 132BL, 132C or 132CH, 132CL, 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

School of Engineering and Applied Science

UCLA
5731 Boelter Hall
Box 951593
Los Angeles, CA 90095-1593
(310) 825-1346

Professors

John A. Dracup, Ph.D.
Gary C. Hart, Ph.D.
Richard B. Nelson, Sc.D.
Moshe F. Rubinstein, Ph.D.
Lawrence G. Selna, Ph.D.
Michael K. Stenstrom, Ph.D., *Chair*
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.
Sanford B. Roberts, Ph.D.
Lucien A. Schmit, Jr., M.S.

Associate Professors

Menachem Elimelech, Ph.D., *Vice Chair*
Lewis P. Felton, Ph.D.
Janet G. Hering, Ph.D.
Jiann-Wen Ju, Ph.D., *Vice Chair*
Mladen Vucetic, Ph.D.

Assistant Professor

Thomas C. Harmon, Ph.D.

Senior Lecturer

George J. Tauxe, M.S., *Emeritus*

Adjunct Professor

Keith D. Stolzenbach, 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.

Bachelor of Science in Civil Engineering

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 (180 minimum units required):

(1) Eight core courses: Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A, Civil and Environmental Engineering 11, 108, Electrical Engineering 100, 103, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

(2) Civil and Environmental Engineering 120, 121, 130, 135A, 151, 153; one mathematics course from Mechanical, Aerospace, and Nuclear Engineering 174, 191A, 192A, 192B, 192C, 192D.

(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, Aerospace, and Nuclear Engineering 166C, 168.

Geotechnical Engineering — Civil and Environmental Engineering 128L, Earth and Space Sciences 100, 139.

Structures — Civil and Environmental Engineering 135B, 135C, 135L, 137, 137L, 141, 142, 142L, 142X (two units), 143, 144, 147.

Systems Analysis — Civil and Environmental Engineering 106A, M140, 175.

Water Resources and Environmental Engineering — Civil and Environmental Engineering 150, 155, 156A, 156B, 157A, 157B, 157C, 163, 164.

(4) Chemistry and Biochemistry 11A, 11B/11BL; Civil and Environmental Engineering 15A, 15B; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C.

(5) SEAS general education (GE) course requirements — see Curricular Requirements in the College and Schools section of this catalog for details.

(6) One free elective course.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program in Civil Engineering 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 School-wide Programs in the Curricula and Courses section of this catalog.

Application forms, including a departmental supplement to the application, may be obtained by writing to the address at the beginning of this listing 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

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.

Environmental Engineering

Required Preparatory Courses. Chemistry and Biochemistry 11A, 11B/11BL; Mathematics 33A, 33B; Mechanical, Aerospace, and Nuclear 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, Aerospace, and Nuclear 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, Aerospace, and Nuclear 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, 245, 250B; Mechanical, Aerospace, and Nuclear 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, M237C, M240, 275, 276; Mechanical, Aerospace, and Nuclear 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, 245.

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 11A, 11B/11BL, Mathematics 33A, 33B; Mechanical, Aerospace, and Nuclear 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; Mechanical, Aerospace, and Nuclear Engineering 274, 275; Mathematics 269A, 269B, 269C.

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. program 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.

Application forms, including a departmental supplement to the application, may be obtained by writing to the address at the beginning of this listing 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.

Major Fields or Subdisciplines

Environmental engineering; geotechnical engineering; structures (includes structural mechanics and earthquake engineering); water resource systems engineering.

Course Requirements

There is no formal course requirement for the Ph.D. degree, and one may theoretically substitute coursework by examinations. Normally, however, the student takes courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree in Civil Engineering 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 the student fails 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.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in the Curricula and Courses section of this catalog.

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the three fields, the student takes a written preliminary examination in the major field. When this examination is passed and all coursework is completed, the student proceeds 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, the student is ready to take the University Oral Qualifying Examination. The nature and con-

tent 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.

Lower Division Courses

3. Fundamentals of Environmental Engineering Science. 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.

11. Patterns of Problem Solving. 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.

12. Applied Patterns of Problem Solving. Prerequisite: course 11. Application of tools and methods discussed in course 11 to a major problem of a social and technical nature. Experience in team problem solving and decision making.

15A. Introduction to Computing in Civil Engineering (2 units). Lecture, two hours; laboratory, two hours. Overview of operating systems for microcomputers, file editors, spreadsheets, database programs. SEASnet facilities. Introduction to programming. Civil engineering applications.

15B. Introduction to FORTRAN Programming (2 units). Lecture, two hours; laboratory, two hours. Prerequisite: course 15A. Introduction to programming using structured FORTRAN. Selected topics in programming, with emphasis on numerical techniques as applied to engineering problems.

Upper Division Courses

106A. Problem Solving in Engineering Economy. Lecture, four hours; outside study, eight hours. Prerequisite: upper division standing. 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.

108. Introduction to Mechanics of Deformable Solids. 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.

120. Principles of Soil Mechanics. Lecture, four hours; outside study, eight hours. Prerequisite: course 108. Soil as a foundation for structures and as a material of construction: Soil formation, classification, physical and mechanical properties, compaction, bearing capacity, earth pressures, consolidation, and shear strength.

121. Design of Foundations and Earth Structures. Prerequisite: course 120. Design methods for foundations and earth structures. Site investigation, including determination of soil properties for design. Design of footings and piles, including stability and settlement calculations. Design of slopes and earth retaining structures.

128L. Soil Mechanics Laboratory. Lecture, one hour; laboratory, eight hours; outside study, three hours. Prerequisite: 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, report writing.

130. Elementary Structural Mechanics. Lecture, four hours; outside study, eight hours. Prerequisite: course 108. Analysis of stress, strain; phenomenological material behavior, fatigue, cumulative damage; bending, extension of beams, unsymmetrical sections, stiffened shell structures; torsion of beams, stress function, warping, thin-walled cross-sections; shear stresses; plate analysis; instability, failure of columns, plates, approximate methods, empirical formulas.

130F. Experimental Fracture Mechanics. Lecture, two hours; laboratory, six hours; outside study, four hours. Prerequisite: course 108 or equivalent. 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.

130L. Experimental Structural Mechanics. Lecture, two hours; laboratory, six hours; outside study, four hours. Prerequisite or corequisite: course 130 or equivalent. 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.

135A. Elementary Structural Analysis. Lecture, four hours; outside study, eight hours. Prerequisite: course 108 or consent of instructor. Introduction to structural analysis, classification of structural elements; analysis of statically determinate trusses, cables, beams, and frames; deflections in elementary structures; introduction to virtual work; analysis of indeterminate structures; introduction to force method of analysis.

135B. Intermediate Structural Analysis. Lecture, four hours; outside study, eight hours. Prerequisite: course 135A or consent of instructor. 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.

135C. Computer Analysis of Structures. Lecture, four hours; outside study, eight hours. Prerequisite: course 135A. Recommended: course 135B. Matrix displacement and force methods of structural analysis, with emphasis on their application in computer analysis. Development of approximate analysis techniques for estimation/verification of computer results. Discussion of structural principles, including symmetry/antisymmetry, superposition, and Mueller/Breslau principle for influence lines.

135L. Structural Design and Testing Laboratory. Lecture, two hours; laboratory, eight hours. Prerequisites: courses 15A, 15B, 135A, or equivalent, senior standing, consent of instructor. 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.

137. Elementary Structural Dynamics. (Formerly numbered M137.) Lecture, four hours; outside study, eight hours. Prerequisite: course 135B or consent of instructor. 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.

137L. Mechanical Vibrations Laboratory. Lecture, two hours; laboratory, six hours; outside study, four hours. Prerequisite or corequisite: course 137 or Mechanical, Aerospace, and Nuclear Engineering 169A. 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.

M140. Numerical Optimization Methods for Engineering Design. (Same as Mechanical, Aerospace, and Nuclear Engineering M192F.) Lecture, four hours; outside study, eight hours. Prerequisites: courses 15A and 15B or Mechanical, Aerospace, and Nuclear 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.

141. Steel Structures. Lecture, four hours; outside study, eight hours. Prerequisites: courses 135A, 135B. Introduction to building codes. Fundamentals of modeling of steel frame components and systems. Load resistance factor design of tension members and compression members.

142. Design of Reinforced Concrete Structures. Lecture, three hours; recitation, three hours; outside study, six hours. Prerequisite: 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.

142L. Reinforced Concrete Structural Laboratory. Lecture, two hours; laboratory, six hours; outside study, four hours. Prerequisite: course 142 or consent of instructor. 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.

142X. Reinforced Concrete Construction Laboratory (2 units). Laboratory, four hours; outside study, two hours. Prerequisite: junior standing. Design and fabrication methods used for reinforced concrete structures. Preparation of engineering drawings. Fabrication of near full-scale reinforced concrete elements in the laboratory.

143. Design of Prestressed Concrete Structures. Prerequisite: 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.

144. Structural Systems Design. Lecture, four hours; outside study, eight hours. Prerequisites: courses 137, 141, 142, consent of instructor. Limited enrollment. Design course for civil engineering students, with focus on aspects of complete structural systems. Introduction to construction concepts. Design of concrete, steel, and masonry gravity and lateral load systems. System selection using realistic criteria. Project involving design of a building.

147. Design and Construction of Tall Buildings. Lecture, four hours; outside study, eight hours. Prerequisites: course 141, consent of instructor. 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.

150. Engineering Hydrology. Lecture, four hours; outside study, eight hours. Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 103 or consent of instructor. Recommended: elementary probability. Precipitation, climatology, stream flow analysis, flood frequency analysis, groundwater, snow hydrology, hydrologic simulation. Possible field trips.

151. Introduction to Water Resources Engineering. Lecture, four hours; outside study, eight hours. Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 103 or consent of instructor. 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.

153. Introduction to Environmental Engineering Science. Lecture, four hours; outside study, eight hours. Prerequisite: Mechanical, Aerospace, and Nuclear 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.

155. Unit Operations and Processes for Water and Wastewater Treatment. Lecture, four hours; outside study, eight hours. Prerequisite: course 153 or consent of instructor. 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.

156A. Environmental Chemistry Laboratory. (Formerly numbered 156.) Lecture, four hours; laboratory, four hours; outside study, four hours. Prerequisites: course 153 (may be taken concurrently), Chemistry 11A, 11B, or equivalent. 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.

156B. Water Quality Control Laboratory. Lecture, four hours; laboratory, four hours; outside study, four hours. Prerequisites: Chemistry 11A, 11B, or equivalent. 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.

157A. Design of Water Resource Structures. Lecture, four hours; outside study, eight hours. Prerequisites: course 151, Mechanical, Aerospace, and Nuclear 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.

157B. Design of Water Treatment Plants. Lecture, two hours; discussion, two hours; laboratory, four hours; other, four hours. Prerequisite: 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.

157C. Design of Wastewater Treatment Plants. Lecture, four hours; outside study, eight hours. Prerequisite: course 155. Process design of wastewater treatment plants, including primary and secondary treatment, detailed design review of existing plants, process control, and economics.

163. Air Pollution Control. Lecture, four hours; outside study, eight hours. Prerequisite: senior standing or consent of instructor. Sources of air pollutants, their atmospheric transport, dispersion, and photochemical reaction. Design and operational basis for stationary and mobile source control systems. Overview of current regulatory trends.

164. Waste and Hazardous Waste Management. Lecture, four hours; outside study, eight hours. Prerequisites: course 153 and Mechanical, Aerospace, and Nuclear Engineering 103, or consent of instructor. Waste sources and handling. Resource recovery processes and system design. Site selection, design and operation for landfill disposal. Leachate transport, monitoring, and design for groundwater protection.

175. Introduction to Elements of Decision Making. Lecture, four hours; outside study, eight hours. Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 192D or equivalent mathematics course. Elements of decision making and decision process. Decision and utility theory. Formulation of utility functions and objective functions. Subjective probabilities. Bayesian approach to value of information. Risk sharing and group decisions. Methods of eliciting judgments; bias and scoring rules. Individual and team decision making.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, consent of instructor. 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.

Graduate Courses

220. Shear Strength of Soil and Stability of Slopes. Prerequisite: course 120. Detailed study of fundamental concepts of shear strength of soils, strength determining factors, methods of strength measurement. Slope stability and stability analysis techniques using circular and noncircular failure surfaces, effect of side forces, total and effective stress analyses.

221. Foundation Engineering. Prerequisites: courses 120, 220. Principles of foundation design, including theory of consolidation, impeded drainage, stress distribution, settlement analysis, allowable bearing capacity for shallow foundations, piles, and piers; laterally loaded piles.

222. Soil Dynamics. Lecture, four hours; outside study, eight hours. Prerequisite: course 120. Stress-strain behavior of soils under cyclic loads. Behavior of soil deposits and earth structures during earthquakes. Liquefaction of saturated cohesionless deposits. Fundamentals of vibrations of machine foundations.

223. Earth Pressures and Earth Retaining Structures. Lecture, four hours; outside study, eight hours. Prerequisite: course 120. Basic concepts of theory of earth pressures behind retaining structures, with special application to design of retaining walls, bulkheads, and excavation bracing; effects of flexibility of bulkheads, creep in soils, and construction techniques.

228L. Advanced Soil Mechanics Laboratory. Prerequisites: courses 120, 121, 220, 221. Lectures and laboratory studies of advanced aspects of soil properties and their application to design. Permeability, consolidation, strength testing, pore water pressure measurements, advanced instrumentation and measurement techniques. Preparation of engineering reports.

229. Seminar: Advanced Topics in Soil Mechanics. Lecture, four hours; outside study, eight hours. Prerequisite: consent of instructor. 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.

M230. Elasticity. (Same as Mechanical, Aerospace, and Nuclear Engineering M256B.) Lecture, four hours; outside study, eight hours. Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 256A or consent of instructor. 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 stress function, complex variable method, transform method; three-dimensional problems, torsion, entire space and half-space problems; boundary integral equations.

231. Inelastic Effects in Structures and Materials. Prerequisite: course 130 or equivalent or consent of instructor. 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.

232. Theory of Plates and Shells. Prerequisite: course 130 or Mechanical, Aerospace, and Nuclear 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.

233. Mechanics of Composite Material Structures. Lecture, four hours; outside study, eight hours. Prerequisites: courses M230 and 232, or consent of instructor. 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.

234. Advanced Topics in Structural Mechanics. Prerequisites: graduate standing in engineering, consent of instructor. 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.

235A. Advanced Structural Analysis. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

235B. Finite Element Analysis of Structures. Prerequisites: courses 130 and 235A, or consent of instructor. 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.

235C. Nonlinear Structural Analysis. Prerequisite: course 235B or consent of instructor. 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.

236. Stability of Structures I. Prerequisite: course 130 or 135B or equivalent. 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.

M237A. Dynamics of Structures. (Same as Mechanical, Aerospace, and Nuclear Engineering M269A.) Prerequisite: 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.

M237C. Introduction to Probabilistic Dynamics. (Same as Mechanical, Aerospace, and Nuclear Engineering M269C.) Prerequisite: course 137. Response of structural and mechanical systems to random vibrations. Stationary and nonstationary excitations. Response of systems with random parameters. Discrete and continuous linear systems. Applications to earthquakes, wind sway of buildings, gust response, vibrations due to gearing inaccuracies, train vibrations.

M240. Optimum Structural Design. (Same as Mechanical, Aerospace, and Nuclear Engineering M267A.) Prerequisite: course 235A or Mechanical, Aerospace, and Nuclear Engineering 261A or consent of instructor. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures.

241. Advanced Steel Structures. Lecture, four hours; outside study, eight hours. Prerequisites: courses 137, 141, 235A. Performance characterization of steel structures for static and dynamic loads. Analysis and load resistance factor design of beams, columns, and plates for biaxial loads. Composite steel-concrete members.

242. Advanced Reinforced Concrete Design. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

244. Structural Loads and Safety for Civil Structures. Prerequisite: 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.

245. Earthquake Ground Motion. Lecture, four hours; outside study, eight hours. Prerequisite: course 137. Methods for determination of site ground motion. Seismology and seismicity. Plate tectonics. Source, path, and site effects, waveforms associated with earthquakes. Use of Fourier and response spectra. Attenuation methods for prediction of site response. Typical strong ground motion records.

246. Structural Response to Ground Motions. Prerequisite: course 137. Spectral analysis of ground motions: response, time, and Fourier spectra. Response of structures to ground motions due to earthquakes and nuclear explosions. Computational methods to evaluate structural response. Response analysis, including evaluation of contemporary design standards. Limitations due to idealizations.

250A. Surface Water Hydrology. Lecture, four hours; outside study, eight hours. Prerequisite: course 150 or consent of instructor. 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.

250B. Groundwater Hydrology. Lecture, four hours; outside study, eight hours. Prerequisite: course 150 or consent of instructor. 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.

250C. Mathematical Modeling of Contaminant Transport in Groundwater. Lecture, four hours; laboratory, eight hours. Prerequisites: courses 250B and 253, or consent of instructor. 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.

251. Water Resources Systems Engineering. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

252. Engineering Economic Analysis of Water and Environmental Planning. Lecture, four hours; outside study, eight hours. Prerequisites: course 106A, one or more courses from Economics 1, 2, 11, 100, and 101, or consent of instructor. 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.

253. Mathematical Models for Water Quality Management. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

254A. Aquatic Chemistry. (Formerly numbered 254.) Lecture, four hours; outside study, eight hours. Prerequisites: course 155 or consent of instructor, Chemistry 11B, Mathematics 33B. Chemistry of natural waters and wastewaters, including acid/base, complexation, precipitation/dissolution, oxidation/reduction, and adsorption reactions. Emphasis on prediction of equilibrium concentrations of dissolved constituents of natural waters. Introduction to kinetics of chemical reactions in aqueous solutions.

254B. Chemical Kinetics and Process Dynamics in Aquatic Systems. Lecture, four hours; outside study, eight hours. Prerequisite: course 254A. Principles of chemical kinetics with specific applications to air/water/soil environments. Topics include fundamentals, data analysis, reaction mechanisms, transport considerations, estimation of reaction rates under environmental conditions, current research on chemical kinetics in natural and engineered systems.

254C. Aquatic Surface Chemistry. Lecture, four hours; outside study, eight hours. Prerequisite: course 254A. Principles of surface chemistry as applied to geochemistry of natural waters, soils, and sediments and to water and wastewater technology; adsorption and desorption; precipitation and dissolution; surface catalysis.

255A. Physical and Chemical Processes for Water and Wastewater Treatment. Lecture, four hours; outside study, eight hours. Prerequisites: courses 155 and 254A, or consent of instructor. Review of momentum and mass transfer, chemical reaction engineering, coagulation and flocculation, granular filtrations, sedimentation, carbon adsorption, gas transfer, disinfection, oxidation, and membrane processes.

255B. Biological Processes for Water and Wastewater Treatment. Lecture, four hours; outside study, eight hours. Prerequisites: courses 254A and 255A, or consent of instructor. 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.

258A. Membrane Separations in Aquatic Systems. Prerequisite: 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.

259A. Selected Topics in Environmental Engineering (2 units). (Formerly numbered 259.) Lecture, two hours; outside study, four hours. Prerequisite: consent of instructor. 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 units). Lecture, four hours; outside study, eight hours. Prerequisite: consent of instructor. 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. Lecture, four hours; other, eight hours. Prerequisites: courses 250A, 250B, and 251, or consent of instructor. 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. Topic may vary from term to term.

261. Colloidal Phenomena in Aquatic Systems. (Formerly numbered 255C.) Lecture, four hours; outside study, eight hours. Prerequisites: courses 254A and 255A, or consent of instructor. 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.

M262A. Introduction to Atmospheric Chemistry. (Same as Atmospheric Sciences M203A.) Lecture, three hours. Prerequisite for undergraduates: Chemistry 11C. 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.

M262B. Atmospheric Diffusion and Air Pollution. (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.

265A. Mass Transfer in Environmental Systems. (Formerly numbered 265.) Lecture, four hours; computer applications, two hours; outside study, eight hours. Prerequisite: graduate standing in civil engineering or consent of instructor. Phase equilibrium concepts; mass transfer in laminar and turbulent flow; mass transfer to particles and at air/water interface; molecular diffusion and diffusion in porous solids; transport in porous media.

265B. Contaminant Transport in Soils and Groundwater. Lecture, four hours; computer applications, two hours; outside study, six hours. Prerequisites: courses 250B, and 265A or consent of instructor. Principles of mass transfer as they apply in soil and groundwater, independent estimation of transport model parameters; remediating hazardous waste sites.

275. Multiattribute Decision Making with Conflicting Objectives. Lecture, four hours; outside study, eight hours. Prerequisite: course 175. Structuring of models for multiattribute decision problems. Theory of quantifying preferences over multiple objectives. Multiattribute utility theory. Analytic hierarchy process. Structuring of models for conditional strategies under conflict situations. Theory of metagames and metarationality.

276. Perspectives of Systems Representation. Prerequisite: course 275 or consent of instructor. Mathematical and conceptual models used in analysis and synthesis of engineering. Sociotechnical systems. Mathematical representations of interpretative models. Decomposition using tools of graph theory and information theory. Guides to choice of models. Interaction of human and computer in the modeling process.

296A-296Z. Advanced Topics in Civil Engineering (2 to 4 units each). Prerequisite: consent of instructor. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297AA-297ZZ. Seminars: Current Topics in Civil Engineering (2 to 4 units each). (Formerly numbered 296AA-296ZZ.) Prerequisite: consent of instructor. 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 units). Prerequisites: graduate standing in civil engineering, consent of instructor. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: 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 units). Prerequisites: graduate standing in civil engineering, consent of instructor. 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). Prerequisite: graduate standing in civil engineering, consent of instructor. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations (2 to 16 units). Prerequisites: graduate standing in civil engineering, consent of instructor. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). Prerequisites: graduate standing in civil engineering, consent of instructor. 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). Prerequisites: graduate standing in civil engineering, consent of instructor. 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). Prerequisites: graduate standing in civil engineering, consent of instructor. Usually taken after student has been advanced to candidacy. S/U grading.

Sander M. Goldberg, Ph.D.
Michael W. Haslam, Ph.D.
Sarah P. Morris, Ph.D.
Milton V. Anastos, Ph.D., *Emeritus*
Philip Levine, Ph.D., *Emeritus*
Bengt T.M. Löfstedt, Ph.D., *Emeritus*
Jaán Puhvel, Ph.D., *Emeritus*
Albert H. Travis, Ph.D., *Emeritus*

Associate Professors

David L. Blank, Ph.D.
Katherine C. King, Ph.D.
Steven Lattimore, Ph.D.
Carole E. Newlands, Ph.D.
Brent H. Vine, Ph.D.

Assistant Professors

Robert A. Gurval, Ph.D.
Kathryn A. Morgan, 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, mythology, philosophy, and religion. The department is also strong in three fields which are not commonly taught in classics departments, namely classical linguistics, 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. 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. Graduate degrees include the Master of Arts in Classics (Greek and Latin), Greek, and Latin, and the Ph.D. in Classics.

Bachelor of Arts in Classical Civilization

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 either 40 or 41.

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 199) may be substituted for the senior seminar.

Bachelor of Arts in Greek

Preparation for the Major

Required: Greek 1, 2, 3 and Latin 1, 2, 3, or equivalent.

The Major

Required: (1) Nine upper division courses in Greek, including course 110; (2) one upper division course in Latin; (3) Classics 143 and either 140 or 141; (4) two courses in Greek or Roman history (History 115B-115C, 116A-116B, 117A-117B); (5) two additional courses in one or two of the related areas: classical archaeology (Classics M153A through M153K), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A, 166B), ancient philosophy (Classics M145A, Philosophy M101A, M101B, M102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170), medieval Latin literature (Latin 131, 133). Total courses required: 16.

Bachelor of Arts in Greek and Latin

Preparation for the Major

Required: Greek 1, 2, 3 and Latin 1, 2, 3, or equivalent.

The Major

Required: (1) Twelve upper division courses, six in Greek and six in Latin, including Greek 110 and Latin 110; (2) one course from Classics 140, 141, 142, 143; (3) one course in Greek or Roman history (History 115B, 115C, 116A, 116B, 117A, 117B); (4) one additional course in two of the related areas: classical archaeology (Classics M153A through M153K), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A, 166B), ancient philosophy (Classics M145A, Philosophy M101A, M101B, M102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170),

CLASSICS

College of Letters and Science

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Professors

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Andrew R. Dyck, Ph.D.
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medieval Latin literature (Latin 131, 133). Total courses required: 16.

Bachelor of Arts in Latin

Preparation for the Major

Required: Greek 1, 2, 3 and Latin 1, 2, 3, or equivalent.

The Major

Required: (1) Nine upper division courses in Latin, including course 110; (2) one upper division course in Greek; (3) Classics 141 and either 142 or 143; (4) two courses in Greek or Roman history (History 115B-115C, 116A-116B, 117A-117B); (5) two additional courses in one or two of the related areas: classical archaeology (Classics M153A through M153K), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A, 166B), ancient philosophy (Classics M145A, Philosophy M101A, M101B, M102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170), medieval Latin literature (Latin 131, 133). Total courses required: 16.

Note: Students in the Greek, Latin, and Greek and Latin majors are permitted to take Greek 200A-200B-200C and Latin 200A-200B-200C. Two of these courses may replace one course in requirement 3 of the Greek major and Latin major and requirement 2 of the Greek and Latin major, as well as two courses in requirement 1 of all three majors, thereby reducing the total number of required courses by one.

Bachelor of Arts in English/Greek

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.

Bachelor of Arts in English/Latin

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, select-

ed 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, you must (1) complete all requirements for your 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, you must (1) complete all requirements for your 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Requirements for admission to the Master of Arts 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) any five of 200A-200B-200C-series courses. 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.

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 address given at the beginning of this listing.

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 from the following is required for this major field: 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 for the following for this major field: 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 219A or History 219B; Greek 231A or 231B or 231C (or an upper division medieval language course such as French 115A, 115B, 115C, German 122, Italian 113A, 113B, 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 a regular letter grade 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 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 the student's 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 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 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 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 (5 units). Lecture, two to three hours; discussion, 90 minutes; outside study, 1½ 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.

20. Survey of Roman Civilization (5 units). Lecture, three hours; discussion, one hour; outside study, 11 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.

40. Survey of Greek Literature in Translation (5 units). Lecture, three hours; discussion, one hour; outside study, 11 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 (5 units). Lecture, three hours; discussion, one hour; outside study, 11 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. 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. 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.

51. Art and Archaeology of the Classical World. Lecture, three hours; discussion, one hour. Survey of a major period, theme, or medium of Greek and Roman art and archaeology at discretion of instructor. P/NP or letter grading.

55. Origins and Nature of English Vocabulary. 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. (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. 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 diffusional 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisites: courses 10 or 20, and 40 or 41. Study of Greek and/or Latin drama in translation. P/NP or letter grading.

144. Generic and Topical Studies in Ancient Literature. Lecture, three hours. Prerequisites: courses 10 or 20, and 40 or 41. Investigation of a problem in ancient literature 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. (Formerly numbered 145A.) (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. (Formerly numbered 145B.) (Same as Philosophy M103B.) Lecture, three hours; outside study, nine hours. Prerequisite: one course from M145A, Philosophy 1, 100A, M101B, or M102, or consent of instructor. 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. (Same as Philosophy M101A.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: one philosophy course or consent of instructor. Study of selected topics in early and middle dialogues of Plato.

M146B. Plato — Later Dialogues. (Same as Philosophy M101B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: course M146A. Study of selected topics in middle and later dialogues of Plato.

M147. Aristotle. (Same as Philosophy M102.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: one philosophy course or consent of instructor. Study of selected works of Aristotle.

150A. Origins of the Western View of Women: The Female in Greek Thought. Lecture, three hours. Prerequisites: course 10 or equivalent, consent of instructor. 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. Lecture, three hours. Prerequisites: course 20 or equivalent, consent of instructor. 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 units). Off-campus field archaeology, 36 hours. Prerequisites: at least one classical archaeology course, consent of instructor. 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. Lecture, three to four hours. Prerequisites: courses 10 and 20, or History 1A, or equivalent. 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. (Same as Art History M102A.) Lecture, three hours. Prerequisite: course 10 or Art History 50 or equivalent. 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. (Same as Art History M102B.) Lecture, three hours. Prerequisite: course 10 or Art History 50 or equivalent. 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. (Same as Art History M102C.) Lecture, three hours. Prerequisites: course 10 or equivalent, 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. (Same as Art History M102D.) Lecture, three hours. Prerequisites: course 10 or equivalent, 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. (Same as Art History M102E.) Lecture, three hours. Prerequisites: course 10 or equivalent, 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. (Same as Art History M102F.) Lecture, three hours. Prerequisite: course 20 or Art History 50 or equivalent. Arts of Italic peninsula from ca. 1000 B.C. to end of the Roman Republic. P/NP or letter grading.

M153G. Roman Art. (Same as Art History M102G.) Lecture, three hours. Prerequisite: 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. (Same as Art History M102H.) Lecture, three hours. Prerequisites: 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. (Same as Art History M102I-M102J-M102K.) Lecture, three or four hours. Prerequisite: course 10 or 20 or Art History 50 or History 1A or equivalent. 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.

161. Introduction to Classical Mythology. Lecture, three to four hours. Prerequisite: course 10 or History 1A or equivalent. Origins of classical myth; substance of divine myth and heroic saga; place of myth in religion; survey of study of classical mythology.

162. Classical Myth in Literature. Use of myth in principal authors and genres of Greek and Roman literature, with examples of its influence in later literatures.

165. Ancient Athletics. Prerequisite: course 10 or History 1A or equivalent. Study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art.

166A. Greek Religion. Prerequisite: course 10 or equivalent. Study of the religion of the ancient Greeks.

166B. Roman Religion. Prerequisite: course 20 or equivalent. Study of the religion of the ancient Romans.

167. Greek and Roman Magic. Lecture, three hours. Prerequisite: 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. Introduction to Comparative Mythology. Prerequisite: course 161 or consent of instructor. 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. (Same as History M122.) Lecture, three hours. Prerequisites: course M70 or History 123A-123B. 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. Prerequisites: 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. Seminar, three hours. Prerequisites: courses 10, 20, and 40 or 41, senior standing in Greek and Latin, Greek, Latin, or classical civilization. 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. (Formerly numbered 195A-195B-195C.) 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. Lecture, three hours. Prerequisite: senior standing. 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 units). Prerequisites: senior standing, consent of instructor.

Graduate Courses

200. History of Classical Scholarship.

201B. Topics in Ancient History: Roman World (2 or 4 units). 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.

230A-230B. Language in Ancient Asia Minor. Prerequisite: consent of instructor. Survey of the language situation in Anatolia in 2nd and 1st Millennium B.C. Readings in Hittite, Palaic, Luwian, Hieroglyphic, Lycian, and Lydian texts. Anatolian-Greek relationships and survivals in classical and Hellenistic times.

240. Etruscology. Prerequisite: consent of instructor. Survey of scholarly research on Etruscan language and culture, with analysis of epigraphic material.

244. Textual Criticism: Studies in Preparation of a Critical Edition of Greek and/or Latin Texts. 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. Introduction to processing and analysis of digitized texts of classical authors for purposes of literary history and criticism.

246. Greek and Latin Meter. Prerequisite: consent of instructor. Comprehensive study of meter as it functions in classical poetry.

251A. Seminar: Classical Archaeology — Aegean Bronze Age (2 or 4 units).

251B. Seminar: Classical Archaeology — Greco-Roman Architecture.

251C. Seminar: Classical Archaeology — Greco-Roman Sculpture.

251D. Seminar: Classical Archaeology — Greco-Roman Painting (2 or 4 units). Discussion, three hours. Prerequisite: consent of instructor. 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 units). Off-campus field archaeology, 36 hours. Prerequisites: at least one classical archaeology course, consent of instructor. 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. Detailed studies in topography and monuments of Athens, combining evidence of literature, inscriptions, and actual remains.

253. Topography and Monuments of Rome. Detailed studies in topography and monuments of ancient Rome, combining evidence of literature, inscriptions, and actual remains.

260. Topics in Ancient Religion. Seminar, three hours. Prerequisite: consent of instructor.

268. Seminar: Comparative Mythology. Prerequisites: course 168, consent of instructor. Advanced study of selected topics in comparing Greek and Roman traditions with other ancient Near Eastern and European societies.

267. Graduate Colloquium in Classical Literature. 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 units). Prerequisite: 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.

380. Research Apprentice Practicum. Discussion, three hours. Prerequisite: apprentice personnel employment as a graduate student researcher in the department on Philodemus Translation Project. Training in textual reconstruction, translation, and annotation for those working as graduate student researchers on Philodemus Translation Project (text and facing translation of fragmentary aesthetic treatises of Philodemus, teacher of Vergil).

596. Directed Individual Study or Research (2 to 8 units).

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units).

599. Research for Ph.D. Dissertation (2 to 8 units).

Greek

Lower Division Courses

1. Elementary Greek (5 units). Lecture, five hours; outside study, 10 hours.

2. Elementary Greek (5 units). Lecture, five hours; outside study, 10 hours. Enforced requisite: course 1.

3. Elementary Greek (5 units). Lecture, five hours; outside study, 10 hours. Enforced requisite: course 2.

Upper Division Courses

Note: Greek 3 is requisite to 100, which is requisite to 101A through 106 and 110 through 124.

100. Readings in Greek Prose. Prerequisite: course 3. Reading of Plato's *Apology* or a text of comparable difficulty.

101A. Homer: *Odyssey*.

101B. Homer: *Iliad*.

102. Lyric Poets. Selections from Archilochus to Bacchylides.

103. Aeschylus.

104. Sophocles.

105. Euripides.

106. Aristophanes.

107. Hesiod. Lecture, three hours. Prerequisite: 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. Work in sight reading and grammatical analysis of Attic prose texts; writing Attic prose.

111. Herodotus.

112. Thucydides.

113. Attic Orators.

115. Xenophon. Lecture, three hours. Prerequisite: 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.

122. Plato: *Republic*.

123. Aristotle: *Poetics* and *Rhetoric*.

124. Aristotle: *Ethics*.

130. Readings in the New Testament. Prerequisite: course 3.

131. Readings in Later Greek. Prerequisite: course 100. Topics vary from year to year and include "Longinus," On the Sublime; Marcus Aurelius; Arrian; the Second Sophistic; Plutarch; later epic; epigram; epistolographi Graeci.

132. Survey of Byzantine Literature. Prerequisite: 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. Prerequisite: 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 units). Prerequisites: senior standing, consent of instructor.

Graduate Courses

The 200-series courses which are designated A and B (e.g., 201A-201B) are double courses. Course A is a preseminar and is normally requisite to course B, a seminar. Seminars numbered 201A through 233 (except 210) may be taken for either two or four units. If a seminar is taken for four units, a paper is required.

200A-200B-200C. History of Greek Literature (6 units each). Prerequisite: consent of instructor. 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 units each). S/U (two-unit course) or letter (four-unit course) grading.

202A-202B. Homer: *Odyssey* and the Epic Cycle (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

203. Hesiod (2 or 4 units). S/U (two-unit course) or letter (four-unit course) grading.

204. Homeric Hymns (2 or 4 units). S/U (two-unit course) or letter (four-unit course) grading.

205. Seminar: Aeschylus (2 or 4 units). S/U (two-unit course) or letter (four-unit course) grading.

206A-206B. Sophocles (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

207A-207B. Euripides (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

208A-208B. Aristophanes (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

209A-209B. Seminars: Hellenistic Poetry (2 or 4 units each). (Formerly numbered 209.) S/U (two-unit course) or letter (four-unit course) grading.

210. Advanced Greek Prose Composition. Prerequisite: course 110 or equivalent.

211A-211B. Herodotus (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

212A-212B. Thucydides (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

213. Seminar: Greek Historiography (2 or 4 units). S/U (two-unit course) or letter (four-unit course) grading.

214. Demosthenes (2 or 4 units). S/U (two-unit course) or letter (four-unit course) grading.

215. Early Greek Orators (2 or 4 units). Studies in works of Antiphon, Andocides, and Lysias. S/U (two-unit course) or letter (four-unit course) grading.

216. Menander (2 or 4 units). Prerequisite: reading knowledge of classical Greek. S/U (two-unit course) or letter (four-unit course) grading.

217A-217B. Greek Lyric Poetry (2 or 4 units each). Prerequisite: consent of instructor. 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 units). Lecture, 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 units). S/U (two-unit course) or letter (four-unit course) grading.

222A-222B. Plato (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

223A-223B. Aristotle (2 or 4 units each). S/U (two-unit course) or letter (four-unit course) grading.

224. Seminar: Post-Aristotelian Philosophy (2 or 4 units). S/U (two-unit course) or letter (four-unit course) grading.

229. Sight Translation (2 to 4 units). Discussion, three hours. Prerequisite: graduate standing. 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 units each). Prerequisite: consent of instructor. 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 units). 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. Prerequisite: consent of instructor. **240A.** Linguistic history of classical Greek. **240B.** Postclassical, medieval, and modern Greek.

241. Greek Epigraphy. Survey of Greek historical inscriptions, chiefly Attic.

242. Greek Dialects and Historical Grammar. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. Script, language, and grammar of the Linear B inscriptions; their relevance to ancient Greek linguistic and cultural history.

244. Greek Papyrology. Prerequisites: reading knowledge of Greek, consent of instructor. Introduction to Greek papyri, considered both as historical documents and as carriers of literature.

245. Greek Paleography. Studies in development of book hand in Greek manuscripts earlier than the invention of printing.

596. Directed Individual Study or Research (2 to 8 units).

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units).

599. Research for Ph.D. Dissertation (2 to 8 units).

Latin

Lower Division Courses

1. **Elementary Latin (5 units).** Lecture, five hours; outside study, 10 hours.
- 1G. **Elementary Latin for Graduate Students (No credit).** Concurrently scheduled with course 14.
2. **Elementary Latin (5 units).** Lecture, five hours; outside study, 10 hours. Enforced requisite: course 1.
3. **Elementary Latin (5 units).** Lecture, five hours; outside study, 10 hours. Enforced requisite: course 2 or 14.
14. **Elementary Latin: Intensive (10 units).** Lecture, 10 hours; outside study, 20 hours. All declensions of nouns and adjectives, all conjugations in indicative mood, and primary uses of subjunctive mood. Emphasis on development of ability to read easy selections of classical prose.

Upper Division Courses

Note: Latin 3 is requisite to 100, which is normally requisite to all other 100-series courses in classical Latin authors.

100. **Readings in Latin Prose and Poetry.** Lecture, three hours. Prerequisite: course 3 or equivalent. 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.**
102. **Terence.**
103. **Lucretius.**
104. **Ovid.**
- 105A. **Beginning Vergil: Selections from Aeneid I-VI.** Lecture, three hours. Prerequisite: course 100 or consent of instructor. 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.** Lecture, three hours. Prerequisite: course 105A or equivalent or consent of instructor. 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.**
107. **Horace.**
108. **Roman Elegy.** Selections from Catullus, Tibullus, and Propertius.
109. **Roman Satire.** Selections from *Epistles* of Horace, *Satires* of Juvenal, and *Epigrams* of Martial.
110. **Study of Latin Prose.** (Formerly numbered 110A-110B.) Lecture, three hours. Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose.
111. **Livy.**
112. **Tacitus.**
113. **Cicero: The Orations.**
114. **Roman Epistolography: Cicero and Pliny.**
115. **Caesar.**
116. **Roman Novel.** Lecture, three hours. Prerequisite: course 100 or equivalent. 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.**
118. **Seneca.** Selection of Seneca's works read in Latin.
120. **The Vulgate.** Lecture, three hours. Prerequisite: course 3 or consent of instructor. Reading of selected chapters of St. Jerome's translation of the Bible, with emphasis on unclassical features of the Latin.

121. **Patristic Texts.** Lecture, three hours. Prerequisite: 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.** Prerequisite: course 3 or consent of instructor. Reading of easy prose texts, with emphasis on basic language training.

131. **Medieval Latin Prose.** Prerequisite: course 130 or consent of instructor. Extensive reading of selected texts in prose, with emphasis on idiosyncrasies of medieval Latin.

133. **Medieval Latin Poetry.** Prerequisite: one upper division Latin language course or consent of instructor.

199. **Special Studies in Latin (2 to 8 units).** Prerequisites: senior standing, consent of instructor.

Graduate Courses

The 200-series courses which are designated A and B (e.g., 203A and 203B) are double courses. Course A is a preseminar and is normally requisite to course B, a seminar. Seminars numbered 201 through 231B (except 210) may be taken for either two or four units. If a seminar is taken for four units, a paper is required.

200A-200B-200C. **History of Latin Literature (6 units each).** Prerequisite: consent of instructor. 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 units).** 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 units).** Detailed consideration of entire Catullian corpus. S/U (two-unit course) or letter (four-unit course) grading.

203A. **Elegiac Poetry (2 or 4 units).** S/U (two-unit course) or letter (four-unit course) grading.

203B. **Propertius (2 or 4 units).** S/U (two-unit course) or letter (four-unit course) grading.

204A-204B. **Vergil's Aeneid (2 or 4 units each).** S/U (two-unit course) or letter (four-unit course) grading.

205A. **Seminar: Vergil's Bucolics (2 or 4 units).** S/U (two-unit course) or letter (four-unit course) grading.

205B. **Seminar: Vergil's Georgics (2 or 4 units).** 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 units).** S/U (two-unit course) or letter (four-unit course) grading.

207. **Roman Comedy (2 or 4 units).** Prerequisite: consent of instructor. 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 units).** Prerequisite: 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 units).** 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.** Prerequisite: course 110.

211A-211B-211C. **Seminars: Roman Historians (2 or 4 units 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 units).** 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 units).** 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 units).** Seminar, three hours. S/U (two-unit course) or letter (four-unit course) grading.

221A. **Cicero's Philosophical Works (2 or 4 units).** S/U (two-unit course) or letter (four-unit course) grading.

221B. **Cicero: De Natura Deorum (2 or 4 units).** S/U (two-unit course) or letter (four-unit course) grading.

222. **Seminar: Roman Stoicism (2 or 4 units).** Prerequisite: reading knowledge of Greek and Latin. S/U (two-unit course) or letter (four-unit course) grading.

223. **Lucretius (2 or 4 units).** S/U (two-unit course) or letter (four-unit course) grading.

224. **Seneca (2 or 4 units).** 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 units).** Discussion, three hours. Prerequisite: graduate standing. 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 units each).** Prerequisite: at least one upper division Latin course or consent of instructor. 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.** Prerequisite: consent of instructor. History and characteristics of popular Latin; its development into early forms of the Romance languages.

235. **Late Latin Poetry (2 or 4 units).** 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 units).** 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.** Prerequisite: consent of instructor. Development of Latin from the earliest monuments until its emergence in the Romance languages.

242. Italic Dialects and Latin Historical Grammar. Prerequisite: consent of instructor. 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. Studies in development of book hand in Latin manuscripts earlier than the invention of printing.

245. Neo-Latin (2 or 4 units). Seminar, three hours. Prerequisites: course 100, at least two other upper division Latin courses. 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. Prerequisite: graduate standing or consent of instructor. Techniques for teaching; organization of courses; review of content of curriculum offered in junior and senior high schools.

495. College Teaching of Latin (2 units). Prerequisites: appointment as a teaching assistant, consent of instructor. 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 units).

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units).

599. Research for Ph.D. Dissertation (2 to 8 units).

Related Courses in Other Departments

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. 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*

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Professors

Gordon L. Berry, Ed.D. (*Education*)

Christine L. Borgman, Ph.D. (*Library and Information Science*)

Andrew Christensen, Ph.D. (*Psychology*)

Patricia M. Greenfield, Ph.D. (*Psychology*)

Nancy M. Henley, Ph.D. (*Psychology*)

John C. Heritage, Ph.D. (*Sociology*)

Shanto Iyengar, Ph.D. (*Political Science*)

Neil M. Malamuth, Ph.D., *Chair*
Melvin Pollner, Ph.D. (*Sociology*)
Donald E. Hargis, Ph.D., *Emeritus*

Associate Professors

Patrice L. French, Ph.D.

Sara Melzer, Ph.D. (*French*)

Paul I. Rosenthal, Ph.D.

Assistant Professors

Richard Anderson, Ph.D. (*Political Science*)

Steven E. Clayman, Ph.D.

Senior Lecturers

Jeffrey I. Cole, Ph.D.

L. Geoffrey Cowan, LL.B.

Marde S. Gregory, 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 specialization are offered: the specialization in mass communication centers on formal and institutional communication systems and the macrocosmic social contexts in which they function; the specialization in interpersonal communication centers on face-to-face communicative interaction in the small group environment.

Bachelor of Arts Degree

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, Psychology 10, Sociology 1, Speech 1, Anthropology 33 or Linguistics 1, Program in Computing 1, one course from Economics 40, Sociology 18, or Statistics 50.

You 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 131D.

The Major

Required Core Courses: Communication Studies 100 and 101 and one course from Anthropology M140, Communication Studies 102, or Psychology 122.

Specializations

Mass Communication — (1) Communication Studies 140, 152, and one course from Political Science 141B, Psychology 137B, Sociology 133; (2) *systems, institutions, and policies* — two courses from Communication Studies M147 (or Sociology M176), 153, 155, 156, 165, 170, 177, 180, 187; (3) *media content/criticism/history* — two courses from Communication Studies 160, M161 (or Political Science M141D), 171, Film and Television 106A, 108, 110A, either Communication Studies 175 or Film and Television 116; (4) *electives in interpersonal communication* — two courses from Communication Studies 115, 120, 130, M144A or M144B or Sociology CM124A or CM124B, Psychology 135 or Sociology 132, Sociology 135, 160; (5) *general electives* — two courses from one of the following groups: (a) *American studies* — English 115A, History 148A, 148B, 148C, 150A, 150B, 156A, 156B, Political Science 114A, 114B; (b) *language theory* — Communication Studies M124, 150, Linguistics 170, Philosophy 172, Psychology 122 or 123; (c) *social systematics* — Communication Studies M144A or M144B or Sociology CM124A or CM124B, Anthropology 133R, 135A, 135B, 142A, 142B, Sociology 134.

Interpersonal Communication — (1) Four courses (at least one of which must be Communication Studies 115 or 120) from Communication Studies 115, 120, M144A or M144B or Sociology CM124A or CM124B, Sociology 132 or Psychology 135, Sociology 135 or Psychology 137A; (2) *heterogeneous groups communication* — three courses from Anthropology 141, Communication Studies 130, Psychology 137C, M165, 174, 177, 178, either Sociology 156 or 160; (3) *electives in mass communication* — two courses from Communication Studies 140, M147 (or Sociology M176), 152, 153, 155, 165, 170, 180, 187; (4) *general electives* — two courses from one of the following groups: (a) *media content/criticism/history* — Communication Studies 160, M161 (or Political Science M141D), 171, 189, 197C, Film and Television 106A, 108, 110A, either Communication Studies 175 or Film and Television 116; (b) *language theory* — Communication Studies M124, 150, Linguistics 170, Philosophy 172, Psychology 122 or 123; (c) *social systematics* — Communication Studies M144A or M144B or Sociology CM124A or CM124B, Anthropology 133R, 135A, 135B, 142A, 142B, Sociology 134.

Lower Division Courses

10. Introduction to Communication Studies. Introduction to fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory.

88A-88Z. Lower Division Seminars: Special Topics in Communication Studies. (Formerly numbered 97A-97Z.) 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:

88C. Future of Mass Communication. (Formerly numbered 97C.) Limited to freshmen. Current state of mass media in the world and, through analysis of trends, content, and societal forces, speculation on future of the media over next 25 years.

Upper Division Courses

100. Communication Theory. Prerequisite: course 10 or Linguistics 1 or Sociology 1 or Psychology 10 or consent of instructor. 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. 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.

102. Code of Human Communication. Prerequisite: course 10 or Linguistics 1 or Sociology 1 or Psychology 10 or consent of instructor. Structural analysis and description of human communication codes; development of language; characteristics of the source, channels, and destination in human communication.

115. Dyadic Communication and Interpersonal Relationships. Prerequisite: 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. (Same as Psychology M176.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: Psychology 10 or 11, 41, and 127, or consent of instructor. 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).

M117. Rhetoric of Rule. (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. Prerequisite: course 100 or consent of instructor. 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. (Same as Psychology M137J and Women's Studies M137J.) Lecture, three hours. Prerequisites: Psychology 10 or equivalent, junior standing. 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.

130. Cultural Factors in Interpersonal Communication. Prerequisite: course 100 or consent of instructor. 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.

140. Theory of Persuasive Communication. Prerequisite: course 100 or consent of instructor. 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. Prerequisite: course 100 or consent of instructor. 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. (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.** Prerequisite: 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. (Same as Sociology M176.) Prerequisite: course 100 or consent of instructor. 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. Lecture, three hours. Prerequisite: course 100 or consent of instructor. Critical studies of quantitative and qualitative methodologies in communication research.

152. Analysis of Communication Effects. Prerequisite: course 100 or consent of instructor. 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. Lecture, two hours; discussion, two hours. Prerequisite: course 152 or consent of instructor. 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.

155. Communication Technology and Public Policy. Prerequisite: course 10. Introduction to modern communication technology and policy, with special attention to current policy issues, institutions which make policy decisions, and social, economic, and technological trends which create policy problems. Modern communication technologies surveyed include cable television, teletext, viewdata, and satellite, microwave cellular, and subcarrier communication.

156. Human/Computer Communication. Prerequisite: 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.

160. Political Communication. Prerequisites: courses 100 and 101, or consent of instructor. 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. (Same as Political Science M141D.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 160. 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. Prerequisites: courses 100 and 101, or consent of instructor. 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. Prerequisites: courses 100 and 101, or consent of instructor. 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. Prerequisites: course 101, consent of instructor. 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. Prerequisite: course 10 or consent of instructor. 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. Lecture, two hours; discussion, two hours. Prerequisite: course 101 or consent of instructor. 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. Discussion, two hours; simulation teaching, three hours. Prerequisites: course 101, consent of instructor. 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 units). Prerequisites: course 10, junior standing, consent of instructor. 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. Prerequisites: 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. (Formerly numbered 197C.) 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). Lecture, three hours. Prerequisites: course 10, junior standing. 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 project.

196H. Undergraduate Honors Proseminar. Prerequisites: senior standing, 3.5 GPA in communication studies major, 3.3 GPA overall. Limited enrollment. Variable topics course involving specialized study of selected aspects of the field of human communication.

197A-197Z. Special Topics in Communication Studies. Lecture, three hours. Prerequisite: completion of preparation for the major courses or consent of instructor. 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.

199. Special Studies (2 to 8 units). To be arranged with faculty member who will direct the study. Prerequisites: senior standing, consent of instructor. Independent studies for seniors who desire intensive or specialized investigation of selected research topics.

199H. Special Studies for Honors Candidates (2 to 8 units). To be arranged with faculty member who will direct the study. Prerequisites: senior and honors program standing. Independent studies for honors undergraduates who desire intensive or specialized investigation of selected research topics.

COMMUNITY HEALTH SCIENCES

School of Public Health

UCLA
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Professors

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Osman M. Galal, M.D., Ph.D.
Michael S. Goldstein, Ph.D.
Gail G. Harrison, Ph.D., *Chair*
David Heber, M.D., Ph.D.
Dean T. Jamison, Ph.D.
Snehendu B. Kar, Dr.P.H., M.Sc.
Joel D. Kopple, M.D., *in Residence*
Virginia C. Li, Ph.D., M.P.H.
Charlotte G. Neumann, M.D., M.P.H.
Michael G. Ross, M.D., M.P.H., *in Residence*
John F. Schnelle, Ph.D., *in Residence*
Susan C. Scrimshaw, Ph.D.
Judith M. Siegel, Ph.D., M.S.Hyg., *Associate Dean for Academic Programs*

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.
Edward L. Rada, Ph.D.
Marian E. Swendseid, Ph.D.
Daniel M. Wilner, Ph.D.

Associate Professors

Deborah C. Glik, Sc.D.
Neal Halfon, M.D., M.P.H.
Donald E. Morisky, Sc.D., M.S.P.H., *Vice Chair*

Assistant Professors

Marjorie Kagawa-Singer, Ph.D.
Dawn M. Upchurch, Ph.D.
Steven P. Wallace, Ph.D.

Lecturers

Helene G. Brown, B.S.
Marianne Parker Brown, M.P.H.
Michael R. Cousineau, Dr.P.H.
Janis S. Fidler, Ph.D.
Paul M. Fleiss, M.D., M.P.H.
Patrice E.F. Jelliffe, R.N., M.P.H., *Researcher*
Celia Kaplan, Dr.P.H.
Joanne Leslie, Ph.D.
Ronald L. Linder, Ed.D.
Mario Panaqua, B.A.
Sora Park, M.P.H.
Ruth F. Richards, M.P.H., M.A., *Emerita*

Adjunct and Visiting Professors

Edith M. Carlisle, Ph.D., *Adjunct, Researcher*
Wen-Pin Chang, M.D., M.P.H., D.M.Sc., *Visiting*
James M. Iacono, Ph.D., *Adjunct*
Steve Rottman, M.D., *Adjunct*

Adjunct Associate Professors

Daniel H. Ershoff, Dr.P.H.
Susan B. Sorenson, Ph.D.

Adjunct Assistant Professors

Martin Anderson, M.D.
Barbara A. Berman, Ph.D.
Roger A. Clemens, Dr.P.H.
Stewart A. Laidlaw, Ph.D.
Kevin J. Malotte, Ph.D.
Antronette K. Yancey, M.D., M.P.H.

Assistant Field Program Supervisor

Marta G. Sorini, M.P.H.

Scope and Objectives

The Department of Community Health Sciences focuses on the health-related behaviors of individuals within the context of the social structure, community, health care systems, and family unit. 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 work across several of these concentrations and may select courses from other departments as well.

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

Admission

See the Master of Public Health (M.P.H.) Admission section under Public Health School-wide Programs. Admission requirements for the Master of Science in Public Health are the same as for the M.P.H.

Master of Science in Preventive Medicine and Public Health

The program is not admitting new students at this time.

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, Biostatistics 406, and four to six depart-

ment 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 the student 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 (1) satisfactory performance on the Graduate Record Examination (GRE); (2) completion of the M.S. in Public Health or an appropriately related field (applicants who have a Master of Public Health need to satisfy the course requirements of the M.S. in Public Health before or after admission); (3) at least a 3.0 junior/senior undergraduate 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 one or more faculty members of the Community Health Sciences Department; (5) approval by the doctoral admissions committee and the department chair. Screening examinations may be required by the department.

Students must satisfy the core requirements for the M.P.H. or M.S. in Public Health (depending on their background) at a level acceptable to the doctoral program. Coursework may be waived by examination if equivalent courses have been taken elsewhere.

Major Fields or Subdisciplines

Behavioral sciences and health education.

Course Requirements

The courses needed to pass the written examination in the major field depend on the field chosen.

The minor must be in a field cognate to the major field in public health. A strong minor is required, with at least four full graduate courses (16 units) or equivalent from a department that grants a Ph.D. Biostatistics is the only department considered cognate to a major in the School of Public Health.

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.

A doctoral committee is nominated when the student is ready to take the University Oral Qualifying Examination. The doctoral committee consists of at least four faculty members who hold professorial appointments. Two of the faculty must be tenured. Two of the four must hold appointments in Public Health; one must be an outside member who holds no appointment in Public Health; one of the four must be from the minor field.

After passing the University Oral Qualifying Examination, the student may be advanced to candidacy and commence work on a dissertation in the student's principal field of study. The doctoral committee guides the student's progress toward completion of the dissertation.

Lower Division Courses

19. Peer Health Counselor Training. 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.

88. Lower Division Seminar: Special Topics in Community Health Sciences. 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.

Upper Division Courses

100. Behavioral Sciences and Health Education. Lecture, three hours; discussion, one hour. Development of broad appreciation of psychosocial factors as they affect health and their implications for public health. Review of theories, models, and modalities of health education for health promotion and disease prevention interventions.

130. Nutrition and Health (2 units). Prerequisites: one biology course, one chemistry course, consent of instructor. Not open for credit to nutrition majors. Basic and clinical nutrition theory and practice for students in health sciences curricula.

132. Health, Disease, and Health Services in Latin America. Prerequisite: consent of instructor. Introduction to health, disease, and health services in Latin America, with emphasis on epidemiology, health administration, medical anthropology, and nutrition.

187. Health Education for Teacher Credentials (2 units). Limited to students in teacher education credential program. Required for California State Instructional Credential. Teaching/learning process as applied to personal and community health. Topics include psychoactive drugs (alcohol, tobacco, and narcotics), human sexuality, nutrition, and community health resources.

189. Community Cancer Education. Lecture, three hours; project and fieldwork, one hour. Prerequisites: Biology 30 or equivalent, consent of instructor. Exploration of process of cancer education through community resources, culminating in student-generated community field-study proposal and presentation.

196A. Introduction to Health Promotion Fieldwork. (Formerly numbered 198A.) Lecture, two hours; discussion, one hour; laboratory, six hours. Limited to 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.

196B. Advanced Health Promotion Fieldwork. (Formerly numbered 198B.) Lecture, two hours; discussion, one hour; laboratory, six hours. Prerequisite: course 196A or consent of instructor. Application of skills and experience gained in course 196A to development and provision of additional health education and health promotion in selected ethnic communities.

199. Special Studies (2 to 4 units). Prerequisites: senior standing, consent of instructor and department chair (based on written proposal outlining course of study). 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.

Graduate Courses

200. Global Health Problems. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. 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."

210. Community Health Sciences. (Not the same as course 210 prior to Fall Quarter 1994.) Lecture, three hours. Prerequisite: 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.

211A-211B. Program Planning, Research, and Evaluation in Community Health Sciences. (Formerly numbered 210, 211, 217.) Lecture, three hours; discussion, one hour; outside assignments, eight hours. Prerequisite: course 210. Course 211A is prerequisite 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.

212. Advanced Social Research Methods in Health. Lecture, four hours; laboratory, two hours; outside assignments, eight hours. Prerequisites: courses 211A-211B, Biostatistics 100B, 406, consent of instructor. 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.

213. Research in Community and Patient Health Education. Lecture, three hours; discussion, two hours. Prerequisites: course 210, consent of instructor. 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.

214. Issues in Program Evaluation. Discussion, three hours; reading and research paper, one hour. Prerequisite: course 212 or consent of instructor. Advanced seminar which explores problems of planning and implementing evaluation research in context of local demonstration projects.

215. Advanced Topics in Health Survey Research Methods. Lecture, two hours; discussion, two hours. Prerequisite: course 212 or consent of instructor. Special topics in health survey research methods. Design of special purpose surveys; recent interviewing techniques; diaries and memory aids; measurement error, including response bias, social desirability, response validity; telephone interviewing; obtaining data on sensitive issues; ethics and confidentiality of survey research data.

M216. Qualitative Research Methodology. (Same as Anthropology M284.) Discussion, three hours; laboratory, one hour. Prerequisite: consent of instructor. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to health care.

218. Questionnaire Design and Administration. Lecture, two hours; discussion, one hour; laboratory, one hour; outside assignments. Prerequisites: courses 211A-211B, consent of instructor. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires.

219. Logic of Multivariate Analysis. (Formerly numbered 298B.) Discussion, three hours; laboratory, one hour. Prerequisites: two quantitative data analysis courses, one multivariate analysis course, doctoral standing, consent of instructor. Translation of social theory into a data analytic plan, application of this analytic plan to real data, and interpretation of results obtained through multivariate analysis. S/U grading.

230. Family and Sexual Violence. Lecture, three hours; community, three to four hours. Prerequisite: consent of instructor. 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.

231. Maternal and Child Nutrition. Prerequisite: consent of instructor. 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.

233. Hunger and Food Insecurity as Public Health Issues. (Formerly numbered 298T.) Lecture, three hours. Prerequisite: course 231 or 443 or equivalent or consent of instructor. 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.

234. Obesity and Nutrition: Multidisciplinary Perspective (2 units). (Not the same as course 234 prior to Fall Quarter 1994.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: admission to UCLA postdoctoral fellowship training program in obesity and nutrition, or graduate standing in public health or biological sciences and consent of instructors. 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. Lecture, two hours; discussion, two hours; assignments, eight hours. Prerequisite: consent of instructor. 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.

M236. Human Resources and Economic Development. (Same as Education M252C.) Examination, in context of the developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments.

237. Evolving Paradigms of Prevention: Interventions in Early Childhood. Seminar, three hours; fieldwork, one hour. Prerequisites: graduate standing, consent of instructor. 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.

238. Evolving Paradigms of Prevention: Interventions in Adolescence. (Formerly numbered 298N.) Seminar, three hours. Prerequisites: graduate standing, consent of instructor. 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.

239. Is There an (Ethnic) Identity Crisis in Our Health Care System? Lecture, 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.

M240. Culture and Human Reproduction. (Same as Anthropology M262P.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Exploration of human behavior related to reproduction. Cross-cultural exploration of biological and behavioral factors, with particular reference to human adaptation.

242. Advanced Seminar: Population and Family Health (2 units). Prerequisites: doctoral standing, consent of instructor. Current research in population and family health. May be repeated for credit. S/U grading.

243A-243B-243C. Seminars: Preventive Medicine (2 units each). Prerequisite: consent of instructor. Three-term sequence devoted to analysis of current issues, practices, research literature, and policy and trends in preventive medicine. Discussion of administrative, epidemiologic, and clinical methods. S/U grading.

M244. Advanced Seminar: Medical Anthropology. (Same as Anthropology M263Q, Nursing M273, and Psychiatry M273.) Seminar, three hours. Prerequisite: consent of instructor. 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.

M245A-M245B-M245C. Child Abuse and Neglect (2 units, 2 units, 1 unit). (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.) Course M245A is prerequisite to M245B, which is prerequisite 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. Lecture, two hours; discussion, one hour. Prerequisite: consent of department. 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.

M252. Health Policy Analysis. (Same as Health Services M233.) Lecture, three hours. Prerequisite: Health Services 100 or equivalent. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy.

M267. Structure and Function of Nutrients Implicated in Etiology of Chronic Disease. (Same as Epidemiology M276.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisite: one prior organic chemistry course. Basic nutrition course for public health and science majors.

271. Health-Related Behavior Change. Prerequisite: course 210 or consent of instructor. Unified behavioral science approach to natural determinants of change, as foundation for planned change in health-related behavior at community, group, and individual levels.

272. Social Epidemiology. Lecture, two hours; discussion, one hour. Prerequisite: Epidemiology 100 or consent of instructor. 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.

273. Social Epidemiology of Chronic Disease. Lecture, two hours; discussion, one hour. Prerequisite: Epidemiology 100 or consent of instructor. 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.

M274. Health Professions. (Same as Sociology M249A.) Lecture, three hours. Prerequisite: course 210 or consent of instructor. 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.

M275. Health and Illness Behavior. (Same as Sociology M249B.) Prerequisites: course 210 and Epidemiology 100, or consent of instructor. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick-role behavior.

276. Alcohol and Drug Abuse: Social Policy Perspectives (3 units). Prerequisite: consent of instructor. Alternative models of alcohol and other drug addictions examined and implications assessed for public policy regarding their control. Prevention efforts and findings from California and national surveys, with primary emphasis on alcohol use and abuse.

277. Advanced Community Health Education. Lecture, two hours; discussion, two hours. Prerequisite: 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.

278. Social and Behavioral Perspectives on Work and Health. Prerequisites: course 470 and Environmental Health Sciences 250, or consent of instructor. Discussion of current social and behavioral research, issues, and perspectives on work and health.

279. Advanced Community Organization Seminar. Seminar, three hours. Prerequisite: course 487 or consent of instructor. Advanced seminar on theoretical and practical problems in community organization, with readings and term projects focusing on participation, leadership, outreach, coalitions, and related issues of community organization and social change applied to health problems.

280. International Health Education: Training and Development. Prerequisites: course 210 and one upper division research methods or epidemiology course, or consent of instructor. Introduction to an international perspective of health education and health promotion. Survey of current developments in health education in both developed and developing countries.

281. Alcoholism and Drug Abuse among Women. Prerequisite: consent of instructor. Discussion of psychosocial aspects of abuse of alcohol and other drugs among women. Topics include etiology, prevention, treatment, hormonal influences, and role of the family. Emphasis on current theoretical perspectives and research findings.

282. Communication in Health Promotion and Education. Lecture, two hours; discussion, two hours. Prerequisites: course 210, consent of instructor. 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.

283. Aging and Health Behavior. Discussion, three hours. Prerequisite: course 210 or consent of instructor. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among the aged.

284. Ecology of Mental Health. Lecture, three hours. Prerequisites: course 210, Epidemiology 100, and Biostatistics 100A, or consent of instructor. Analysis of occurrence and distribution of mental disorders in the community and relationships to social structure. Problems of classification, definition, measurement in sociopsychiatric epidemiology, sociocultural and social-psychological factors in mental disorders.

285. Aging, Health, and Society. 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.

286. Seminar: Behavioral Sciences and Health (2 to 4 units). Lecture, two hours. Prerequisite: consent of instructor. 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. (Same as Health Services M287.) Lecture, three hours; discussion, one hour. Prerequisites: 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.

288A-288B. Current Problems in Health Education. (Formerly numbered 288.) Lecture, one hour; discussion, three hours. Prerequisites: course 210 and three other public health and/or social sciences courses, or consent of instructor. 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.

290. Race, Class, Culture, and Aging. (Formerly numbered 298.) Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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.

291. Health Policy and the Aged. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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.

292. Communication and Media Development in Health Promotion/Education. Lecture, three hours; field practice, one hour. Prerequisites: course 210 or prior social sciences courses or consent of instructor. Selected aspects of communications planning, social marketing, mass media, and communications evaluation theory and practice. *

293. Social and Behavioral Research in AIDS: Roundtable Discussion (2 units). (Formerly numbered 298.) Review and discussion of research programs directed toward identification of psychosocial, biobehavioral, environmental, and community factors related to prevention and control of AIDS/HIV.

294. Social and Behavioral Factors of AIDS/HIV: A Global Perspective. (Formerly numbered 298.) Prerequisites: course 100 and Epidemiology 100 or prior social sciences courses, or consent of instructor. Overview of social and behavioral factors which influence both the transmission as well as prevention of HIV/AIDS throughout the world.

296A-296L. Advanced Research Topics in Behavioral Sciences and Health Education (2 to 4 units each). Prerequisite: consent of instructor. Advanced study and analysis of current topics in behavioral sciences and health education. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading:

296A. AIDS Prevention.

296M-296Z. Advanced Research Topics in Population and Family Health (2 to 4 units each). Prerequisite: consent of instructor. Advanced study and analysis of current topics in population and family health. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading:

296M. Advanced Research Methods.

400. Field Studies in Public Health (2 or 4 units). Prerequisite: consent of instructor. 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.

411. Issues in Cancer Prevention and Control. Open to juniors, seniors, and graduate students with consent of instructor. 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.

M417. Injury Prevention Strategies and Countermeasures (2 units). (Same as Epidemiology M417.) Prerequisites: Epidemiology 100 or equivalent, consent of instructor. 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.

430A. International Health Agencies and Programs. Prerequisite: consent of instructor. Historical development and functions of international health organizations. Key problems and trends in international health. Bilateral programs, medical/religious missions, private foundations, and others disseminating information, money, and services.

430B. Advanced Issues in International Health. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. In-depth focus on major health care issues confronting recipient less-developed countries and donors of technical and financial assistance.

431. Research in Women's Health: Theories and Methods. Prerequisite: consent of instructor. 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.

M432. Perinatal Health Care: Principles, Programs, and Policies. (Formerly numbered 432.) (Same as Obstetrics and Gynecology M432.) Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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.

433. Reproductive Health: Demographic Applications. 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.

434A. Maternal and Child Health in Developing Areas. Prerequisite: course 231 or consent of instructor. 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.

434B. Recent Developments in Maternal and Child Health in Disadvantaged Countries (2 units). Prerequisite: course 231 or consent of instructor. Analytic in-depth consideration of recent advances in the field of international maternal and child health, with special reference to developing countries.

435. Seminar: Advanced Issues in Women's Health (2 units). (Formerly numbered 298S.) Prerequisites: course 246 or 431, consent of instructor. 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.

436A-436B. Child Health, Programs, and Policies. (Formerly numbered 436.) Prerequisite: Health Services 100. Course 436A is prerequisite to 436B. 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.

437. Preventive Medicine and the Family. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Comprehensive review and evaluation of scientific background and application of principles of preventive medicine, with primary focus on the family and the disadvantaged.

438. Research Seminar: Community Child Health Services (2 units). Discussion, one hour; laboratory, one hour; field trips, two hours. Prerequisite: consent of instructor. 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.

439. Health Services in Child Day Care. Lecture, two hours; discussion, two hours; one field trip, three hours. Prerequisite: consent of instructor. Assessment of needs, planning, and development of health and nutrition services for young children in day care and related child development programs.

440. Child Health Policy. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Analysis of development and characteristics of child health programs and policies; issues related to health services for children examined according to chronological development of child; relationship of health programs to programs of nutrition, day care, education, and welfare; strategies for achieving change and politics of developing a child health policy.

441. Advanced Program Planning and Evaluation in International Health. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. 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.

443. Assessment of Family Nutrition. Prerequisite: course 231 or consent of instructor. 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.

444. Anthropometric and Dietary Aspects of Nutritional Assessment. Lecture, two hours; laboratory, two hours. Prerequisite: course 443 or consent of instructor(s). Practical skills in anthropometric and dietary assessment, including selection of appropriate methods, data gathering and handling, and analysis and presentation.

445. Food and Nutrition Planning: Policies and Programs in World Context. Lecture, two hours; discussion, two hours. Prerequisite: course 434A or consent of instructor. 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.

446. Nutrition Education and Training: Third World Considerations. Lecture, two hours; discussion, one hour; student participation, one hour. Prerequisite: course 434A or consent of instructor. 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.

447. Health Issues in the Middle East. Prerequisite: course 200 or 231 or 434A or consent of instructor. 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.

448. Nutrition Policies and Programs: Domestic and International Perspectives. Lecture, two hours; discussion, two hours; field visits. Prerequisites: 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.

470. Introduction to Occupational Health Education. Lecture, one hour; discussion; two hours; outside assignment, one hour. Prerequisites: course 210, two sociology or anthropology courses or equivalent, consent of instructor. Health education theory and practice as applied to occupational health and safety. Emphasis on design and evaluation of education programs dealing with health and safety issues for workplace settings.

474. Self-Care and Self-Help in Community Health. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Review of background, principles, concepts, programs, and research concerning the emerging field of self-care in health.

480. Health Education in Clinical Settings. Lecture, two hours; discussion, two hours. Prerequisites: courses 271, 282, Health Services 100, consent of instructor. 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.

482. Practicum: Community Health Sciences. Discussion, two hours; fieldwork, up to 20 hours. Prerequisites: courses 210, 211A-211B, consent of instructor. Understanding of professional practice in health-related organizations.

483. Social Interventions for Health Promotion and Evaluation. Lecture, two hours; discussion, one hour; seminar, one hour. Prerequisites: courses 210, 271, or equivalent, one social sciences or research methods course, consent of instructor. Selected social intervention strategies for health promotion and health education programs. Emphasis on theories, working assumptions, methodologies, and impacts of selected strategies within contexts of planned change in health-related behaviors.

487. Community Organization for Health. Lecture, three hours; fieldwork, four to six hours. Prerequisites: course 210, three public health, sociology, or anthropology courses or equivalent. 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.

490. Professional Writing for Public Health (2 units). Prerequisite: consent of instructor. 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 units). Prerequisites: 18 units of cognate courses in area of specialization, consent of department chair. 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 units). Prerequisite: 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.

502. UCLA/Hawaii Western Consortium Exchange (4 to 16 units). Prerequisite: 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 at University of Hawaii, Manoa, as part of UCLA/UH Western Consortium Exchange Program. Only the equivalent of eight quarter units taken at UH may be applied toward degree. Extra units may be applied toward department requirements by petition to Public Health Student Affairs Office. UH letter-graded courses appear on UCLA transcript with letter grades, while UH Cr/Ncr-graded courses appear as S/U grades. Grade points from these courses are not counted in UCLA grade-point average.

596. Directed Individual Study or Research (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

COMPARATIVE LITERATURE

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Ross P. Shideler, Ph.D. (*Scandinavian, Comparative Literature*), Chair
Samuel Weber, Ph.D. (*English, Comparative Literature*)
Arnold J. Band, Ph.D., Emeritus (*Hebrew, Comparative Literature*)
Pier-Maria Pasinetti, Ph.D., Emeritus (*Italian, Comparative Literature*)

Associate Professors

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Lucia Re, Ph.D. (*Italian, Comparative Literature*)
C.P. Haun Saussy, Ph.D. (*Chinese, Comparative Literature*)

Assistant Professors

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Frederick L. Burwick, Ph.D. (*English*)
James E. Goodwin, Ph.D. (*English*)
Peter Haidu, Ph.D. (*French*)
Michael Heim, Ph.D. (*Czech and Russian Literature*)
Carroll B. Johnson, Ph.D. (*Spanish*)
Henry A. Kelly, Ph.D. (*English*)
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Stephen Yenser, Ph.D. (*English*)
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Robert M. Maniquis, Ph.D. (*English*)
José Monleón, Ph.D. (*Spanish*)
Vincent P. Pecora, Ph.D. (*English*)

Assistant Professors

Kenneth Reinhard, Ph.D. (*English*)
Jenny Sharpe, Ph.D. (*English*)

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 Program 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

A bachelor's degree in literature, ancient or modern, is a prerequisite for admission to the Master of Arts program in Comparative Literature. 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 fo-

cus 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. The student specializes 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, the student focuses on a period comparable to the area of specialization in the major literature, although the student 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 from 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 program office at the address given at the beginning of this listing.

Thesis Plan

None.

Doctoral Degree

Admission

For entrance into the Ph.D. program, 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. It should be taken within 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 (e.g., 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 or film 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, the student 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). These examinations are composed of written and oral sections.

There is one three-hour historical examination in the major area. The reading list for this 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 these items may be in the approximately 100-year period of emphasis.

For the minor fields, there are two options:

(1) The student takes one three-hour written examination in each minor field, based on approved reading lists of 25 to 30 items or

(2) The student takes 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.

The student submits a detailed dissertation prospectus (usually of 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 program allows a maximum of two attempts to pass the Ph.D. examinations.

Graduate Courses

200. Methodology of Comparative Literature (6 units). Seminar, four hours. Prerequisite: consent of instructor. Study of methodology of comparative literature and theory of literature.

202. Classical Tradition: Epic. (Formerly numbered C207.) Seminar, three hours. Prerequisite: reading knowledge of Greek, Latin, or Italian. 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. S/U or letter grading.

203. Classical Tradition: Tragedy. (Formerly numbered C211.) Seminar, three hours. Prerequisite: 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. (Formerly numbered C212.) 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 Humanities 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. Lecture, three hours. Prerequisite: 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 Humanities 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. (Formerly numbered C229.) Seminar, three hours. Prerequisite: 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. (Formerly numbered 210.) Seminar, three hours. Prerequisites: graduate standing, reading knowledge of French, German, Italian, Latin, Greek, or Chinese. 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.

C222. Renaissance Drama. (Formerly numbered C245.) Lecture, three hours. Prerequisite: 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 Humanities 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. (Formerly numbered C271.) Seminar, three hours. Prerequisite: 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 Humanities C140. S/U or letter grading.

C250. The 19th-Century Novel. (Formerly numbered C275.) Seminar, three hours. Prerequisite: 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 Humanities C150. S/U or letter grading.

C251. Crisis of Authority. (Formerly numbered C278.) Seminar, three hours. Prerequisites: graduate standing or consent of instructor, reading knowledge of one appropriate foreign language. 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 Humanities 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. (Formerly numbered C280.) Seminar, three hours. Prerequisite: 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 Humanities 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. Lecture, three hours. Prerequisite: consent of instructor. 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 Valéry, Stefan George, R.M. Rilke, Gunnar Ekelof, or Wallace Stevens. May be concurrently scheduled with Humanities C153. S/U or letter grading.

C260. Literature and the Visual Arts, 1700 to the Present. Lecture, three hours. Prerequisite: reading knowledge of one appropriate foreign language. Knowledge of art history valuable but not required. Assuming that literature and the visual arts are in some degree expressions of cultural and philosophical patterns of eras, course studies relationships between primarily English writers from 1700 to the present and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between the plastic and verbal arts in comparative study. May be concurrently scheduled with Humanities C160. Graduate students required to read works in original languages.

C261. Fiction and History. (Formerly numbered C276.) 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 Humanities C161. Graduate students required to prepare papers based on texts read in original languages. S/U or letter grading.

262. The Psychological Novel. (Formerly numbered 292.) Seminar, three hours. Prerequisites: 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. (Formerly numbered C209.) Seminar, three hours. Prerequisite: 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 Humanities 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. (Formerly numbered C285.) Seminar, three hours. Prerequisite: 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 Humanities 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. 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.

C267. Theory and Texts of the Fantastic. (Formerly numbered C273.) Seminar, three hours. Prerequisite: 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 Humanities 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. (Formerly numbered C284.) Seminar, three hours. Prerequisite: 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 Humanities C170. Graduate students required to prepare papers based on texts read in original languages whenever possible. S/U or letter grading.

271. Imaginary Women. (Formerly numbered 227.) Seminar, three hours. Prerequisite: reading knowledge of one appropriate foreign language. Examination of archetypal female figures in classical/traditional literatures and their reincarnations in modern African American, Anglo-American, Asian American, European, Native American, and Spanish-American literatures. Particular emphasis on position of women in the cultures and ideology of the authors. S/U or letter grading.

C272. The Postmodern Novel. (Formerly numbered C286.) Seminar, three hours. Prerequisite: 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 Humanities 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. (Formerly numbered C290.) Seminar, three hours. Prerequisite: 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 Humanities C173. S/U or letter grading.

M274. Issues in Third World Literatures and Cultures. (Same as Asian American Studies M261.) Seminar, three hours; outside study, nine hours. Prerequisite: consent of instructor. Investigation of politics of power, gender, and race in the 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. Seminar, three hours; outside study, nine hours. Prerequisites: graduate standing or consent of instructor, knowledge of one appropriate foreign language. 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.

285. Translation Workshop. (Formerly numbered 230.) Seminar, three hours. Prerequisites: solid reading knowledge of at least one foreign language, consent of instructor. 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. (Formerly numbered 201.) Seminar, three hours. Prerequisite: course 200 or equivalent. Advanced course in theory of literature focusing on structuralist, psychoanalytic, and Marxist approaches. S/U or letter grading.

291. Problems in Theory of Literature. (Formerly numbered 202.) Seminar, three hours. Prerequisites: course 290 or equivalent, reading knowledge of French or German. 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. (Formerly numbered 203.) 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, Hjeltmlev, and Greimas. S/U or letter grading.

293. Psychoanalytic Approaches to Literature. (Formerly numbered 204.) Seminar, three hours. Prerequisite: 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.

C295. Heidegger, Language, and Literature. (Formerly numbered C288.) Seminar, three 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 Humanities C195. S/U or letter grading.

C296. Derrida as a Reader of Heidegger. (Formerly numbered C289.) Seminar, three 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 Humanities C196. S/U or letter grading.

297. Death and the Limits of Representation. (Formerly numbered 287.) Seminar, three hours; outside study, nine hours. Prerequisite: 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.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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. 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 TAs' performance. May not be applied toward M.A. course requirements. S/U grading.

596. Directed Individual Study or Research (2 to 12 units). Prerequisite: graduate standing in comparative literature. 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 units). Preparation for foreign language examination. S/U grading.

597. Preparation for M.A. and Ph.D. Examinations (2 to 12 units). Prerequisite: graduate standing. 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 units). Prerequisite: doctoral standing. Research for and preparation of Ph.D. dissertation. May be repeated for credit. S/U grading.

COMPUTER SCIENCE

School of Engineering and Applied Science

UCLA
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Box 951596
Los Angeles, CA 90095-1596
(310) 825-3886
<http://www.cs.ucla.edu>

Professors

Alfonso F. Cardenas, Ph.D.
Wesley W. Chu, Ph.D.
Joseph J. DiStefano III, Ph.D.
Michael G. Dyer, Ph.D.
Milos D. Ercegovic, Ph.D., *Vice Chair*
Mario Gerla, Ph.D.
Sheila A. Greibach, Ph.D.
Richard E. Korf, Ph.D.
David F. Martin, Ph.D.
Richard R. Muntz, Ph.D., *Chair*
D. Stott Parker, Jr., Ph.D.
Carlo Zaniolo, Ph.D. (*Norman E. Friedmann Professor of Knowledge Sciences*)

Professors Emeriti

Algirdas A. Avizienis, Ph.D.
Bertram Bussell, Ph.D.
Jack W. Carlyle, Ph.D.
Gerald Estrin, Ph.D.
Thelma Estrin, Ph.D.
Walter J. Karplus, Ph.D.

Leonard Kleinrock, Ph.D.
 Allen Klinger, Ph.D.
 Lawrence P. McNamee, Ph.D.
 Michel A. Melkanoff, Ph.D.
 Judea Pearl, Ph.D.
 Thomas A. Rogers, Ph.D.
 Jacques J. Vidal, Ph.D.

Associate Professors

Rajive L. Bagrodia, Ph.D.
 Jason (Jinsheng) Cong, Ph.D.
 Eliezer M. Gafni, Ph.D.
 David R. Jefferson, Ph.D.
 Andrew B. Kahng, Ph.D.
 David A. Rennels, Ph.D., *Vice Chair*
 Josef Skrzypek, Ph.D.
 Yuval Tamir, Ph.D.

Assistant Professors

Elias Koutsoupias, Ph.D.
 Miodrag Potkonjak, Ph.D.

Senior Lecturer

Leon Levine, M.S., *Emeritus*

Adjunct Professors

Boris Kogan, Ph.D.
 Gerald J. Popek, Ph.D.

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 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).

Bachelor of Science in Computer Science and Engineering

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 systems. Students are prepared for employment in the high-technology industries which interface with information and digital systems.

The Major

Course requirements are as follows (180 minimum units required):

- (1) Four core courses: Computer Science 31, 32, 33, 51A.
- (2) Computer Science 111, 112, 118, 131, 151B, 180, 181, Electrical Engineering 10, 102, 103, 110, Statistics 154A; four laboratory units (Computer Science 152A, 152B); one course from Computer Science 161, 163, 168; two computer science/electrical engineering electives (excluding Electrical Engineering 100) and two computer science/electrical engineering laboratories.
- (3) Three upper division elective courses from the Computer Science Department, one of which must be from 132, 171, 172, 173, M196B. Course 199 may normally be taken only as a free elective; however, you may petition for exceptions in extraordinary situations.
- (4) Chemistry and Biochemistry 11A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 8A/8AL, 8B/8BL, 8C/8CL.
- (5) SEAS general education (GE) course requirements — see Curricular Requirements in the College and Schools section of this catalog for details.
- (6) One free elective course.

*Bachelor of Science in Computer Science

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, you study subject matter in software engi-

neering, 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 (180 minimum units required):

- (1) Four core courses: Computer Science 31, 32, 33, 51A.
- (2) Computer Science 111, 112, 118, 131, 132, 151B, 180, 181, Statistics 154A; one course from Computer Science 161, 163, 168; Mathematics 141A or Electrical Engineering 103; four laboratory units (Computer Science 152A, 152B).
- (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, library and information science, linguistics, management, materials science and engineering, mathematics, mechanical, aerospace, and nuclear engineering, molecular biology, physics.
- (5) Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 8A/8AL, 8B/8BL, 8C/8CL.
- (6) SEAS general education (GE) course requirements — see Curricular Requirements in the College and Schools section of this catalog for details. Computer science students must also select two additional humanities/social sciences courses and one additional life sciences course. Chemistry 11A may be substituted for one of the life sciences courses.
- (7) Two free elective courses.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science programs 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.

For requirements for the Graduate Certificate of Specialization, see Engineering School-wide Programs in the Curricula and Courses section of this catalog.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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.

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 the student 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; computer programming languages and systems; foundation of programming and database and knowledge-based systems; computer network modeling and analysis; scientific computing (two options); 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.

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. This 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 51A, 143 or 180, 151B, 181.

Group II: Two required courses or equivalent from Computer Science 111, 112 or 118, 131

or 132, 161 or 163 or 168, 171 or 174, 172 or 173 or 270A.

In addition, for each degree the student 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 student's investigation of a problem in the student's 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. A student 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 program 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.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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.

Major Fields or Subdisciplines

Artificial intelligence; computer science theory; computer system architecture; computer programming languages and systems; foundation of programming and database and knowledge-based systems; computer network modeling and analysis; scientific computing (two options); biological systems, physical systems.

Course Requirements

Course Requirement. There is no formal course requirement for the Ph.D. degree, and the student 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. This 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 51A, 143 or 180, 151B, 181.

Group II: Two required courses or equivalent from Computer Science 111, 112 or 118, 131 or 132, 161 or 163 or 168, 171 or 174, 172 or 173 or 270A.

In addition, for each degree the student 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 information on completing the Engineer degree, see Engineering Schoolwide Programs in the Curricula and Courses section of this catalog.

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the three fields and passing the breadth requirement, the student takes a written preliminary examination in the major field. When the examination is passed and all coursework is completed, the student may be required to take an oral preliminary examination which encompasses the major and minor fields. The examination may be waived by the faculty on the recommendation of the major field committee for a student deemed to be making strong progress toward the degree. A student 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 doctoral committee consists of four faculty members, one of whom must be from outside the School of Engineering and Applied Science. 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.

Lower Division Courses

1. Principles of Computer Science. 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.

2. Great Ideas in Computer Science. (Formerly numbered 98.) 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.

10C. Introduction to Programming/PASCAL. Lecture, four hours; discussion, two hours. Exposure to computer organization and capabilities. Basic principles of programming (using PASCAL as example language): algorithmic, procedural problem solving. Program design and development. Control structures and data structures. Character strings and word processing.

10F. Introduction to Programming/FORTRAN. 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.

11. Introduction to PASCAL. 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.

23. Introduction to Computer Science III. Lecture, four hours; recitation, two hours. Prerequisites: courses 21, 22. Design and specification of algorithmic solutions. Design and specification of data structures, complexity analysis of algorithms and data structures. Implementation of algorithms and data structures in C programming language. Performance analysis of computer programs.

31. Introduction to Computer Science I. 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.

32. Introduction to Computer Science II. Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 31. Limited to majors in computer science and engineering and computer science majors. Not open to students with credit for 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.

33. Systems Programming (5 units). (Formerly numbered 24.) Lecture, four hours; discussion, two hours; outside study, nine hours. Prerequisite: 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, I/O programming, memory management, file systems.

51A. Logic Design of Digital Systems. Lecture, four hours; recitation, two hours; outside study, six hours. Prerequisite: Physics 8C. 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.

Upper Division Courses

111. Operating Systems Principles. Lecture, four hours; laboratory, two hours; outside study, six hours. Prerequisites: courses 32 or equivalent, 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. I/O control, file systems.

112. Computer System Modeling Fundamentals. Lecture, four hours; outside study, eight hours. Prerequisites: upper division standing or Statistics 154A, consent of instructor. 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.

118. Computer Network Fundamentals. Lecture, four hours; discussion, two hours. Prerequisite: upper division standing. 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.

130. Software Engineering. Lecture, four hours; laboratory, two hours; outside study, six hours. Prerequisite: course 32. Structured programming, program specification, program proving, modularity, abstract data types, composite design, software tools, software control systems, program testing, team programming.

131. Programming Languages. Lecture, four hours; laboratory, two hours; outside study, six hours. Prerequisites: 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.

132. Compiler Construction. Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisites: courses 32, 131, 181. Compiler structure; lexical and syntactic analysis; semantic analysis and code generation; theory of parsing.

141. Basic Methods of Data Organization. Lecture, four hours; laboratory, two hours; outside study, six hours. Prerequisite: course 32 or consent of instructor. Fundamental techniques for organizing and manipulating data, stressing relationships to performance, time/storage trade-offs. Sequential and linked storage allocation for linear lists, multilinked structures. Trees: implementation, traversals, mathematical properties. Graphs and networks: memory representation, algorithms. Dynamic storage allocation. External storage devices. Database concepts and architectures. Topics include sorting-searching, algorithmic analysis, graph theory, concepts underlying file management.

143. Introduction to Database Systems. Lecture, four hours; discussion, two hours; laboratory, two hours; outside study, four hours. Prerequisite: course 32 or consent of instructor. 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.

151B. Computer Systems Architecture. Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 51A. Recommended: courses 33, 152A. 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, I/O processing and interrupts, and reliability aspects.

151C. Design of Digital Systems. Lecture, four hours; discussion, two hours. Prerequisites: courses 51A, 151B, 152A. 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.

152A. Introductory Digital Design Laboratory (2 units). Laboratory, four hours. Prerequisite: course 51A. 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.

152B. Computer Design and Interfacing Laboratory (2 units). Laboratory, four hours. Prerequisite: course 151B. Design and implementation of computer I/O interfaces and device controllers, implementation of microprogrammed machines.

161. Fundamentals of Artificial Intelligence. Lecture, four hours; laboratory, two hours. Prerequisite: course 23 or equivalent. 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.

163. Introduction to Natural Language Processing. Lecture, four hours; laboratory, two hours. Prerequisite: course 130 or 131 or consent of instructor. 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.

168. Vision in Man and Machine. Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisite: course 161 or consent of instructor. Use of computational aspects of processing visual information to present a unified treatment of early vision, allowing transfer of concepts from analysis of natural vision to synthesis of machine vision. Extraction, processing the manipulation of image attributes. Their organization into data structures and processing by dedicated computing architectures. Issues in image segmentation based on aggregation of feature descriptions.

168L. Computer Vision Laboratory (2 to 4 units). Laboratory, eight hours. Prerequisites: course 168, senior standing, consent of instructor. Image acquisition, storage, processing, and analysis. Design and implementation of algorithms for low-level vision. Experiments in motion, texture, color, edge detection, binary and gray-level images. Scheme-based personal computer vision station.

170A. Introduction to Scientific Computing. Lecture, four hours; laboratory, two hours; outside study, six hours. Prerequisite: senior standing in computer science or consent of instructor. 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.

171. Real-Time Computer Systems. Prerequisite: senior standing or consent of instructor. 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.

171L. Real-Time Systems Laboratory (2 to 4 units). Laboratory, four to eight hours. Prerequisites: senior standing, consent of instructor. Recommended: courses 152A, 171 (may be taken concurrently). Tests and measurements of digital and analog signals and systems as encountered in data acquisition, on-line computing, telecommunication facilities, terminals, modems, interfaces, and standards (e.g., RS 232, IEEE488). May be repeated for credit with consent of instructor.)

172. Simulation and Models. Lecture, four hours; other, eight hours. Prerequisite: course 23. Recommended: one statistics course. Model formulation and programming for discrete event systems in the simulation language GPSS. Statistical considerations: design of experiments, random number generation, analysis of model results. Computer exercises.

173. Random Data Analysis and Measurement Procedures. Prerequisite: Electrical Engineering 102 or equivalent. Practical aspects of random data analysis and measurement procedures. Statistical properties of random data, correlation, spectral density, input/output relationships, statistical errors, coherence functions, data acquisition, and processing techniques.

174. Elements of Computer Graphics. Lecture, two hours; laboratory, two hours; outside study, eight hours. Prerequisite: course 23 or equivalent. Hardware and software elements of computer graphics systems. Graphics languages. Graphic workstations and specialized I/O devices. Design and development of interactive graphics programs.

180. Introduction to Algorithms and Complexity. Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisites: course 32, Mathematics 61, junior standing in computer science. 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.

181. Introduction to Formal Languages and Automata Theory. Lecture, four hours; discussion, two hours; outside study, six hours. Prerequisites: Mathematics 61 and junior standing in computer science, or consent of instructor. 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.

190. Computer Science Design Project. Lecture, four hours; outside study, eight hours. Prerequisite: senior standing with adequate background in hardware, software, and computer applications. Limited to majors in computer science and engineering and 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.

196A. Introduction to Bioengineering and Cybernetics (2 units). Prerequisite: 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 units). (Same as Medicine M196B.) Lecture, four hours; discussion, one hour; laboratory, two hours; outside study, eight hours. Prerequisite: 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.

C196L. Biomedical Systems/Biocybernetics Research Laboratory. Lecture, one hour; laboratory, three hours; outside study, eight hours. Prerequisite: course M196B or consent of instructor. 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.

199. Special Studies (2 to 8 units). Prerequisites: upper division standing, consent of instructor. 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.

Graduate Courses

201A-201B-201C. Computer Science Seminars (2 units each). Prerequisite: graduate standing in computer science. Lectures on current research topics in computer science. May be repeated for credit. In Progress and S/U grading.

202. Advanced Computer Science Seminar. Prerequisite: completion of major field examination in computer science or consent of instructor. 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.

209AA-209ZZ. Research Seminars: Computer Science (2 to 4 units each). Prerequisite: consent of instructor. 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.

212A. Queueing Systems Theory. Prerequisites: course 112 and Electrical Engineering 131A, or consent of instructor. Resource sharing issues and theory of queueing (waiting-line) systems. Review of Markov chains and baby queueing theory. Method of stages. $M/E_r/1$, $E_r/M/1$. 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.

212B. Queueing Applications: Scheduling Algorithms and Queueing Networks. Prerequisite: 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.

214. Data Transmission in Computer Communications. Prerequisites: course 112, graduate standing in computer science. 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.

215. Computer Communications and Networks. Prerequisite: 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.

216. Distributed Multiaccess Control in Networks. Prerequisites: 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.

218. Advanced Computer Networks. (Formerly numbered 218A.) Lecture, four hours; outside study, eight hours. Prerequisites: courses 112 and 118, or consent of instructor. Review of seven-layer ISO-OSI model. High-speed networks: LANs, MANs, ATM. Flow and congestion control; bandwidth allocation. Interneting.

219. Current Topics in Computer System Modeling Analysis (2 to 12 units). Prerequisite: consent of instructor. 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.

221. Economics of Computers. Prerequisite: consent of instructor. Basic economic factors in data processing. Buyers and sellers; products; applications; major cost factors. Selection and operation of a data processing system.

M222. Control and Coordination in Economics. (Same as Economics M222A.) Lecture, three hours. Prerequisite: graduate standing in economics or engineering or consent of instructor. Recommended: appropriate mathematics course. 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.

231A. Advanced Topics in Programming Languages. Prerequisite: course 131. Presentation, analysis, and discussion of specialized programming languages, new higher-level languages, and new and/or advanced features of programming languages.

232A. Operational Semantics of Programming Languages. Lecture, four hours; outside study, eight hours. Prerequisites: courses 131, 181, or equivalent. 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.

232B. Semantics of Programming Languages. Prerequisites: courses 131 and 181, or consent of instructor. 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.

233A. Parallel Programming. Lecture, four hours; other, 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.

233B. Verification of Concurrent Programs. Lecture, four hours; other, 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.

234A. Correctness Proofs. Prerequisite: consent of instructor. 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.

235A. Logic Programming and PROLOG. Lecture, four hours; outside study, eight hours. Prerequisite: graduate standing in computer science. 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.

239. Current Topics in Computer Science: Programming Languages and Systems (2 to 12 units). Lecture, four hours. Prerequisite: consent of instructor. 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.

240A. Databases and Knowledge Bases. 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.

241A. Object-Oriented and Semantic Database Systems. (Formerly numbered 241AL.) Lecture, three and one-half hours; recitation, 30 minutes; laboratory, one hour; outside study, eight hours. Prerequisite: course 143 or equivalent. 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.

241B. Pictorial and Multimedia Database Systems. 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.

243B. Abstract Data Types and Program Specification. Lecture, four hours; outside study, eight hours. Prerequisites: courses 32 or equivalent, 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.

244A. Distributed Database Systems. 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.

245A. Intelligent Information Systems. Lecture, four hours; outside study, eight hours. Prerequisites: courses 241A and 255A, or consent of instructor. 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.

249. Current Topics in Data Structures (2 to 12 units). Prerequisite: consent of instructor. 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.

251A. Advanced Computer Architecture. Lecture, four hours; other, eight hours. Prerequisites: courses 51A, 111, and 151B, or consent of instructor. 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.

251B. Parallel Computer Architectures. 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 data-flow computers.

252A. Arithmetic Algorithms and Processors. Lecture, four hours; outside study, eight hours. Prerequisite: course 251A or consent of instructor. 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.

253A. Design of Fault-Tolerant Systems. Lecture, four hours; outside study, eight hours. Prerequisite or corequisite: course 251A or consent of instructor. 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.

253B. Advanced Topics in Fault-Tolerant Computing. 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.

253C. Testing and Testable Design of VLSI Systems. Lecture, four hours; outside study, eight hours. Prerequisite: course 51A or consent of instructor. 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.

254A. Computer Memories and Memory Systems. Prerequisite: course 251A or consent of instructor. 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.

255A. Distributed Processing Systems. 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.

256A. Advanced Scalable Architectures: Systems, Building Blocks, and Technology. Lecture, four hours; outside study, eight hours. Prerequisite: course 251A or consent of instructor. 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.

M258A. LSI in Computer System Design. (Same as Electrical Engineering M216A.) Lecture, four hours; laboratory, four hours. Prerequisites: graduate standing in computer science or electrical engineering, consent of instructor. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on a chip.

M258B-M258C. LSI in Computer System Design. (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 grading.

258D. VLSI CAD Techniques. Prerequisite: graduate standing in computer science or electrical engineering or consent of instructor. 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.

258E. Foundations of VLSI CAD Algorithms. Lecture, four hours; other, eight hours. Prerequisites: one course in analysis and design of algorithms, consent of instructor. 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.

258F. Physical Design Automation of VLSI Systems. Lecture, four hours; other, eight hours. Prerequisite: consent of instructor. 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.

258G. Logic Synthesis of Digital Systems. Lecture, four hours; outside study, eight hours. Prerequisites: courses 51A and 180, or consent of instructor. 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).

258H. Analysis and Design of High-Speed VLSI Interconnects. Lecture, four hours; outside study, eight hours. Prerequisites: courses M258A and 258F, or consent of instructor. Detailed study of various problems in analysis and design of high-speed VLSI interconnects at both 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.

259. Current Topics in Computer Science: System Design/Architecture (2 to 12 units). Lecture, four hours. Prerequisite: consent of instructor. 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.

261A. Problem Solving and Search. Lecture, four hours; outside study, eight hours. Prerequisite: course 23 or equivalent. 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.

262A. Reasoning with Partial Beliefs. Prerequisite: course 112 or Electrical Engineering 131A or equivalent. Review of several formalisms for representing and managing uncertainty in reasoning systems; presentation of comprehensive description of Bayesian inference using belief networks representation.

262B. Knowledge-Based Systems. Prerequisite: 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.

262C. Computer Methods of Data Analysis and Model Formation. Prerequisite: course 112 or equivalent or consent of instructor. 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.

262Z. Current Topics in Cognitive Systems. Prerequisites: course 262A, consent of instructor, additional prerequisites for each offering as 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.

263A. Language and Thought. Prerequisite: consent of instructor. Recommended: 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.

263B. Language and Memory. Prerequisites: course 263A, knowledge of LISP or PROLOG. 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.

264A. Artificial Intelligence Programming I. Prerequisite: consent of instructor. Recommended: 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.

264B. Artificial Intelligence Programming II. Prerequisite: course 264A or consent of instructor. Techniques of logic programming. Artificial intelligence programming languages (e.g., PROLOG, AMORD, DUCK, CONNIVER, PLANNER, QA4, KRLL, ACTORS, etc.) and artificial intelligence features (e.g., nonmonotonic logics, data-dependencies for truth maintenance, meta-rules, semantic networks, frame-based systems).

265A. Machine Learning. Prerequisites: courses 263A, 264A, consent of instructor. 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.

267A. Neural Models. Prerequisites: graduate standing, consent of instructor. 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.

267B. Artificial Neural Systems and Connectionist Computing. Prerequisites: graduate standing, consent of instructor. 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.

268. Machine Perception. Prerequisites: graduate standing, consent of instructor. Course 168 may be taken concurrently. 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.

268CN. Computational Neuroscience. Lecture, four hours; discussion, two hours; outside study, eight hours. Prerequisite: consent of instructor. 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.

268S. Seminar: Computational Neuroscience (2 units). Prerequisite: consent of instructor. Intended 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 units). Prerequisite: consent of instructor. 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.

270A. Computer Methodology: Advanced Numerical Methods. Prerequisites: graduate standing in computer science or engineering, Electrical Engineering 103 or Mathematics 141B or comparable experience with numerical computing. 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.

271A. Modeling and Simulation of Lumped Parameter Systems. Lecture, eight hours. Recommended (but not prerequisite): course 270A or equivalent. 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 multi-processor computer systems.

271B. Modeling and Simulation of Distributed Parameter Systems. Lecture, eight hours. Recommended (but not prerequisite): course 270A or equivalent. 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.

271C. Seminar: Advanced Simulation Methods (2 units). Prerequisite: course 271A or equivalent. 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. Lecture, four hours; outside study, eight hours. Prerequisite: course 172 or consent of instructor. 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.

273A. Digital Processing of Engineering and Statistical Data. Prerequisite: course 173. Computer methods for processing engineering and statistical data. Algorithms to evaluate recursive filter functions, Fourier series, power spectral, analysis correlation computations, and statistical testing.

276A. Pattern Analysis and Machine Intelligence. Prerequisites: graduate standing, consent of instructor. Fundamentals of pattern recognition, feature extraction and selection, autonomous learning, clustering, and machine intelligence.

276B. Structured Computer Vision. Prerequisites: graduate standing, consent of instructor. Methods for computer processing of image data. Systems, concepts, and algorithms for image analysis, radiologic and robotic applications.

276C. Speech and Language Communication in Artificial Intelligence. Prerequisite: course 276A or 276B or consent of instructor. 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.

279. Current Topics in Computer Science: Methodology (2 to 12 units). Lecture, four hours. Prerequisite: consent of instructor. 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.

280A-280ZZ. Algorithms. Lecture, four hours; outside study, eight hours. Prerequisites: course 180 or equivalent, consent of instructor, additional prerequisites for each offering as 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.

281A. Computability and Complexity. Prerequisite: 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/NPTIME.

281D. Discrete State Systems. Prerequisite: consent of instructor. Recommended: 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.

284A-284ZZ. Topics in Automata and Languages. Prerequisites: course 181, additional prerequisites for each offering as 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.

287A. Theory of Program Structure. Prerequisite: 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.

288S. Seminar: Theoretical Computer Science (2 units). Prerequisites: courses 280A, 281A, consent of instructor. 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 units each). Prerequisite: consent of instructor. 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.

M296A. Modeling Methodology for Biomedical Systems. (Same as Medicine M270C.) Lecture, four hours; outside study, eight hours. Recommended (but not prerequisite): course M196B, some intermediate knowledge of linear systems analysis or linear algebra (e.g., Mathematics 115A, Electrical Engineering 141, 142, Mechanical, Aerospace, and Nuclear Engineering 171A, 171C, or equivalent). Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems, including dynamic system experiment/model development, multicompartamental, non-compartamental, 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.

M296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (Same as Biomathematics M270 and Medicine M270D.) Lecture, four hours; outside study, eight hours. Prerequisite: course M296A or consent of instructor. 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.

M296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (Same as Medicine M270E.) Lecture, four hours; outside study, eight hours. Prerequisite: course M296A or consent of instructor. 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.

C296L. Biomedical Systems/BioCybernetics Research Laboratory. Lecture, one hour; laboratory, three hours; outside study, eight hours. Prerequisite: course M196B or consent of instructor. 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 C196L.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: graduate standing in Computer Science Department. 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. Prerequisite: consent of instructor. 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 grading.

596. Directed Individual or Tutorial Studies (2 to 8 units). Prerequisites: graduate standing in computer science, consent of instructor. 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). Prerequisites: graduate standing in computer science, consent of instructor. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations (2 to 16 units). Prerequisites: graduate standing in computer science, consent of instructor. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). Prerequisites: graduate standing in computer science, consent of instructor. 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). Prerequisites: graduate standing in computer science, consent of instructor. 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). Prerequisites: graduate standing in computer science, consent of instructor. 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*

UCLA
4532H Boelter Hall
Box 951596
Los Angeles, CA 90095-1596
(310) 825-7482

Professors

Joseph J. DiStefano III, Ph.D. (*Computer Science, Medicine*), *Chair*
Michael G. Dyer, Ph.D. (*Computer Science*)
Jack L. Feldman, Ph.D. (*Physiological Science*)
C.R. Gallistel, Ph.D. (*Psychology*)
Jack W. Carlyle, Ph.D., *Emeritus* (*Computer Science*)
John Hanley, M.D., *Emeritus* (*Psychiatry and Biobehavioral Sciences*)

Associate Professors

Elliot M. Landaw, M.D., Ph.D. (*Biomathematics*)
Josef Skrzypek, Ph.D. (*Computer Science*)
Richard K. Vance, Ph.D. (*Biology*)

Assistant Professor

Valeriy I. Nenov, Ph.D. (*Neurosurgery*)

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 sci-

ences — 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 preparation 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.

Bachelor of Science Degree

Precybernetics Major

You may apply for the precybernetics major via petition if you are a sophomore and have taken at least three of the premajor mathematics courses with a 2.7 GPA 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 74 units, including Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A; Life Sciences 1, 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C; 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 GPA in mathematics, 3.0 GPA overall, and a minimum grade of C in all 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 — 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 M152A and 152B, or (b) Mathematics M150A

and Statistics 152B, or (c) Electrical Engineering 131A and Statistics 152B.

(3) Two courses in signals and control systems (one from each group): (a) Electrical Engineering 102 and (b) Electrical Engineering 141 or Mechanical, Aerospace, and Nuclear Engineering 171A.

(4) One course in modeling and computer simulation: Computer Science M196B.

Applications/Specialization Areas — 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 psychology and linguistics. And courses in the engineering and applied mathematics area are in engineering, computer science, and mathematics.

Cybernetics Breadth Requirement — One course from each of the applications/specialization areas selected from the current approved list.

Specialization in Computing

You 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. You graduate with a bachelor's degree in cybernetics and a specialization in computing.

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.

Upper Division Course

195H. Honors Thesis. 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

The UCLA School of Dentistry offers one lower division and two upper division courses for pre dental students. 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 reseach at (310) 825-6401 to obtain the names and areas of interest of participating School of Dentistry faculty.

Lower Division Course

88. Lower Division Seminar: Special Topics in Dentistry. 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 units). Prerequisite: consent of department. 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 units). Prerequisite: consent of department. 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.

DESIGN

School of the Arts and Architecture

UCLA
1200 Dickson Art Center
Box 951456
Los Angeles, CA 90095-1456
(310) 825-9007

Professors

James W. Bassler, M.A.
Charles M. Eastman, M.Arch.
Lionel March, Sc.D.
Vasa Mihich
George Stiny, Ph.D.

Professors Emeriti

Laura F. Andreson, M.A.
William C. Brown, M.A.
Jack B. Carter, M.A.
Thomas Jennings, M.A.
J. Bernard Kester, M.A.
John A. Neuhart
Nathan Shapira, Dottore in Architettura

Associate Professor

Mitsuru Kataoka, M.A.

Assistant Professors

Terry Knight, Ph.D.
Alice E. McCloskey, M.A., *Emerita*
Madeleine Sunkees, B.Ed., *Emerita*

Scope and Objectives

The Department of Design offers students the opportunity to study in the areas of visual communication design, theory, and design computation. The program balances aesthetic sensitivities with logical reasoning, formal theorizing with practical application, and contemporary thought with historical hindsight.

The department offers a foundation of core courses, including color theory, form, drawing, visual technologies, and history. It then provides introductions to the history and study of design, the relationship of design to computation, directions in visual communication design, formal mathematical methods in design, and societal issues. At the upper division level these themes are developed in courses covering subjects from multimedia to computer-aided design, from formal theories to shape grammars.

Design students are encouraged to work in experimental modes where materials and processes give new information and allow familiar visual and spatial relationships to be seen in new and diverse ways. Through a balance of courses in theory, criticism, and practice, students develop methods and new forms, both functional and expressive.

The Department of Design curricula lead to the Bachelor of Arts, Master of Arts, and Master of Fine Arts degrees. All programs benefit from the rich and varied art resources at UCLA and in the Los Angeles community.

Bachelor of Arts Degree

Preparation for the Major

Required: Design 21, 22, 23, 24, and one course from Design 10, Art 31, or Art History 50 through 57.

The Major

Required: Fourteen upper division courses, selected in consultation with your adviser, including a minimum of three courses from comparative and theoretical studies (Design 101

through 105) and eight courses from the following area studies in design: (1) theories of design (courses C111 through C123), (2) design and computation (courses C131 through C143), (3) visual communication design (courses 154 through 159). No more than four courses may be selected from items 1 and 2. Three additional upper division courses must be selected from the area studies in design listed above and/or from major electives (courses 106 and 165C through 199). In consultation with and with approval of your faculty adviser, other nonmajor courses may be taken.

It is recommended that you 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 program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of Design offers a Master of Arts degree and a Master of Fine Arts degree.

Master of Arts

Admission

Applicants for admission to the Master of Arts 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. 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 Master of Fine Arts program in Design are expected to hold a bachelor's degree from an accredited institution. The bachelor's degree need not be in art or design. A minimum grade-point average of 3.0 overall in undergraduate upper division work is required. An acceptable portfolio is required, in the form of slides (maximum 20) or videotape or floppy disk. A statement of purpose is also considered. 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

Visual communication design.

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 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.

Lower Division Courses

10. Nature of Design. (Formerly numbered 30A.) Lecture, three hours; discussion, one hour. 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.

21. Color. Studio, six hours; outside study, 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. Studio, six hours; outside study, 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. Studio, six hours; outside study, 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. Studio, six hours; outside study, six hours. Introduction to computer and digital representations and their generation and manipulation. P/NP or letter grading.

32B. Visual Presentation. Studio, six hours. Translation of idea through delineation, drawing, and other descriptive media.

32C. Drawing Methodologies. Studio, eight hours. Fundamentals of graphic representation, including orthographic and isometric projection methods, mechanical drawing and drafting, layout techniques, and introductory computer-aided drafting.

35A. Introduction to Photography. Lecture, two hours; studio, four hours. Introduction to camera operation, photo processing, laboratory and lighting procedures.

35B. Introduction to Tools and Processes. 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. Lecture, three hours; outside study, nine hours. Prerequisite: completion of preparation for the major courses. Limited to juniors/seniors. 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. Lecture, three hours; outside study, nine hours. Prerequisite: completion of preparation for the major courses. Limited to juniors/seniors. 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. Lecture, three hours; outside study, nine hours. Prerequisite: completion of preparation for the major courses. Limited to 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. P/NP or letter grading.

104. Design and Society: Society and Design. Lecture, three hours; outside study, nine hours. Prerequisite: completion of preparation for the major courses. Limited to juniors/seniors. 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.

105. Formal Methods in Design. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: completion of preparation for the major courses. Limited to juniors/seniors. Investigation and elaboration of mathematical ideas and techniques important as background to formal computational work in design. Topics include sets, relations, and functions; symmetry transformations and their groups; Boolean algebras; graph theory; automata theory and grammars. P/NP or letter grading.

106. Modern Design History. (Formerly numbered 161E.) Lecture, three hours. Limited to juniors/seniors. Open to nonmajors. Historical survey of development of Western industrial culture. Studies of major factors influencing transition from industrial societies to postindustrial information societies.

C111. Formal Theory of Composition: Formal Grammars. Lecture, three hours; outside study, nine hours. Prerequisites: completion of preparation for the major courses, course 102 or 104 or 105 or consent of instructor. Examination of design as a formal enterprise in which rules are adopted and then followed to compose, describe, and evaluate designs. Development in detail of historical, contemporary, and new examples in architecture, painting, sculpture, and other fine and applied arts. Concurrently scheduled with course CM211. P/NP or letter grading.

C112. Formal Theory of Composition: Color Grammars. Lecture, three hours; outside study, nine hours. Prerequisites: completion of preparation for the major courses, course C111 or consent of instructor. Examination of design as a formal enterprise in which rules are adopted and then followed to compose, describe, and evaluate design. Development in detail of historical, contemporary, and new examples in architecture, painting, sculpture, and other fine and applied arts. Concurrently scheduled with course CM212. P/NP or letter grading.

C113. Projects in Composition. Lecture, three hours; outside study, nine hours. Prerequisites: completion of preparation for the major courses, courses C111 and C112, or consent of instructor. Project class in which students pursue individual or group work using formal grammars, including design projects, analytical projects, or research papers. Concurrently scheduled with course CM213. P/NP or letter grading.

C121. Fundamentals of Architectonics: Proportion. Lecture, three hours; outside study, nine hours. Prerequisite: 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. Lecture, three hours; outside study, nine hours. Prerequisite: 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: Compartment and Order. Lecture, three hours; outside study, nine hours. Prerequisite: 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.

C131. Computational Foundations of Design: Algebra. Lecture, three hours; outside study, nine hours. Prerequisite: course 102, 104, or 105, or consent of instructor. Introduction to algebras of shapes and their applications in design practice and computer-aided design. Concurrently scheduled with course CM231. P/NP or letter grading.

C132. Computational Foundations of Design: Grammars. Lecture, three hours; outside study, nine hours. Prerequisite: course C131 or consent of instructor. Computation in algebras: shape grammars and their formal properties. Concurrently scheduled with course CM232. P/NP or letter grading.

C133. Computational Foundations of Design: Applications. Lecture, three hours; outside study, nine hours. Prerequisites: courses C131 and C132, or consent of instructor. Applications of shape grammars in architecture and design. Concurrently scheduled with course CM233. P/NP or letter grading.

C141. Programming Computer Applications in Architecture and Urban Design. 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. Lecture, three hours; outside study, nine hours. Prerequisite: 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. Lecture, three hours; outside study, nine hours. Prerequisite: 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.

154. Design for Print Media. Studio, six hours; outside study, six hours. Prerequisites: completion of preparation for the major courses, course 103. 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 Electronic Media. Studio, six hours; outside study, six hours. Prerequisites: completion of preparation for the major courses, course 103, 154. Integration of print and information technology, including video, animation, and multimedia design. Continued emphasis on fully integrating visual vocabulary with mastery of conceptual and creative procedures utilizing various information technologies. P/NP or letter grading.

156. Design for Electronic Media. Studio, six hours; outside study, six hours. Prerequisites: completion of preparation for the major courses, courses 103, 154. Introduction to motion graphics and information design for animated electronic media, including video, CD-ROM, and computer applications. Focus on role of designer as visual communicator and design manager/collaborator, with a range of "time and motion" alternatives. P/NP or letter grading.

157. Design for Interactive Media. Studio, six hours; outside study, six hours. Prerequisites: completion of preparation for the major courses, courses 103, 154, 156. Emphasis on graphic and information design for interactive multimedia applications. Introduction to multimedia and hypertext. Focus on learning role of conceptual designer as visual communicator and design manager who interfaces with appropriate production specialists and media application experts. P/NP or letter grading.

158. Design for Environmental Communication. Studio, six hours; outside study, six hours. Prerequisites: completion of preparation for the major courses, courses 103, 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 in Communication Design. Lecture, two hours; discussion, two hours; laboratory, two hours; outside study, six hours. Prerequisites: completion of preparation for the major courses, courses 103, 154, one course from 155 through 158, senior standing. Individual studies organized and conceptualized by senior students. Proposal for research and development of design and production of a body of work within parameters of visual communication design major. May be repeated once for credit.

165C. Communication Design: Video Image. Studio, six hours. Use of video technology (video systems, cameras, displays, editing, storage, and reproduction devices) to integrate image, sound, time, and motion. Emphasis on expression, continuity, and sequential patterns for video communication.

182. Design Processes: World Cultures. Studio, six hours; outside study, 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. Studio, six hours; outside study, 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 Embellishment. Studio, six hours; outside study, 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. Lecture/discussion, three hours; laboratory, to be arranged. Prerequisite: consent of adviser and instructor. 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—Senior Studies. Proseminar, three hours. Prerequisite: consent of adviser. Open to senior and advanced students through design faculty advisers. Examination by faculty members of specific problems relevant to design theory and performance. Topics announced in advance. May be repeated twice.

197. Honors Course. Hours to be arranged. Prerequisites: 3.0 GPA overall, 3.5 GPA in major, consent of instructor, junior or senior standing. Individual studies for majors. May be repeated once for credit.

199. Special Studies in Design (2 to 8 units). Hours to be arranged. Prerequisites: 3.0 GPA in major, consent of instructor, senior standing. Individual studies for majors. May be taken for a maximum of eight units.

Graduate Courses

Prerequisite for all courses: consent of instructor. All courses may be repeated for credit (unless otherwise noted) on recommendation of the adviser; they are not open to undergraduate students.

CM211. Formal Theory of Composition: Formal Grammars. (Same as Architecture and Urban Design M224A.) Lecture, three hours; outside study, nine hours. Examination of design as a formal enterprise in which rules are adopted and then followed to compose, describe, and evaluate designs. Development in detail of historical, contemporary, and new examples in architecture, painting, sculpture, and other fine and applied arts. Concurrently scheduled with course C111. S/U or letter grading.

CM212. Formal Theory of Composition: Color Grammars. (Same as Architecture and Urban Design M224B.) Lecture, three hours; outside study, nine hours. Prerequisite: course CM211. Examination of design as a formal enterprise in which rules are adopted and then followed to compose, describe, and evaluate design. Development in detail of historical, contemporary, and new examples in architecture, painting, sculpture, and other fine and applied arts. Concurrently scheduled with course C112. S/U or letter grading.

CM213. Projects in Composition. (Same as Architecture and Urban Design M224C.) Lecture, three hours; outside study, nine hours. Prerequisites: courses CM211, CM212. Project class in which students pursue individual or group work using formal grammars, including design projects, analytical projects, or research papers. Concurrently scheduled with course C113. S/U or letter grading.

CM221. Fundamentals of Architectonics: Proportion. (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. Concurrently scheduled with course C121. S/U or letter grading.

CM222. Fundamentals of Architectonics: Symmetry. (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. Concurrently scheduled with course C122. S/U or letter grading.

CM223. Fundamentals of Architectonics: Composition and Order. (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. Concurrently scheduled with course C123. S/U or letter grading.

CM231. Computational Foundations of Design: Algebra. (Same as Architecture and Urban Design M228A.) Lecture, three hours; outside study, nine hours. Prerequisite: consent of instructor. Introduction to algebras of shapes and their applications in design practice and computer-aided design. Concurrently scheduled with course C131. S/U or letter grading.

CM232. Computational Foundations of Design: Grammars. (Same as Architecture and Urban Design M228B.) Lecture, three hours; outside study, nine hours. Prerequisite: consent of instructor. Computation in algebras: shape grammars and their formal properties. Concurrently scheduled with course C132. S/U or letter grading.

CM233. Computational Foundations of Design: Applications. (Same as Architecture and Urban Design M228C.) Lecture, three hours; outside study, nine hours. Prerequisite: consent of instructor. Applications of shape grammars in architecture and design. Concurrently scheduled with course C133. S/U or letter grading.

CM241. Programming Computer Applications in Architecture and Urban Design. (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. Concurrently scheduled with course C141. S/U or letter grading.

CM242. Introduction to Geometric Modeling. (Same as Architecture and Urban Design M227B.) Lecture, three hours; outside study, nine hours. Prerequisite: 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. Concurrently scheduled with course C142. S/U or letter grading.

CM243. User Interaction Techniques in Design. (Same as Architecture and Urban Design M227C.) Lecture, three hours; outside study, nine hours. Prerequisite: 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. Concurrently scheduled with course C143. S/U or letter grading.

280. Communication Design: Graphics/Video/Computer (2 to 8 units). Studio, two to four hours. Advanced exploration of graphic and electronic imaging processes. Emphasis on research and individual creative manipulation of graphic media and electronic technologies. Development of original concepts and expressive applications.

284. Ceramics (2 to 8 units). Studio or studio/seminar, to be arranged. Prerequisite: consent of instructor. Advanced creative research utilizing ceramic media. Emphasis on development of original, expressive, individually produced ceramic art.

287. Form and Structure (2 to 8 units). Studio or studio/seminar, to be arranged. Prerequisite: consent of instructor. Exploration of form, with emphasis on expressive experimentation in materials and processes.

288. Fiber Structures (2 to 8 units). Laboratory, two to four hours. Advanced formative work in traditional and experimental processes of fabric construction utilizing fiber media.

290. Design Seminar: Collaborative View. Seminar, three hours. Critical and theoretical examination of concepts underlying the creative process, including initiation of an idea, its development, and its social and historical context.

292. Shelter (2 to 8 units). Development of individual projects to investigate concepts of shelter. Exploration of traditional and contemporary forms, methods, and materials.

293. Interior Space Design (2 to 8 units). Concept and practice of designing interior spaces. Evaluation of visual and functional needs for interior spaces (ranging from personal to social spaces) in two- and three-dimensional projects involving color, light, surface, materials, equipment, furniture, etc.

294. Industrial Design (2 to 8 units). Laboratory, two to four hours. In-depth studies in topics such as design and management, person/object compatibility, visual identity programs, containing systems, transportation, design for developing countries, ergonomics, urban components, area studies, materials, and processes.

295. Exhibition Design (2 to 8 units). Laboratory, two to four hours. Interpretation and presentation of materials for exhibition. Students may elect to work with instructor and gallery staff on regularly scheduled productions or they may outline their own project and proceed by producing studies, renderings, or schematics or by fabricating models.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: consent of instructor.

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.

DEVELOPMENT STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
11276 Bunche Hall
Box 951487
Los Angeles, CA 90095-1487
(310) 825-2927

Professors

Edward A. Alpers, Ph.D. (*History*)
Charles F. Bennett, Ph.D. (*Geography*)
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*)
Jeffrey A. Frieden, Ph.D. (*Political Science*)
Peter B. Hammond, Ph.D. (*Anthropology*)
John N. Hawkins, Ph.D. (*Education*)
Philip C. Huang, Ph.D. (*History*)
Dean T. Jamison, Ph.D. (*Education*)
Nikki Keddie, Ph.D. (*History*)
Edmond Keller, Ph.D. (*Political Science*)
Deepak K. Lal, D.Phil. (*Economics*), *Cochair*
Michael F. Lofchie, Ph.D. (*Political Science*)
Afaf Marsot, D.Phil. (*History*)
Antony R. Orme, Ph.D. (*Geography*)
David C. Rapoport, Ph.D. (*Political Science*)
Damodar R. SarDesai, Ph.D. (*History*)
Susan C. Scrimshaw, Ph.D. (*Anthropology, Community Health Sciences*)
Richard L. Sklar, Ph.D. (*Political Science*)
Michael Stopper, Ph.D. (*Urban Planning*)
Carlos A. Torres, Ph.D. (*Education*)
Hartmut Walter, Ph.D. (*Geography*)
James W. Wilkie, Ph.D. (*History*)
Maurice Zeitlin, Ph.D. (*Sociology*)
E. Bradford Burns, Ph.D., *Emeritus (History)*
Robert N. Burr, Ph.D., *Emeritus (History)*
John Friedmann, Ph.D., *Emeritus (Urban Planning)*
Merrick Posnansky, Ph.D., *Emeritus (Anthropology, History)*
Georges Sabagh, Ph.D., *Emeritus (Sociology)*
Nathan Shapira, Dottore in Architettura, *Emeritus (Design)*

Associate Professors

Robert C. Bailey, Ph.D. (*Anthropology*)
Judith A. Carney, Ph.D. (*Geography*)
Barbara Geddes, Ph.D. (*Political Science*)
Gerry A. Hale, Ph.D. (*Geography*)
Susanna B. Hecht, Ph.D. (*Urban Planning*)
Nancy E. Levine, Ph.D. (*Anthropology*)
David E. López, Ph.D. (*Sociology*)
Michael G. Morony, Ph.D. (*History*)
Nadine R. Peacock, Ph.D. (*Anthropology*)
Edward E. Telles, Ph.D. (*Sociology*)
James Tong, Ph.D. (*Political Science*)
William H. Worger, Ph.D. (*History*)
Mary A. Yeager, Ph.D. (*History*)

Assistant Professors

Richard Anderson, Ph.D. (*Political Science*)
Rebecca Emigh, Ph.D. (*Sociology*)
Vinay Lal, Ph.D. (*History*)
José Moya, Ph.D. (*History*)
Joshua S.S. Muldavin, Ph.D. (*Geography*), *Cochair*
Anna Simons, Ph.D. (*Anthropology*)

Lecturer

Linda Rodriguez, Ph.D. (*History*)

Scope and Objectives

This undergraduate major aims to provide a liberal education in relation to the critical issues 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 or in public or private agencies.

Bachelor of Arts Degree

Preparation for the Major

You must be a sophomore in good standing to enter the major. No specific courses are required as preparation for the major, but you should have some beginning experience in the social sciences at the college level.

The Major

Required: Fifty-six units of upper division courses (including the four core courses, Development Studies 100A-M100B, and Economics 110 or 111), taken for a letter grade, and the foreign language requirement. (For the quantitative methods 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) Development Studies 100A-M100B.
- (2) Economics 110* or 111*.
- (3) Four core courses (two should be from the same discipline) from Anthropology 130*, 150*, Economics 112*, 191*, Geography 121, 133, Political Science 115, 167A*, 168*, Sociology 101, 184.
- (4) One course in quantitative methods from Anthropology 180*, 186, Biostatistics 100A, Economics 40, Geography 171*, Political Science 6, Sociology 18, 104, 112*, 113*, Statistics 50.
- (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., Africa, Central and Eastern Europe/Central Asia, East Asia, Latin America, the Near East, South and Southeast Asia), selected from Anthropology 151*, 152, 153, M154, 161*, 165*, 167, 171, 173Q, 174P, 175R, 175T, 177, 180*, 186, Community Health Sciences 132, Economics 103A through 103Z*, 120*, 130*, 150*, 151*, 171*, 180*, 191*, 192*, Education M108*, C203*, 204B, 204C, 204D, 204F, 228*, 234, 238, 252B*, 253B,

253C, Geography 122*, 124*, M128*, 135, 142, 148*, 151*, 181, 182A, 182B, 186, 187, 188, 189, History 106A, 106B, 106C, 107A, 107B, 109A, 109B, 110A, 110B, 111A, 111B, 112A through C112D, 113, 134A, 134B, 165A, 165C, 166, 167A through 167D, 168, 169*, 170A, 171, 173, 174, M175A through 175Z*, 176A, 176B, 176C, 177, 178A, 178B, 179A, 179B, 182A*, 182B*, 183A*, 183B*, 184*, 188A, 188B, 188C, 190A, 190B, 197E, Latin American Studies 197, 199*, Political Science 124*, 130, 131*, 156A, 156B, 157, 159, 163A, 163B, 164, 166A through 166D, 167A*, 168*, C197A through C197D*, Sociology 105*, 116, 156, 157, 160, 186, 187, 188, 190, Urban Planning 232A, 232B, 235A*, 235B*, 236A, 246, 266, 267A*, 267B*, 269. 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. You 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

Development studies majors who have completed 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, you must take courses 195A-195B-195C, in which you research, write, and present an honors thesis. To receive honors at graduation, you 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.

Upper Division Courses

100A-M100B. Introduction to Development Studies. 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. (Formerly numbered M100A.) Prerequisites: Anthropology 9 or consent of instructor, some beginning experience in social sciences at college level. **M100B.** Political Economy of Development. (Same as Political Science M197G.) Prerequisite: some beginning experience in social sciences at college level.

195A-195B-195C. Directed Studies for Honors. Prerequisites: courses 100A-M100B, 3.5 GPA in courses offered for the major, formal application to honors program, consent of instructor. **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).

DIVERSIFIED LIBERAL ARTS

*Interdepartmental Program
College of Letters and Science*

UCLA
A316 Murphy Hall
Box 951430
Los Angeles, CA 90095-1430
(310) 206-6661, 825-9315

Undergraduate Certificate Program

The Diversified Liberal Arts Program (DLAP) is not a major, but a special certificate program through which you may waive the Multisubject 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, you must complete an accredited program offered through a graduate school of education.

To earn the certificate in diversified liberal arts, you must complete a major in the College of Letters and Science. You must also complete DLAP requirements in four areas: (1) language and literature, (2) mathematics and science, (3) history and social science, (4) arts and culture.

Requirements for one of these areas are normally satisfied by courses taken for your major; in addition, you must complete a pattern of courses in specified areas.

You 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.

If you do not complete the program prior to graduation, you 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 counselor in the College of Letters and Science, A316 Murphy Hall (310-206-6681). 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

UCLA
3806 Geology
Box 951567
Los Angeles, CA 90095-1567
(310) 825-3880

Professors

Orson L. Anderson, Ph.D. (*Geophysics*)
Peter Bird, Ph.D. (*Geophysics, Geology*)
Friedrich H. Busse, Ph.D. (*Geophysical Fluid Dynamics*)
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*)
Robert L. McPherron, 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*)
John T. Wasson, Ph.D. (*Geochemistry, Chemistry*)

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

Jon P. Davidson, Ph.D. (*Geology, Geochemistry*)
Charles R. Marshall, Ph.D. (*Paleontology*)
David A. Paige, Ph.D. (*Planetary Science*)
Walter E. Reed, Ph.D. (*Geology*)
An Yin, Ph.D. (*Geology*)

Assistant Professors

Craig E. Manning, Ph.D. (*Geochemistry, Geology*)
Mary R. Reid, Ph.D. (*Geology, Geochemistry*)
Paul J. Tackley, Ph.D. (*Planetary Science*)

Adjunct and Visiting Professors

Donald Hallinger, M.S., *Visiting (Geology)*
Paul M. Menfield, Ph.D., *Adjunct (Environmental Geology)*
Floyd F. Sabins, Jr., Ph.D., *Adjunct (Geology)*

Adjunct Associate Professor

Frank Kyte, Ph.D. (*Geochemistry*)

Adjunct Assistant Professor

Steven Salyards, Ph.D. (*Seismology*)

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 specializations 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.

Bachelor of Science in Geology

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 2, 51A, 51B, 61; Biology 2; Chemistry and Biochemistry 11A, 11B/11BL; Mathematics 31A, 31B, 32A; Physics 8A/8AL, 8B/8BL, and 8C/8CL or 6B; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. All courses must be passed with a minimum grade of C - .

The Major

Required: Earth and Space Sciences 103A, 103B, 103C, 111, 112, 116, 121A-121B, 135, and three additional courses from C107, C109, 119, 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.

Bachelor of Science in Geology — Engineering Geology

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 11A, 11B/11BL; Mathematics 31A, 31B, 32A, 33A; Physics 8A/8AL, 8B/8BL, 8C/8CL; 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 - .

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 C126, 129, 134, 136C, 137, 141, 150, Geography 100, Civil and Environmental Engineering 151, 155.

Bachelor of Science in Geology — Paleobiology

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 2, 51A, 51B, 61; Biology 5L; Chemistry and Biochemistry 11A, 11B/11BL, 11CL; Life Sciences 1, and 3 or 4. All courses must be passed with a minimum grade of C - .

The Major

Required: Earth and Space Sciences 103B, 111, 112, 116; Chemistry and Biochemistry 132A, 132B/132BL, 153A, 153L; six courses from Chemistry and Biochemistry 153B, 154, Biostatistics 110A, 110B, Biology 101A, 101B, 102, 105, 110, 111, 117, 120, 122, 123, 147, 148, Earth and Space Sciences 119, 121A-121B, 133, 141.

Bachelor of Science in Geophysics — Applied Geophysics

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 51A, 51B, 61; Chemistry and Biochemistry 11A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. All courses must be passed with a minimum grade of C - .

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, Mathematics 140A, 140B, 140C, Physics 112, 115A, 116, 131, 132, Statistics M152A, 152B, or other courses with consent of adviser.

Bachelor of Science in Geophysics — Geophysics and Space Physics

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 9; Chemistry and Biochemistry 11A, 11B/11BL, 11C; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL; Program in Computing 3 (recommended) or 10A or more advanced placement by examination. All courses must be passed with a minimum grade of C - .

The Major

Required: Earth and Space Sciences 134, M140, 152, 153, 154, 155; Physics 105A, 105B, 110A, 110B, 112; Physics 131 or Mathematics 145; 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 249.

Bachelor of Arts in Earth Sciences

Preparation for the Major

Required: Earth and Space Sciences 1 or 1H, 2, 9, 15, 51A, 51B, 61; Biology 2 or Life Sciences 1; Chemistry and Biochemistry 11A, 11B/11BL; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 6A, 6B, and 6C, or 8A/8AL and 8B/8BL. All courses must be passed with a minimum grade of C - .

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 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 GPA of 3.5, who have completed at least 90 graded units at the University of California, and who 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

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. 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 Geochem-

istry. 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, 234B, 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 this 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 student's research director (who usually is the chair of the advising committee), as well as by the other members of the student's 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. 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 which are 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, 234B, 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. This 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, must entail three dissimilar projects, and 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 this 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. 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 260). Except for courses 597 and 598, courses 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. 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 which are 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. This 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, the student 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, the student must provide each member of the doctoral committee with a written prospectus of the 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.

Geophysics And Space Physics

Master's Degree

Admission

A bachelor's degree in a physical science, engineering, mathematics, or other field is required. 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 the Applied Geophysics specialty, including 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 203, 204, 205, 222. Eight additional units of graduate-level courses are required; courses recommended are Earth and Space Sciences 200B, 208, M224A, M224B. 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 the student, 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. 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.

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 fundamental physics courses and three courses 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.

Fundamental Physics Examinations. Courses satisfying the fundamental physics requirement may be chosen from the following: Earth and Space Sciences 201, 202, 203, Physics 210A, 210B, 215A, 220, 222A, 231A, Chemistry and Biochemistry C223A. Exceptions are that students may not get 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 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. These 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.

Lower Division Courses

1. Introduction to Earth Science. 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. 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. Lecture, three hours; laboratory, three hours; fieldwork. Enforced prerequisite: 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. Earth Science and Society: Geological Ecological Interactions. Lecture, three hours; discussion, two hours; field trips. Geologic aspects of major environmental problems, with emphasis on lithosphere/biosphere interactions. Problems of exploration and exploitation of fossil fuel resources. Comparison of society-produced materials and natural cycles.

8. Earthquakes. 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. 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. Lecture, three hours; discussion, one hour. Not open for credit to students with credit for Biology 25. Processes responsible for chemical composition of ocean and current circulation patterns. Seafloor spreading and morphology of ocean floor. Biological productivity, marine ecology, and minerals forming in the ocean.

16. Major Events in History of Life. 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. 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. 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. 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. 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. Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Enforced prerequisites: courses (1 or 1H) and 2. 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.

Upper Division Courses

100. Principles of Earth Science. 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.

103A. Igneous Petrology (6 units). Lecture, two to three hours; laboratory, six hours; field trips. Prerequisites: courses 51A, 51B, Chemistry 11B, Mathematics 31B, Physics 8B. Recommended: Mathematics 32A. 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 units). Lecture, two to three hours; laboratory, six hours; field trips. Prerequisite: 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 units). Lecture, two to three hours; laboratory, six hours; field trips. Prerequisite: 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. Lecture, three hours; outside study, nine hours. Prerequisite: course 51B or equivalent. 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. (Formerly numbered 131.) Lecture, three hours; discussion, one hour. Prerequisite: junior, senior, or graduate standing in physical sciences or consent of instructor. 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. (Formerly numbered C130.) Lecture, three hours; discussion, one hour. Prerequisite: junior, senior, or graduate standing in physical or biological sciences or consent of instructor. 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 units). Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Prerequisite: course 61 or consent of instructor. Principles of stratigraphy; geologic mapping of a selected area; preparation of a geologic report.

111G. Field Geology (2 to 4 units). Prerequisite: graduate standing or consent of instructor. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation.

112. Structural Geology (6 units). Lecture, three hours; laboratory, six hours. Prerequisite: course 1 or consent of instructor. 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. Lecture, three hours; laboratory, three hours; field trips. Prerequisite: Biology 5 or consent of instructor. Review of major groups of fossil organisms and their significance in geology and biology.

119. Continental Drift and Plate Tectonics. Lecture, three hours. Prerequisites: upper division standing and one introductory geology course (course 1, 1H, 100, or equivalent), or consent of instructor. 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. Lecture, three hours. Prerequisite: upper division standing. 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 units each). Fieldwork, four weeks each. Prerequisites: 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.

C126. Advanced Igneous Petrology. (Formerly numbered C132.) Lecture, three hours; laboratory, three hours; field trips. Prerequisite: course 103A or consent of instructor. 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. (Formerly numbered 129A-129B.) Lecture, three hours. Prerequisites: course 1 or 1H or 100 or equivalent, upper division standing. 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.

133. Regional Geology. Lecture, three hours; discussion, two hours. Prerequisites: courses 61 and 111, or consent of instructor. Application of geologic, stratigraphic, paleontologic, biologic, and climatic principles to a specific province or provinces. Emphasis on tectonic evolution of selected regions.

134. Computing in Earth and Space Sciences. Lecture, three hours; laboratory, three hours. Prerequisite: Program in Computing 3 or 10A or consent of instructor. Original programming and application of software to generate and test hypotheses with non-ideal 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. Lecture, three hours; laboratory, one hour. Prerequisites: Physics 8A, 8B, 8C or 6B, Mathematics 31A, 31B, 32A, and Program in Computing 3 or 10A, or consent of instructor. 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.

136A. Applied Geophysics. Lecture, three hours; laboratory/field trips, three hours. Prerequisites: Physics 8A, 8B, 8C, 8D, Mathematics 33A, 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.

136B. Applied Geophysics. Lecture, three hours; laboratory/field trips, six hours. Prerequisites: course 136A and Program in Computing 3 or 10A, or consent of instructor. 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 units). Lecture, three hours; discussion, one hour; laboratory, two hours; fieldwork, 10 hours. Prerequisites: course 135 or 136A, consent of instructor. 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).

136D. Advanced Field Geophysics (6 units). Lecture, six hours; laboratory, six hours; fieldwork, 12 hours. Prerequisites: course 135 or 136A, consent of instructor. Application of seismic reflection, seismic refraction, gravity, magnetic, electrical, and electromagnetic methods to geologic problems. Planning, data collection, data reduction, and interpretation. Use of computer in applied geophysics.

137. Petroleum Geology. Lecture, three hours. Prerequisites: courses 61 and 111, or consent of instructor. 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. Lecture, two and one-half hours. Prerequisite: 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. (Same as Atmospheric Sciences CM140.) 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.

141. Basin Analysis. Lecture, three hours; laboratory, six hours. Prerequisites: 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. Lecture, three hours. Open to upper division 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. Lecture, three hours; discussion, one hour. Prerequisites: Physics 8A, 8B, 8C, Mathematics 31A, 31B, and 32A, or consent of instructor. 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.

153. Oceans and Atmospheres. Lecture, three hours; discussion, one hour. Prerequisites: Physics 8A, 8B, 8C, Mathematics 31A, 31B, and 32A, or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite or corequisite: 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. Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 31A, 31B, 32A, Physics 8A, 8B, and 8C, or consent of instructor. 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.

195G. Field Geology for Graduate Students (2 to 4 units). Lecture, two hours; four to five field trips. Prerequisite: course 121B or equivalent or consent of instructor. 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 units). May be repeated for credit.

199H. Honors Research in Earth and Space Sciences. Prerequisites: senior standing, consent of departmental honors committee. 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. Lecture, three hours. Prerequisites: Physics 105A, 110A, 112, and 131, or consent of instructor. 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. Lecture, three hours. Prerequisites: Physics 105A, 110A, 112, and 131, or consent of instructor. 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. Lecture, three hours. Prerequisites: Physics 105A, 110B, 112, and 131, or consent of instructor. 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. 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. Lecture, three hours. Kinematics and dynamics of continuous media. Properties of stress, strain, and rate-of-strain tensors. Conservation laws. Elasticity and viscosity. Heat transfer, boundary layers, and dynamical similarity. S/U or letter grading.

203. Electrodynamics. Prerequisite: upper division electromagnetic theory course or consent of instructor. Maxwell equations and boundary conditions; momentum, angular momentum, and energy of electromagnetic fields; plane electromagnetic and magnetohydrodynamic waves; wave guides, simple radiating systems, and diffraction.

204. Time-Series Analysis and Spectral Estimation. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisites: Mathematics 115A, M150A-150B, and 151, or consent of instructor. 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. Lecture, three hours; outside study, nine hours. Prerequisite: course 51B or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisite: junior, senior, or graduate standing in physical sciences or consent of instructor. 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. Lecture, two and one-half hours; discussion, 30 minutes. Prerequisite: Mathematics 33A or consent of instructor. 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. (Formerly numbered C232.) Lecture, three hours; discussion, one hour. Prerequisite: junior, senior, or graduate standing in physical or biological sciences or consent of instructor. 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.

219. Planetary and Orbital Dynamics. 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. Lecture/discussion, three hours. Prerequisite: graduate standing in science. Open to qualified undergraduates in biological and physical sciences 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. Lecture, one hour; discussion, one hour; fieldwork, 10 days. Prerequisites: course 121B, or 195G and consent of instructor. 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. 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. (Same as Mechanical, Aerospace, and Nuclear Engineering M257A.) Lecture, four hours; outside study, eight hours. Prerequisites: Mechanical, Aerospace, and Nuclear Engineering 256A and M256B, or consent of instructor. 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.

M224B. Elastic Wave Propagation II. (Same as Mechanical, Aerospace, and Nuclear Engineering M257B.) Prerequisite: course M224A. Diffraction and scattering of elastic waves by isolated cracks and inclusions; normal mode theories for vibration of finite elastic bodies; dynamic theories of fracture; representative applications in engineering and seismology.

225A. Physics and Chemistry of Planetary Interiors I. 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. 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. (Formerly numbered C236.) Lecture, three hours; laboratory, three hours; field trips. Prerequisite: course 103A or graduate standing or consent of instructor. 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. Lecture, three hours. Prerequisite: course 200B or consent of instructor. 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. Lecture, three hours; laboratory, three hours. Prerequisite: 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. Lecture, three hours; laboratory, three hours. Prerequisite: 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.

233. Mineral Physics and Equations of State. Lecture, three hours. Prerequisite: consent of instructor. 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.

234A. Thermodynamic and Geometric Principles of Phase Equilibria. Prerequisites: course 51B and Chemistry 110B, or consent of instructor. Thermodynamic bases of phase transformations and of phase rules. Geometric representation of multicomponent systems using pressure, temperature, chemical potential, molal volume, and fugacity of oxygen, water, and other volatile components as variable parameters.

234B. Petrologic Phase Equilibria. Lecture, three hours; discussion, three hours. Prerequisites: course 51B and Chemistry 110B, or consent of instructor. 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).

235A-235B-235C. Current Research in Geochemistry (1 unit each). Prerequisite: graduate standing in Earth and space sciences. Seminars presented by staff, outside speakers, and graduate students stressing current research in Earth and planetary chemistry. May be repeated for credit. S/U grading.

237. Geochemistry of Solutions. Lecture, three hours. Prerequisites: courses 103A, 103C, Chemistry 110A, and 110B, or consent of instructor. Classical thermodynamics applied to mineral solutions, silicate melts, and low- and high-temperature aqueous solutions and gases. Chemical kinetics and its application to geologic problems.

238. Metamorphic Petrology. Lecture, three hours; laboratory, six hours. Prerequisite: one introductory petrology and petrography course or consent of instructor. 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. Discussion, three hours; laboratory, three hours. Prerequisites: courses 51B, 112. Recommended: courses 245A-245B, 249. 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. Lecture, three hours. Prerequisite: 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. Lecture, two hours; laboratory, six hours. Prerequisites: courses 51B, 103B. Texture, composition, structure, and modes of origin of sedimentary rocks. Content varies from year to year.

242. Sandstone Petrology. Lecture, two hours; laboratory, four hours. Prerequisite or corequisite: course 141. Petrographic study of sandstones, with emphasis on provenance, petrofacies, and paleotectonic reconstructions.

M243A-M243B-M243C. Advanced Evolutionary Biology. (Same as Biology M231A-M231B-M231C.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Series of advanced studies of concepts and methods in evolutionary biology. Topics may include speciation, extinction, coevolution, fossil record, rates of evolution, contributions of molecular biology in evolutionary studies, and development of evolutionary thought. Students encouraged to take each course in sequence. Themes vary from year to year. May be repeated for credit. S/U or letter grading. **M243A.** Mechanisms of Evolution. Prerequisites: Biology 120 and/or 135 or equivalent; **M243B.** Patterns of Evolution; **M243C.** Molecular Evolution.

244. Tectonics of Sedimentary Basins. Lecture, two hours; discussion, two hours; field trips. Prerequisites: 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. Lecture, three hours. Prerequisites: Physics 8A, 8B, Mathematics 32A, and 32B, or consent of instructor. 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.

246. Stress in the Lithosphere. Lecture, three hours. Prerequisite: course 202 or 245A or Civil Engineering 108 or consent of instructor. 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.

247. Glaciology. Lecture, three hours. Prerequisite: course 245A or equivalent or consent of instructor. Occurrence and classification of glaciers; accumulation and ablation; glacier budget; mechanical properties of ice; glacier flow; crevasses; textural and structural features; thermal relationships; bed slip; climatic response; catastrophic advances.

248. Advanced Structural Geology. Lecture, three hours; discussion, two hours. Prerequisite: course 111. Principles governing fracture, folding, and flow of rocks; solutions of structural problems at various scales; regional tectonic problems.

249. Structural Analysis of Deformed Rocks. Discussion, three hours; laboratory, three hours. Prerequisites: courses 111 and 112, or consent of instructor. Recommended: course 248. Geometrical analysis of megascopic structures in terranes with complex or multiple deformations. Analysis of strain from deformed primary features. Interpretation of structural history in metamorphic terranes.

250. Advanced Engineering and Environmental Geology. Lecture, three hours; required field trips. Prerequisite: course 139 or consent of instructor. Current topics in engineering and environmental geology, including slope stability, hazardous waste disposal, grading codes, slip rates and recurrence intervals of active faults, computer and remote sensing applications, and case histories.

251. Seminar: Mineralogy. Lecture, 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. Lecture, 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. Lecture, 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. Lecture, three hours. Processes of sediment transport and deposition; deep sea sediments; deltas and estuaries; petrology of carbonates, sandstones, and lutes; stratigraphy; paleoenvironmental studies.

255. Seminar: Structural Geology and Tectonics. Lecture, 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.

256. Seminar: Glaciology and Geomorphology. Lecture, three hours. Glacier physics, theoretical geomorphology, river mechanics, statistical models.

257. Seminar: Paleontology. Lecture/discussion, three hours. Prerequisite: consent of instructor. Advanced topics in paleobiology, biostratigraphy, paleoecology, and paleobiogeography, with emphasis on relations to other disciplines.

258. Seminar: Mineral Deposits. Lecture, three hours. Problems of distribution, composition, and formation of mineral deposits; mineral economics; investigations of opaque minerals by microscopic or other techniques.

259. Seminar: Paleotectonics. Lecture, two hours; discussion, two hours. Prerequisite: course 244 or consent of instructor. Basin evolution and paleogeography, with emphasis on the Phanerozoic of the Western U.S.

260. Seminar: Advanced Topics in Geology (2 to 4 units). Topics vary. May be repeated for credit.

261. Topics in Magnetospheric Plasma Physics. 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. 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.

268. Seminar: Resource Analysis. Lecture, three hours. Prerequisite: consent of instructor. Geological, geophysical, economic, and technological factors in studies of optimum use of mineral and energy resources. Emphasis on different mineral or energy sources from time to time.

M270A-M270B-M270C. Seminars: Climate Dynamics (2 to 4 units each). (Same as Atmospheric Sciences M272A-M272B-M272C and Geography M270A-M270B-M270C.) Lecture, two hours. Prerequisite: consent of instructor. 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.

282. Seminar: Geophysics. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. 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. (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). 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 units each). 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 units each). (Same as Atmospheric Sciences M275A-M275B-M275C.) Lecture, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

289A-289B-289C. Seminars: Fluid Dynamics (2 units each). 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 units). 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 unit each). Prerequisite: graduate standing in Earth and space sciences. 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 unit each). Discussion, one to three hours. Prerequisite: graduate standing in Earth and space sciences or consent of instructor. 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.

297. Advanced Techniques in Geological Research (2 to 4 units). S/U grading.

298. Advanced Topics in Earth and Space Sciences (2 to 4 units).

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: 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 units). May be repeated. S/U or letter grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units). S/U grading.

598. M.S. Research and Thesis Preparation (2 to 12 units). May be repeated. S/U grading.

599. Ph.D. Research and Dissertation Preparation (2 to 12 units). S/U grading.

EAST ASIAN LANGUAGES AND CULTURES

College of Letters and Science

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Professors

Robert E. Buswell, Ph.D. (*Chinese*)
 Theodore D. Hutters, Ph.D. (*Chinese*)
 Peter H. Lee, Ph.D. (*Korean*)
 Herbert E. Plutschow, Ph.D. (*Japanese*)
 Richard E. Strassberg, Ph.D. (*Chinese*)
 Pauline R. Yu, Ph.D. (*Chinese*)
 Robert C. Epp, Ph.D., *Emeritus*
 Kan Lao, B.A., *Emeritus*
 Richard C. Rudolph, Ph.D., *Emeritus*
 Hartmut E.F. Scharfe, Ph.D., *Emeritus*

Associate Professors

Noriko Akatsuka, Ph.D. (*Japanese*)
 William M. Bodiford, Ph.D. (*Japanese*)
 Hung-hsiang Chou, Ph.D. (*Chinese*)
 John B. Duncan, Ph.D. (*Korean*)
 C.P. Haun Saussy, Ph.D. (*Chinese*)
 Ben Befu, Ph.D., *Emeritus*
 Shirleen S. Wong, Ph.D., *Emerita*

Assistant Professors

Henry H. Em, Ph.D. (*Korean*)
 Shoichi Iwasaki, Ph.D. (*Japanese*)
 Michele F. Marra, Ph.D. (*Japanese*)
 Leslie B. Pincus, Ph.D. (*Japanese*)
 Shu-mei Shih, Ph.D. (*Chinese*)

Lecturers

Daeho Chung, M.A. (*Korean*)
 Masako Douglas, Ph.D. (*Japanese*)
 Rongrong Liao, Ph.D. (*Chinese*)
 Sung-Ock Sohn, Ph.D. (*Korean*)
 Yihua Wang, M.A. (*Chinese*)
 Y.C. Chu, M.A., *Emeritus*
 Kuo-yi Pao (Unenseñen), M.A., M.S., *Emeritus*

Scope and Objectives

The Department of East Asian Languages and Cultures aims to provide students with an exposure 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, in which the emphasis is on the language and culture of China or Japan. 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.

Classes for Nonmajors

The department offers the following courses in which knowledge of Asian languages is not required: Chinese 50, 150, 151, 160, 175, 190, East Asian Languages and Cultures 60, 61, 88, 161, 162, Indic 175, Japanese 50, 90, 150, 151, 160, 161, 175, M182, Korean 50, 150, 151, 160, 175, 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 160, 165, 265A-265B, Korean 160, 165, 265A-265B.

Bachelor of Arts in Chinese

Preparation for the Major

Required: Chinese 1, 2, 3, 4, 5, 6, 50, History 9C, and 11A or 11B. *Recommended:* Anthropology 9, Chinese 110A, and English 4.

The Major

Required: A total of 11½ courses, of which seven must be upper division language courses, including at least two vernacular language courses from Chinese 100A, 100B, 100C, 101A, 101B, 101C, and at least four classical language courses from 110A, 110B, 110C, 140A, 140B, 140C, 165.

The remaining four and one-half required courses must include Chinese 150 or 151; one course from 160, 175, 190; East Asian Languages and Cultures 199 (at least two units in the senior year); Art History C115D, C115E, or C115F; and either History 182A, 182B, 183A, 183B, or 184.

English 95A, 95B, 95C, and additional courses in Chinese history are recommended. 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.

Bachelor of Arts in Japanese

Preparation for the Major

Required: Japanese 1, 2, 3, 4, 5, 6, 50, History 9C, and 11A or 11B. *Recommended:* Anthropology 9 and English 4.

The Major

Required: A total of 12½ courses, of which seven must be upper division language courses selected from Japanese 100A, 100B, 100C, 130A, 130B, 140A, 140B, 140C, C149. The seven courses must include 100B and 130A or 130B.

The remaining five and one-half required courses must include Japanese 120 or CM122 or CM123; 150 or 151; one course from 160 or 175; East Asian Languages and Cultures 199 (at least two units in the senior year); Art History 114C; and either History 187A, 187B, or 187C.

English 95A, 95B, 95C, and additional courses in Japanese history are recommended. 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants to the Master of Arts 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 used 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 English as a Second Language 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 candidate's 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, the student must have a letter of support from a faculty member who will serve as thesis director. The remaining members for 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 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 Ph.D. program. 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 four 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; and (4) Buddhist studies with the subdisciplines of Chinese Buddhism, Japanese Buddhism, and Korean Buddhism. A comparative or interdisciplinary field may be incorporated into an area of specialization. In addition, a program in ancient Chinese civilization or Japanese linguistics 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 and passed 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.

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) Chi-

nese 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 ancient Chinese civilization or Japanese linguistics: (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.

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

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition.

1. Elementary Modern Chinese. 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. Lecture, two hours; discussion, two hours; outside study, eight hours. Preparation: ability to speak and listen to Mandarin Chinese at elementary level. Designed for students who already have listening and speaking skills at elementary level but cannot read and write characters. Training in standard Mandarin pronunciation, grammar, and reading and writing skills. P/NP or letter grading.

2. Elementary Modern Chinese. Lecture, two hours; discussion, three hours. Continuation of course 1.

2A. Elementary Modern Chinese for Advanced Beginners. Lecture, two hours; discussion, two hours; outside study, eight hours. Continuation of course 1A. P/NP or letter grading.

3. Elementary Modern Chinese. Lecture, two hours; discussion, three hours. Continuation of course 2.

3A. Elementary Modern Chinese for Advanced Beginners. Lecture, two hours; discussion, two hours; outside study, eight hours. Continuation of course 2A. P/NP or letter grading.

4. Intermediate Modern Chinese. 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 Beginners. Lecture, two hours; discussion, two hours; outside study, eight hours. Enforced requisite: course 3A. Designed to develop students' communicative skills of reading and writing at intermediate level, with attention to syntactic analysis, review of grammar, idiomatic expressions, and development of vocabulary. P/NP or letter grading.

5. Intermediate Modern Chinese. Lecture, two hours; discussion, three hours. Enforced requisite: course 4. Continuation of course 4.

5A. Intermediate Modern Chinese for Advanced Beginners. Lecture, two hours; discussion, two hours; outside study, eight hours. Continuation of course 4A. P/NP or letter grading.

6. Intermediate Modern Chinese. Lecture, two hours; discussion, three hours. Enforced requisite: course 5. Continuation of course 5.

6A. Intermediate Modern Chinese for Advanced Beginners. Lecture, two hours; discussion, two hours; outside study, eight hours. Continuation of course 5A. P/NP or letter grading.

50. Chinese Civilization. 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. Lecture, two hours; discussion, two hours. Prerequisite: course 6 or consent of instructor. 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-101C. Readings in Modern Expository Chinese. Lecture, three hours. Prerequisite: course 100C or consent of instructor. Selected readings in modern essays taken from literary texts. In addition, students work with material in the area of their professional interests.

110A-110B-110C. Introduction to Classical Chinese. Lecture, three hours. Prerequisite: course 3 or consent of instructor. Grammar and readings in selected texts.

120. Introduction to Chinese Linguistics. Lecture, three hours. Prerequisite: course 6 or consent of instructor. 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. Readings/discussion, three hours. Prerequisite: course 100B or consent of instructor. Readings and discussion of works of modern Chinese literature.

140A-140B-140C. Readings in Classical Chinese Literature. (Formerly numbered 140A-140B-140C, 143A-143B, 145A-145B.) Readings/discussion, three hours; outside study, nine hours. Prerequisite: course 110C. Readings and discussion of works of classical Chinese literature. **140A.** Poetry; **140B.** Tang and Sung Prose; **140C.** Fiction.

150. Chinese Literature in Translation: Classical Literature. Lecture, three hours; discussion, one hour. Prerequisite: English 3 or one course from Humanities 1A, 1B, 1C, 1D, 2A, 2B, 2C. Readings from English translations of masterpieces of the Chinese literary tradition, including most major genres (historical narrative, fiction, *shih* and *tz'u* poetry, drama, folk poetry, expository prose).

151. Chinese Literature in Translation: Modern Literature. Lecture, three hours; discussion, one hour. Prerequisite: English 3 or one course from Humanities 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. 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. (Same as Asian American Studies M132B and Humanities 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.

160. Chinese Buddhism. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 110C or consent of instructor. May be repeated for credit with consent of instructor.

175. Introduction to Chinese Thought. 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.

190. Archaeology in China. (Formerly numbered 190A-190B.) 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. Lecture, three hours. Prerequisite: one year of classical Chinese or consent of instructor. 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.

Graduate Courses

200. Bibliography and Methods of Research in Chinese. 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. (Same as History M281.) Discussion, three hours. Prerequisite: 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. 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. (Formerly numbered 231A-231B.) Lecture, three hours. Prerequisite: graduate standing. 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.

211. Chinese Poetry I: *Shi Jing* and Related Texts. Readings/discussion, three hours. Centered on a philological and literary-critical reading of the Zhou dynasty collection, *The Book of Odes (Shi Jing)*, examination of role of poetry in Zhou culture, interrelationships of poetry, music, and ritual, and problems of textual transmission and interpretation.

212. Chinese Poetry II: Han to Six Dynasties. Readings/discussion, three hours. Readings from major genres and authors between end of Qin dynasty in 207 B.C. and founding of Sui dynasty in A.D. 589 (main text to be the anthology *Wen xuan* compiled ca. 531). Genres include *Fu*, *Yuefu*, and *Shi* poetry, as well as a sampling of historical and philosophical theoretical texts. Authors include Song Yu, Sima Xiangru, Zuo Si, Ban Gu, Cao Zhi, Lu Ji, Tao Yuanming, and Xie Lingyun.

220A-220B. Western Theory and Chinese Texts. 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. Seminar, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: 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.

245A-245B. Seminars: Traditional Chinese Narrative and Drama. Seminar, three hours. Prerequisite: 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. 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. Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading.

290A-290B. Seminars: Selected Topics in Chinese Archaeology. Seminar, three hours. Prerequisite: course 190 or consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. 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. 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. 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.

88. Cross-Cultural Understanding in the Pacific Rim: Case Study of U.S., Japan, and Thailand. Seminar, three hours. Development of skills to analyze intercultural communications through readings, discussions, lectures, interviews, and films, with focus on three countries of the Pacific Rim region — U.S., Japan, and Thailand.

Upper Division Courses

161. Buddhist Literature in Translation. Readings, three hours. Prerequisite: 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. 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. 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 units). Prerequisites: senior standing in department or advanced reading knowledge of Chinese or Japanese, consent of instructor. 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. Seminar, three hours; outside study, nine hours. Prerequisites: three years of Japanese or Korean, one year of any East Asian language, and one functional linguistics course or consent of instructors. 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.

230A-230B. Seminars: Theoretical Topics in East Asian Literature. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisites: graduate standing, at least five years of an East Asian language. 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. Seminar, three hours. Coverage varies. May be repeated for credit. In Progress grading.

C297. Life Writing in East Asia. 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 units). (Formerly numbered 299A-299B.) Prerequisite: graduate standing. 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.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: appointment as teaching assistant in Chinese. 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.

495J. Teaching Japanese at College Level (2 to 4 units). Prerequisite: 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 units). Prerequisite: 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 6 units). Prerequisite: 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 units). 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 units). Prerequisite: consent of instructor. 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 units). S/U grading.

Indic

Upper Division Courses

110A. Elementary Sanskrit. 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. Lecture, three hours. Prerequisite: course 110A or equivalent. Advanced aspects of grammar and reading of literary texts.

110C. Advanced Sanskrit. Lecture, three hours. Prerequisite: course 110B or equivalent. Reading of entire *Bhagavadgita* or comparable amount of other Sanskrit literature.

115. Readings in Sanskrit. Lecture, three hours. Prerequisite: course 110C or equivalent. Extensive reading in such texts as best serve students' needs.

175. Introduction to Indic Philosophy. Lecture, three hours. Survey of main trends in Indian philosophy from ancient to modern times.

Graduate Courses

M222A-M222B. Vedic. (Same as Iranian M222A-M222B.) Lecture, three hours. Prerequisite: 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. Lecture, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

234A-234B. Introduction to Panini's Grammar. Lecture, three hours. Prerequisite: course 110C or equivalent. Reading of selected passages of the text, with introduction to Panini's technique. S/U or letter grading.

236A-236B. Pali and Prakrits. Lecture, three hours. Prerequisites: knowledge of Sanskrit equivalent to course 110B, consent of instructor. Grammatical studies and reading of texts. Comparative considerations. S/U or letter grading. **236A.** Pali; **236B.** Prakrits.

Japanese

Lower Division Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition.

1. Elementary Modern Japanese. 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. Lecture, two hours; discussion, three hours. Continuation of course 1.

3. Elementary Modern Japanese. Lecture, two hours; discussion, three hours. Continuation of course 2.

4. Intermediate Modern Japanese. Lecture, three hours; discussion, two hours. Enforced requisite: course 3. Continuation of course 3. Readings in modern Japanese, with emphasis on comprehension and structural analysis.

5. Intermediate Modern Japanese. Lecture, three hours; discussion, two hours. Enforced requisite: course 3. Continuation of course 4.

6. Intermediate Modern Japanese. Lecture, three hours; discussion, two hours. Enforced requisite: course 3. Continuation of course 5.

50. Japanese Civilization. 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.

90. Japanese Aesthetics and Tea Ceremony. 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. Lecture, two hours; discussion, three hours (100A-100B) and one hour (100C). Prerequisite: course 6. Emphasis on comprehension, structure, and proficiency in reading, composition, and conversation in modern Japanese.

101A-101B. Advanced Readings in Modern Japanese. Lecture, two hours; discussion, 90 minutes. Prerequisite: 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. Lecture, three hours; outside study, nine hours. Prerequisite: course 100C or consent of instructor. Introduction to fundamentals of classical Japanese. Grammar and reading of selected texts.

120. Introduction to Japanese Linguistics. Lecture, three hours. Prerequisite: course 3 or equivalent. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics.

CM122. Structure of Japanese I. (Same as Linguistics M176A.) Lecture, three hours. Prerequisites: course 120 or equivalent or consent of instructor, two years of Japanese. 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. (Same as Linguistics M176B.) Lecture, three hours. Prerequisite: two or more years of Japanese language study or consent of instructor. 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. (Same as Korean CM127 and Linguistics M178.) Lecture, three hours. Prerequisites: 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. (Formerly numbered 130, 131, 133.) Readings/discussion, three hours. Prerequisite: course 6. Readings and discussion of works by modern Japanese writers.

140A-140B-140C. Readings in Classical Japanese Literature. (Formerly numbered 140, 141, 142.) Discussion, three hours; readings/outside study, nine hours. Prerequisite: course 110 or consent of instructor. Readings and discussion of works of classical Japanese literature. **140A.** Heian; **140B.** Medieval; **140C.** Edo.

C149. Introduction to Kambun and Other Literary Styles. (Formerly numbered 149.) Lecture, three hours; outside study, nine hours. Prerequisite: course 140A or 140B or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: English 3 or one course from Humanities 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. Lecture, three hours; discussion, one hour. Prerequisite: English 3 or one course from Humanities 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. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: English 3 or one course from Humanities 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.

160. Japanese Buddhism. Lecture, three hours. Knowledge of Asian languages not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings.

161. Religious Life in Modern Japan. 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. Lecture, three hours. Prerequisite: course 140B or C149 or Chinese 165 or consent of instructor. 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. 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. Discussion, three hours; outside study, nine hours. Prerequisite: course 110 or consent of instructor. 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.

M182. Japanese Folklore. (Same as Folklore M182.) Lecture, three 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 found in Japan.

190. Introduction to Japanese Aesthetics. Lecture, three hours; outside study, nine hours. Knowledge of Japanese not required. Introduction to field of modern and premodern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. P/NP or letter grading.

M196. Seminar: Comparative Japanese Law — Selected Readings (2 units). (Same as Law M519.) Designed to introduce students to a variety of Japanese-language legal materials. Reading of law review articles and other sources as time permits (e.g., selections from contracts, cases, or treatises); titles vary from term to term. Classroom work may be coordinated with outside research projects with consent of instructor.

C197. Personalities in Japanese Civilization. (Formerly numbered 88.) Seminar, three hours; outside study, nine hours. Five weeks of introductory lectures and five weeks of student presentations based on instructor-guided student research. Concurrently scheduled with course C297.

Graduate Courses

200. Bibliography and Methods of Research in Japanese. Lecture, three hours. Required of all graduate students in Japanese.

210. Issues in Modern Japanese Literature. 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. (Formerly numbered 243A-243B.) Lecture, three hours. Prerequisite: 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. (Formerly numbered 290.) Discussion, three hours. Prerequisite: knowledge of Japanese. Investigation of history and life of the city as seen through Japanese literature.

C222. Structure of Japanese I. Lecture, three hours. Prerequisites: course 120 or equivalent or consent of instructor, two years of Japanese. 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. Lecture, three hours. Prerequisite: two or more years of Japanese language study or consent of instructor. 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. Seminar, three hours. Prerequisite: course CM122 or equivalent. 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. Seminar, three hours. Prerequisite: course CM122 or consent of instructor. 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. (Formerly numbered 226A-226B.) 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. (Same as Korean CM227.) Lecture, three hours. Prerequisites: 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. 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. Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading.

240A-240B. Seminars: Selected Topics in Japanese Literature. Seminar, three hours. May be repeated for credit. In Progress grading.

241A-241B. Seminars: Japanese Classics. 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. Seminar, three hours. Prerequisite: 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. Lecture, three hours; outside study, nine hours. Prerequisite: course 140A or 140B or consent of instructor. 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.

265A-265B. Seminars: Japanese Buddhist Texts. Seminar, three hours. May be repeated for credit with consent of instructor. In Progress grading.

M270A-M270B. Seminars: Japanese Ritual Arts. (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.

C280. Readings in Japanese Literary Thought. Discussion, three hours; outside study, nine hours. Prerequisite: course 110 or consent of instructor. 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.

290A-290B. Seminars: Japanese Philosophy of Art. Seminar, three hours. Prerequisites: course 110 or consent of instructor, reading knowledge of Japanese. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. In Progress grading.

C297. Personalities in Japanese Civilization. Seminar, three hours; outside study, nine hours. Five weeks of introductory lectures and five weeks of student presentations based on instructor-guided student research. Concurrently scheduled with course C197. Additional work required of graduate students.

Korean

Lower Division Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition.

1. Elementary Modern Korean. 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.

2. Elementary Modern Korean. Lecture, two hours; discussion, three hours. Continuation of course 1.

2A. Accelerated Elementary Korean. Lecture, two hours; discussion, three hours; outside study, seven hours. Preparation: ability to speak and listen to Korean at an elementary level. Designed for students who know how to speak but do not know how to read and/or write in Korean. Emphasis on formal aspects of standard Korean (alphabet spelling, basic grammar, reading, writing) in lieu of courses 2 and 3. P/NP or letter grading.

3. Elementary Modern Korean. Lecture, two hours; discussion, three hours. Continuation of course 2.

3A. Accelerated Elementary Korean. 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. 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. Lecture, two hours; discussion, three hours; outside study, seven hours. Enforced requisite: course 3A. Not open to students who have attended elementary school in Korea for more than one year. Designed for students who seek training in written components of standard Korean (spelling, reading, writing, and grammar) at intermediate level. P/NP or letter grading.

5. Intermediate Modern Korean. Lecture, two hours; discussion, three hours. Enforced requisite: course 3. Continuation of course 4.

5A. Intermediate Korean for Korean Speakers. Lecture, two hours; discussion, three hours; outside study, seven hours. Continuation of course 4A. P/NP or letter grading.

6. Intermediate Modern Korean. Lecture, two hours; discussion, three hours. Enforced requisite: course 3. Continuation of course 5.

6A. Intermediate Korean for Korean Speakers. Lecture, two hours; discussion, three hours; outside study, seven hours. Continuation of course 5A. P/NP or letter grading.

50. Korean Civilization. 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. Lecture, two hours; discussion, three hours. Prerequisite: course 6 or equivalent. Course 100A or consent of instructor is prerequisite to 100B, which is prerequisite to 100C. Continuation of course 6. Readings of modern prose and poetry, with emphasis on grammar and Sino-Korean.

101A-101B-101C. Advanced Readings in Modern Korean. Lecture, three hours. Prerequisite: course 100C or equivalent. 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.

CM120. Structure of Korean. (Same as Linguistics M177.) Lecture, three hours. Prerequisites: 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. (Same as Japanese CM127 and Linguistics M178.) Lecture, three hours. Prerequisites: 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. Readings/discussion, three hours. Prerequisite: course 101A or consent of instructor. Readings and discussion of major modern Korean literary texts.

150. Korean Literature in Translation: Classical. Lecture, three hours. Prerequisite: English 3 or one course from Humanities 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Korean not required. Survey of Korean literature from the beginning to the present day, with all readings from English translations. Poetry and prose to the end of the 19th century.

151. Korean Literature in Translation: Modern. Lecture, three hours. Prerequisite: English 3 or one course from Humanities 1A, 1B, 1C, 1D, 2A, 2B, 2C. Knowledge of Korean not required. Survey of Korean literature from the beginning to the present day, with all readings from English translations. Literature of the 20th century.

160. Korean Buddhism. 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. Lecture, three hours. Prerequisites: 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. 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. Lecture, three hours. Prerequisite: course 100C or equivalent. 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. Lecture, two hours; discussion, one hour; outside study, nine hours. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisite: 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.

197A. Seminar: Traditional Korea. Seminar, three hours; outside study, nine hours. Prerequisite: consent of instructor. 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. Seminar, three hours; outside study, nine hours. Prerequisite: course 177 or 180C or consent of instructor. Selected topics in modern Korean history.

Graduate Courses

200. Bibliography and Methods of Research in Korean. Lecture, three hours. Prerequisites: graduate standing, reading knowledge of Korean and Chinese. 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.

210. Thought and Society in Korea. (Formerly numbered 290A-290B.) Readings/discussion, three hours. Prerequisites: graduate standing, reading knowledge of Korean. 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. Discussion, three hours; outside study, nine hours. Prerequisites: graduate standing, reading knowledge of Korean. 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.

C220. Structure of Korean. Lecture, three hours. Prerequisites: 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. (Same as Japanese CM227.) Lecture, three hours. Prerequisites: 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. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisite: graduate standing or at least five years of Korean. Recommended: reading knowledge of Chinese or Japanese. 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. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisite: consent of instructor. Selected topics in Korean Buddhist texts. Coverage varies. In Progress grading.

295A-295B. Seminars: Topics in Traditional Korean Cultural History. Seminar, three hours; outside study, nine hours. Prerequisite: 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. Seminar, three hours; outside study, nine hours. Prerequisites: graduate standing, reading knowledge of Korean. Graduate research seminar on selected topics in modern Korean history. In Progress grading.

Related Courses in Other Departments

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. History of Literary Criticism
Ethnomusicology and Systematic Musicology
91D. Music of China
91G. Music of Japan
91J. Music of Korea
156A-156B. Music of 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. Eastern Asia
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
159. Chinese Government and Politics
160. Japanese Government and Politics
C242. Chinese and East Asian Studies
C243. Japanese and Western Pacific Studies
Sociology 188. Comparative Social Institutions of East Asia
276. Selected Topics in Sociology of East Asia

EAST ASIAN STUDIES

Interdepartmental Program
College of Letters and Science

UCLA
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Los Angeles, CA 90095-1540
(310) 206-8235

Professors

Robert E. Buswell, Ph.D. (*East Asian Languages and Cultures*)
Lucie C. Cheng, Ph.D. (*Sociology*)
Benjamin A. Eiman, Ph.D. (*History*)
Philip C. Huang, Ph.D. (*History*)
Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Peter H. Lee, 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*), *Administrative Director*
Richard E. Strassberg, Ph.D. (*East Asian Languages and Cultures*)
Richard von Glahn, Ph.D. (*History*)

Associate Professors

John B. Duncan, Ph.D. (*East Asian Languages and Cultures*)
Miriam Silverberg, Ph.D. (*History*)

Assistant Professors

Leslie B. Pincus, Ph.D. (*East Asian Languages and Cultures*)
Mariko Tamanoi, Ph.D. (*Anthropology*)

Lecturers

Ikuko Yuge, B.A. (*Ethnomusicology and Systematic Musicology*)
Tsun Y. Lui, *Emeritus* (*Ethnomusicology and Systematic Musicology*)

Visiting Assistant Professor

Danny Lee (*Ethnomusicology and Systematic Musicology*)

Scope and Objectives

This undergraduate 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.

Bachelor of Arts Degree

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. You must take a minimum of nine courses in the area of your choice. The remainder must be taken in another area of concentration within the major. No more than eight courses may be from a single department. You 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, you 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: Chinese 1, 2, 3, 4, 5, 6, History 11A-11B, Sociology 1.

The Major: A minimum of nine courses selected from Art History C115B, C115D, C115E, C115F, Chinese 150, 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 and Systematic Musicology 156A, 156B, 157, 158A, 158B, 158C, Geography 186, History 182A, 182B, 183A, 183B, 184, Political Science 135, 159, Sociology 188,* and a 199 special studies course in Chinese or in any social sciences or humanities department.

Japan Concentration

Preparation for the Major: History 9C, Japanese 1, 2, 3, 4, 5, 6, Sociology 1.

The Major: 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 and Systematic Musicology 160A, 160B, History 185, 186, 187A, 187B, 187C, Japanese 150, 151, 160, 175, M182, 190, 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: Korean 1, 2, 3, 4, 5, 6, 50, Sociology 1.

The Major: 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.

ECONOMICS

College of Letters and Science

UCLA
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(310) 825-1011

Professors

William R. Allen, Ph.D.
Masanao Aoki, Ph.D.

Costas Azariadis, Ph.D.
Harold Demsetz, Ph.D. (*Arthur Andersen and Company Alumni Professor of Business Economics*)
Sebastian Edwards, Ph.D. (*Henry Ford II Professor of International Management*)
Bryan C. Ellickson, Ph.D.
Roger E. Farmer, Ph.D.
Arnold C. Harberger, Ph.D.
Werner Z. Hirsch, Ph.D.
Jack Hirshleifer, Ph.D.
Michael D. Intriligator, Ph.D.
Benjamin Klein, Ph.D.
Deepak K. Lal, D.Phil. (*James S. Coleman Professor of International Development Studies*)
Edward E. Leamer, Ph.D. (*Chauncey J. Medberry Professor of Management*)
Axel Leijonhufvud, Ph.D.
David K. Levine, Ph.D.
John J. McCall, Ph.D.
Joseph M. Ostroy, Ph.D.
John G. Riley, Ph.D.
Lloyd S. Shapley, Ph.D.
Kenneth L. Sokoloff, Ph.D.
Earl A. Thompson, Ph.D.
William R. Zame, Ph.D.
Armen A. Alchian, Ph.D., *Emeritus*
John F. Barron, Ph.D., *Emeritus*
Robert W. Clower, D.Litt., *Emeritus*
George W. Hilton, Ph.D., *Emeritus*
George G.S. Murphy, Ph.D., *Emeritus*
Harold M. Somers, Ph.D., LL.B., *Emeritus*

Associate Professors

Trudy Cameron, Ph.D.
Janet Currie, Ph.D.
Gary D. Hansen, Ph.D.
Sule Ozler, Ph.D.
Jean-Laurent Rosenthal, Ph.D.
Duncan Thomas, Ph.D.

Assistant Professors

Patrick Asea, Ph.D.
Andrew Dick, Ph.D.
Mark Dwyer, M.A., *Acting*
Wei-Yin Hu, Ph.D.
Thomas Hubbard, M.A., *Acting*
Dean R. Hyslop, Ph.D.
Amartya Lahiri, M.A., *Acting*
Luisa Lambertini, M.A., *Acting*
Kathleen McGarry, Ph.D.
Simon Potter, Ph.D.
Keungkwon Ryu, Ph.D.
Hilary Sigman, Ph.D.
Kazimierz Stanczak, Ph.D.
Federico Sturzenegger, Ph.D.
Darrell Williams, Ph.D.
Aaron Yelowitz, Ph.D.

Scope and Objectives

UCLA's Economics Department is ranked among the 10 best in the nation according to a recent survey conducted by the Conference Board of the Associated Research Councils. Its undergraduate program is designed for students who wish to gain a thorough understanding of economic analysis. 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 law, management, public administration, journalism, social welfare, architecture and urban planning, and education, as well as economics.

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.

Bachelor of Arts in Economics

Preconomics Major

While you are completing the lower division preparation courses for the major, you may be classified as a preeconomics major. You are eligible to apply for the major once you 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 you attain 135 quarter units.

Preparation for the Major

Required: Economics 1, 2, 11, 40 (or Statistics 50 as a substitute for course 40); English 4 or 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, you must have a 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 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 (Learning Center

courses or courses transferred from other institutions may not be applied toward this option).

To graduate you must have at least a 2.0 grade-point average in your 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 (courses 120, 121); public finance (courses 130, 133, M135, M136); statistics, mathematical economics, and econometrics (courses 141, 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).

Bachelor of Arts in Business Economics

This 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 you 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, you 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 your 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. You must petition

to enter the major at the business economics counselor's office in 2250B Bunche Hall.

Prebusiness Economics Major

While you are completing the preparation courses for the major, you may be classified as a prebusiness economics major. (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, 40 (or Statistics 50), 101; English 4 or 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, 127, 130A, 130B, 133, 140, 175. Transfer credit for any of the major courses is subject to department approval. In addition, some graduate courses from the Anderson Graduate School of Management may be applied toward the major with department consent prior to taking the courses. Consult the business economics counselor before enrolling in any courses for the major.

All upper division major courses must be taken for a letter grade. To graduate you must have at least a 2.0 grade-point average in your 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.)

Bachelor of Arts in Economics/International Area Studies

This 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 you 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 your foreign language). In addition, you 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 2.5 GPA in the economics and mathematics courses. You must also have a 2.0 (C) grade-point average in your 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. Your program as a whole must be approved by the Economics Department counselor before you are admitted to the major.

Preeconomics/International Area Studies Major

While you are completing the preparation courses for the major, you may be classified as a preeconomics/international area studies major.

Preparation for the Major

Required: Economics 1, 2, 11, 40 (or Statistics 50), 101, 102; Mathematics 31A, and 31B or 31E. You 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 your 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 your concentration. Eight economics courses are required, including Economics 191, 192, 193, and five courses from at least two different fields in economics (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 requirement. The four remaining upper division courses are social sciences courses related to your concentration and must be chosen from the approved courses listed below. You are required to include selections from at least two different departments. Economics 193 must be completed in your last year before graduation and includes the preparation of a research paper on the economy of the country or region

of your concentration. In addition, you must show two-year proficiency (or equivalent) in a modern foreign language related to your 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 (Learning Center courses or courses transferred from other institutions may not be applied toward this option).

To graduate in the major you must achieve a 2.0 GPA for both economics and noneconomics courses, with a grade of C – or better in each course.

Concentrations for the Major

When you declare your major, you must also select a concentration that includes a geographical area where the foreign language you have taken is spoken, and you must complete four of the approved noneconomics courses listed, including courses from at least two different departments. You may not use courses that are not on your concentration list unless you have petitioned and received approval in advance. Consult the undergraduate counselor in 2253 Bunche Hall regarding the petition process.

(1) 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, 159, 160, Sociology M153, 188, 189

(2) 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, 130A, 132A, 132B, 133A, 133B, 134A, 134B, 141A, 141B, 141C, 142A, 142B, Hungarian 130, Italian 102B, Political Science 127A, 152, 153, 153A, 154, 155, 157, 158A

(3) 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, 163A, 163B, Sociology 186

(4) Middle East

Languages: Arabic, Hebrew, Persian, Turkish
Approved Noneconomics Courses: Geography 187, History 106C, 107B, 108A, 110B, 111B, Islamic Studies 110, Jewish Studies

142, Political Science 132A, 164, Sociology 187, Turkic Languages 180

(5) 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

(6) Individual Concentration

Language, geographical area, and noneconomics courses to be approved in advance by the economics/international area studies faculty adviser

Specialization in Computing

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 GPA of at least 2.0. You graduate with a bachelor's degree in your major and a specialization in computing.

Bachelor of Science in Economics/System Science

The degree is described following the Economics Department courses.

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, you 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 your thesis in Economics 195H, and (4) complete your major requirements with at least a 3.5 GPA 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The department admits only applicants whose objective is the Ph.D.

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. At least five 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 departments outside economics. However, these may not substitute for the five 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. This 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), and F (fail).

Thesis Plan

None.

Doctoral Degree

Admission

Applicants for the Ph.D. program in Economics who satisfy the University minimum requirements are eligible to apply. 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 and Subject Test in Economics. 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

The standard first-year core sequences are defined as the first-year graduate courses 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

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 203B, 203C, 231A, 231B, M232A, 232B); information and uncertainty (Economics 211A-211B, 212A); mathematical economics (213A-213B, 214A); monetary economics (221A-221B); economic history (241, 242); public finance (251A, 251B, 252); labor economics (261A-261B); industrial organization (271A-271B, 271C); international economics (281A, 281B, 281C); development economics (286A, 286B, 287A, 287B).

Examinations are graded H (Ph.D. honors pass), P (Ph.D. pass), M (M.A. pass), and 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, usually by the end of the second year even if they passed all three first-year core sequence qualifying examinations.

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 this requirement cannot include any courses used in the core sequence requirements nor can they include courses preparatory for the written qualifying examinations which the student is using for field requirements. The breadth option must include Economics 207 or 241 or 242. Students may apply courses at the graduate level (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.

A written paper must be completed by the end of the student's third year. This 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. This 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

this 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.

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 examination focuses on, but is not limited to, the dissertation proposal.

Lower Division Courses

1. Principles of Economics. 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. 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 aggregate economics, including national income, monetary and fiscal policy, and international trade.

5. Introductory Economics. 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. (Formerly numbered 101A.) Lecture, three hours. Enforced requisites: courses 1, 2, Mathematics 31A, and (31B or 31E). Laws of demand, supply, returns, and costs; price and output determination in different market situations.

40. Introduction to Statistical Methods. Lecture, three hours; discussion, one hour. Not open to students with credit for Mathematics M150A-150B, 151, Statistics 50, M152A, or 152B. 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.

88A. Lower Division Research Seminar: Microeconomics. Discussion, three hours. Enforced requisite: course 1. Limited to 10 freshmen/sophomores. Seminar in which students do intensive research project under guidance of regular faculty. Students select topics in consultation with instructor (topics limited to material covered in course 1), write papers, and present them at the seminar.

88B. Lower Division Research Seminar: Macroeconomics. Discussion, three hours. Enforced requisite: course 2. Limited to 10 freshmen/sophomores. Seminar in which students do intensive research project under guidance of regular faculty. Students select topics in consultation with instructor (topics limited to material covered in course 2), write papers, and present them at the seminar.

99. Lower Division Seminar (2 or 4 units). Enforced requisites: courses 1 and 2 (B or better). Preparation: overall 3.0 grade-point average. Designed to provide an instructional vehicle for student research projects. May not be used to fulfill entrance requirements for any Economics Department major.

Upper Division Courses

Courses 1 and 2, or 5 or 100 are requisite to all upper division courses in economics.

100. Economic Principles and Problems. Lecture, three hours. Prerequisite: upper division standing. 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. (Formerly numbered 101B.) Lecture, three hours; discussion, one hour. Prerequisite: 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. Lecture, three hours. Prerequisites: course 11, Mathematics 31A, and 31B or 31E. 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. Lecture, three hours. Prerequisites: course 11 and others as set by instructor. 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. 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. Prerequisites: courses 11, 101, 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. Lecture, three hours. Prerequisite: course 11. Enrollment priority to business economics students. 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.

105AH. Topics in Microeconomics (Honors). Lecture, three hours. Prerequisites: courses 11, 101, and departmental honors program standing or consent of instructor. 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). Lecture, three hours. Prerequisites: courses 11, 101, and departmental honors program standing or consent of instructor. 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.

107. History of Economic Theory. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 11 or consent of instructor. 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.

121. Urban Economic Analysis. Lecture, three hours. Prerequisites: courses 11, 101. Urban economic analysis requires development of analytical tools that are different in some respects from standard methodology presented in courses 11 and 101. Construction and implementation of these tools, with applications to urban location decisions, housing, transportation, labor markets, and local public sector.

130. Public Finance. Lecture, three hours. Prerequisites: courses 11 and 101, or consent of instructor. 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.

133. State and Local Finance. Lecture, three hours. Prerequisite: course 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.

M135. Economic Models of Public Choice. (Same as Political Science M105.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: course 11, any lower division political science course, and junior/senior standing, or consent of instructor. 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. (Same as Political Science M106.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: course 11, any lower division political science course, and junior/senior standing, or consent of instructor. 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.

141. Principles of Statistical Decision. Lecture, three hours. Prerequisite: course 40 or equivalent. Errors of first and second kind; economic loss functions; prior probabilities and Bayes theorem. Analysis of classical and Bayesian approaches. Application to inventory and production problems. Value of information and implications for sampling design.

142. Probabilistic Microeconomics. Lecture, three hours. Prerequisites: 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. Lecture, three hours; discussion/computer tutorial, one hour. Prerequisite: course 40 or equivalent. 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.

144. Introduction to Mathematical Methods in Economics. Lecture, three hours. Prerequisites: courses 11, 101, two calculus courses. Introduction to use of mathematics in economic analysis. Topics include partial differentiation, optimization, integration, and differential and difference equations, with applications to the theory of the household and the firm, capital theory, and economic dynamics.

145. Topics in Mathematical Economics. Lecture, three hours. Prerequisite: course 144. Possible topics include game theory; competitive equilibrium analysis; examination of market failure and role for market intervention.

146. Linear Models in Economics. Lecture, three hours. Prerequisite: one linear or matrix algebra course. Not open for credit to students with credit for Mathematics 144 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. Lecture, three hours. Prerequisites: two calculus courses and course 143 (or Mathematics M150A-150B or Statistics M152A, 152B), or consent of instructor. 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.

147B. Applications of Econometrics. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisites: courses 11 and 101, or consent of instructor. 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.

151. Labor, Wages, and Income. Lecture, three hours. Prerequisite: course 150 or consent of instructor. 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. 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.

160. Money and Banking. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 11. Enrollment priority to business economics students. 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. Lecture, three hours. Prerequisite: course 11. Enrollment priority to business economics students. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisites: courses 11, 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. Lecture, three hours. Prerequisites: courses 11, 101. Enrollment priority to business economics students. 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. Lecture, three hours. Prerequisites: courses 11, 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. Lecture, three hours. Prerequisite: upper division standing. 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. Lecture, three hours. Prerequisite: upper division standing. 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. Lecture, three hours. Prerequisites: courses 11, 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. Lecture, three hours. 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.

184. History of Enterprise and Entrepreneurship in the American Economy. Lecture, three hours. Enrollment priority to business economics students. 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. (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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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.

192. International Finance. Lecture, three hours. Prerequisite: 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.

193. Research in International Area Studies Seminar. Lecture, three hours. Limited to economics/international area studies seniors. Students prepare research paper on economy of the country or region of specialization.

195H. Honors Thesis Seminar. Seminar, three hours. Limited to seniors in departmental honors program. Seminar in which students present results of their senior theses.

199. Special Studies in Economics (2 or 4 units). Prerequisites: courses 11, 101, junior/senior standing, consent of instructor. May be repeated but may be applied only once toward the major requirements.

Graduate Courses

Foundations of Economics

200. Mathematical Methods in Economics. 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. Lecture, three hours:

201A. Theory of the Firm and Consumer. 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.

201B. General Equilibrium and Welfare Economics. Meaning of competition in general equilibrium. Decentralization and appropriation roles of prices. Increasing returns. Public goods. Pecuniary and nonpecuniary externalities. Mechanism design.

201C. Basic Concepts and Techniques of Noncooperative Game Theory and Information Economics. Nash equilibrium and subgame perfection. Games with incomplete information. Models of strategic market behavior. Screening and signaling. Bargaining models. Theory of the firm.

202A-202B-202C. Macroeconomics. 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. 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. 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. Lecture, three hours. Multivariate regression, simultaneous equation estimation, identification, and latent variables. S/U or letter grading.

204A-204Z. Applications of Economic Theory. Lecture, three hours:

M204L-M204M-M204N. Seminars: Pharmaceutical Economics and Policy (1 unit, 1 unit, 2 units). (Formerly numbered M204L.) (Same as Health Services M204A-M204B-M204C.) Seminar, three hours every other week for three terms. Prerequisites: courses 201A-201B-201C or equivalent, Health Services 236 or equivalent, or consent of instructor, graduate standing in public health or economics. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress grading.

205. Economic Modeling. 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. 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. Lecture, three hours. Prerequisites: course 201C, introductory probability. 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. 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. Prerequisites: calculus, introductory probability. Price searching, queueing, Brownian motion, martingales, and applications to the theory of the firm.

212B. Applied Game Theory. Prerequisites: 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. Lecture, three hours. Prerequisite: course 201C or consent of instructor. 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. Lecture, three hours. Prerequisite: course 213B or consent of instructor. 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 or equivalent or consent of instructor. 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. Prerequisite: graduate standing in mathematics or consent of instructor. Bargaining theory, the core, the value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs.

M214C. Large Economies. (Same as Political Science M208C.) Prerequisites: course 213A or suitable mathematics courses. Consideration of economics with a continuum of consumers and with a continuum of goods. Basic model applied to perfectly competitive equilibrium, the core, location models, and other models with nonconvex preferences and/or technology.

M215. Topics in Applied Game Theory. (Same as Political Science M208B.) Lecture, three hours. Prerequisites: calculus or introductory probability, and graduate standing in economics or consent of instructor. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

219A-219B-219C. Workshops: Economic Theory and Mathematical Economics. Lecture, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered 221A-221B.) 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. 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. (Same as Computer Science M222.) Prerequisite: graduate standing in economics or engineering or consent of instructor. Recommended: appropriate mathematics course. 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.

228A-228B-228C. Proseminars: Monetary Economics. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: consent of instructor. 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. 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. 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. 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. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: graduate standing or consent of instructor. 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. 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. 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. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. 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. 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. 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. 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. 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. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. 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. 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. Lecture, three hours. Current research in labor economics. Content varies. May be repeated for credit. S/U or letter grading.

269A-269B-269C. Workshops: Labor Economics. Lecture, three hours. Prerequisite: consent of instructor. 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. 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. Prerequisite: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Current research in industrial organization. Content varies. May be repeated for credit. S/U or letter grading.

273A. Public Utility Regulation. 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.

273B. National Transport Policy. Lecture, three hours. Regulation of surface and air carriers, pricing and investment in public transport facilities, policy toward merchant marine. S/U or letter grading.

279A-279B-279C. Workshops: Business Organization. Prerequisite: consent of instructor. 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. Lecture, three hours. Theoretical and empirical analysis of microeconomic relationships among countries. Determinants of commodity and factor flows, prices, and factor rewards. Effects of trade barriers. S/U or letter grading.

281B. International Finance. 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. 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. Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

283. Economics of Soviet External Involvement. Lecture, three hours. Prerequisite: consent of instructor. Interrelations between Soviet economy and the U.S.S.R.'s international behavior. Major topics, considered in various regional contexts of Soviet activity, include (1) extent of the U.S.S.R.'s global involvement, (2) domestic economic constraints on that involvement, and (3) external influences on Soviet domestic economic development. S/U or letter grading.

284. Soviet Economic Theory and Organization. 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. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisites: 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. Analysis and Appraisal of Development Projects. Lecture, three hours. Prerequisite: 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. 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.

Urban Economics

291A-291B. Urban Economics. Lecture, three hours. Course 291A is prerequisite 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. 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

299A-299B-299C. Workshops: Preparing a Dissertation Proposal. Lecture, three hours. Workshops for third-year graduate students who are preparing for oral qualifying examination. Presentation of journal articles for critical analysis to develop students' analytical skills. Presentation of students' own research for critical analysis by fellow students and faculty. Workshops open to research in all fields of economics. S/U grading.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Discussion, one hour; laboratory, three hours. Prerequisite: graduate standing. 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 units). Directed individual study or research. S/U grading.

597. Individual Study: Graduate Examinations (2 to 8 units). 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 units). Prerequisite: advancement to Ph.D. candidacy. Directed individual research in preparation of Ph.D. dissertation. S/U grading.

ECONOMICS/SYSTEM SCIENCE

*Interdepartmental Program
College of Letters and Science*

UCLA
2263 Bunche Hall
Box 951477
Los Angeles, CA 90095-1477
(310) 825-1011

Professors

Masanao Aoki, Ph.D. (*Economics*)
Bryan C. Ellickson, Ph.D. (*Economics*)
Michael D. Intriligator, Ph.D. (*Economics*)
Stephen E. Jacobsen, Ph.D. (*Electrical Engineering*)

Scope and Objectives

The major is an alternative to the regular departmental major in economics and combines work in the School of Engineering and Applied Science with preparation in economic theory and in those aspects of mathematics and statistics necessary for the study of quantitative aspects of economics and systems theory. The major is appropriate for students with interests in such areas as economic theory, mathematical economics, econometrics, feedback and control systems, optimization, computing techniques, and the modeling and analysis of various socioeconomic systems.

Bachelor of Science Degree

Admission

This interdepartmental major is in the process of being disestablished as there is no longer a system science department in the School of Engineering and Applied Science. Therefore, students admitted to the University for Fall Quarter 1993 and thereafter cannot enter this major. You can pursue one of the alternate programs available in mathematics/applied science (see Mathematics later in this chapter).

Students admitted to the preeconomics/system science major prior to Fall Quarter 1993 can apply for admission to the economics/system science major or to one of the alternate programs. All preeconomics/system science students applying for admission to the major are subject to the minimum entrance requirements as listed in the 1992-93 *UCLA General Catalog*.

Preparation for the Major

Required: Economics 1, 2, 11; Computer Science 10C or 10F or Program in Computing 3 or 10A; Mathematics 31A, 31B, 32A, 32B, 33A,

33B. All courses must be completed for a grade of C- or better.

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 in 2253 Bunche Hall before enrolling in any courses for the major.

The Major

Required: Thirteen upper division courses as follows: five courses in economics selected from Economics 101 and above, including 101, 102, and one course from 141, 142, 144, 145, 146, 147A, 147B; six courses in system science selected from Electrical Engineering 102, 103, 131A, 131B, 136, 141, 142, including 131A (or Mathematics M150A or Statistics M152A) and 131B (or Mathematics 151 or Statistics 152B); two courses in mathematics selected from Mathematics 110A and above (such mathematics courses may not also be applied toward the system science requirements).

Recommended courses include Electrical Engineering 141 and 142 in the area of dynamic systems analysis and Electrical Engineering 136 in the area of optimization.

All upper division major courses must be completed for a grade of C- or better, with an overall 2.0 GPA.

EDUCATION

*Undergraduate Program
College of Letters and Science*

UCLA
Office of Student Services
1009 Moore Hall
Box 951521
Los Angeles, CA 90095-1521
(310) 825-8326

Professors

Helen S. Astin, Ph.D.
Nicholas Blurton Jones, Ph.D.
James E. Bruno, Ph.D.
Sol Cohen, Ph.D.
Carollee Howes, Ph.D.
Val D. Rust, Ph.D.
Carlos A. Torres, Ph.D.

Associate Professors

Robert M. Hodapp, Ph.D.
James W. Trent, Ph.D.
Concepción Valadez, Ph.D.
Wellford Wiims, Ph.D.

Assistant Professors

Daniel G. Solorzano, Ph.D.
Amy S. Wells, Ph.D.

Lecturer

Edward (Chip) Anderson, Ph.D.

Scope and Objectives

The undergraduate specialization in education is designed to (1) allow students to learn more about the multitude of professional and research issues in the field of education and to understand the complex interactions between social, political, and economic forces which influence and shape educational policies in America, (2) provide an introductory educational sequence for students who wish to pursue careers in education either as teachers or researchers, and (3) present an information base in the area of education by which UCLA students can become better consumers of educational services as future parents, taxpayers, and citizens.

The teaching philosophy is governed by a need to address these objectives with a logical and time-efficient course structure—lower division courses that provide an introduction to educational policy, upper division social and behavioral sciences courses (sociology, political science, history, philosophy, anthropology, economics, psychology) taught in the Graduate School of Education and Information Studies, upper division elective courses in which students can pursue their own specific interests in the area of education, and a special studies research experience. The specialization must be taken in conjunction with a departmental or interdepartmental major.

Special Undergraduate Program

Enrollment is limited but includes sophomores and upper division students. To enter the specialization you must submit a formal application to the Office of Student Services in the Graduate School of Education and Information Studies. All courses applied toward the specialization must be taken for a letter grade.

Preparation for the Specialization

Required: Two courses from Education 91A through 91E.

Upper Division

Required: Two social sciences courses from Education M108, 112, C191A through C191E; two elective courses from Education 100A-100B, M102, 125A, M148, 180, 181, 192, 197. Additional courses will be applicable as approved.

After successfully completing the six required courses with at least a 2.5 GPA, you must complete one special studies research experience (Education 199) or practicum course (Education 197) with a professor in the Department of Education. Internship research areas include administration, curriculum, and teaching studies; higher education; psychological foundations and educational research methods; and social sciences (history, economics, anthropology, sociology, philosophy).

For further information and application forms, contact the Graduate School of Education and Information Studies Office of Student Services at the program address.

EDUCATION

Graduate Program Graduate School of Education and Information Studies

Office of Student Services:
UCLA
1009 Moore Hall
Box 951521
Los Angeles, CA 90095-1521
(310) 825-8326

Professors

Marvin C. Alkin, Ed.D.
Alexander W. Astin, Ph.D. (*Allan Murray Carterter
Professor of Higher Education*)
Helen S. Astin, Ph.D.
Eva L. Baker, Ed.D.
Gordon L. Berry, Ed.D.
Nicholas Blurton Jones, Ph.D.
James E. Bruno, Ph.D.
Arthur M. Cohen, Ph.D.
Sol Cohen, Ph.D.
Aimée Dorr, Ph.D.
Norma D. Feshbach, Ph.D.
Ronald Gallimore, Ph.D., *in Residence*
Sandra Graham, Ph.D.
John N. Hawkins, Ph.D.
Charles C. Healy, Ph.D.
Carollee Howes, Ph.D.
Dean T. Jamison, Ph.D.
Marilyn L. Kourilsky, Ph.D.
Bengt Muthén, Ph.D.
Jeannie Oakes, Ph.D.
Val D. Rust, Ph.D.
Geoffrey B. Saxe, Ph.D.
Rodney W. Skager, Ph.D.
Deborah J. Stipek, Ph.D.
Romeria Tidwell, Ph.D.
Carlos A. Torres, Ph.D.
Noreen M. Webb, Ph.D., *Vice Chair*
Carl Weinberg, Ed.D.
Merlin C. Wittrock, Ph.D.

Professors Emeriti

Burton R. Clark, Ph.D.
Charlotte A. Crabtree, Ph.D.
Donald A. Erickson, Ph.D.
Lawrence W. Erickson, Ed.D.
Claude W. Fawcett, Ph.D.
Clarence Fielstra, Ph.D.
Simon González, Ed.D.
John I. Goodlad, Ph.D., L.H.D., LL.D.
C. Wayne Gordon, Ph.D.
B. Lamar Johnson, Ph.D.
Wendell P. Jones, Ph.D.
Evan R. Keislar, Ph.D.
Barbara K. Keogh, Ph.D.
Frederick C. Kintzer, Ed.D.
George F. Kneller, Ph.D., Litt.D., LL.D., D.Sc., L.H.D.
John D. McNeil, Ed.D.
David O'Shea, Ph.D.
C. Robert Pace, Ph.D.
Rosemary Park, Ph.D., LL.D., Litt.D., L.H.D.
W. James Popham, Ed.D.
Harry F. Silberman, Ed.D.
Lewis C. Solmon, Ph.D.
A. Garth Sorenson, Ph.D.
Louise L. Tyler, Ph.D.

Samuel J. Wanous, Ph.D.
Richard Williams, Ph.D.
Charles Z. Wilson, Ph.D.

Associate Professors

James S. Catterall, Ph.D., *Assistant Dean*
Robert M. Hodapp, Ph.D.
Harold G. Levine, Ph.D., *Chair*
Peter L. McLaren, Ph.D.
Theodore R. Mitchell, Ph.D., *Dean*
Don T. Nakanishi, Ph.D.
James W. Trent, Ph.D.
Concepción Valadez, Ph.D.
Wellford Wiems, Ph.D.

Assistant Professors

Alfredo J. Artiles, Ph.D.
Lynn G. Beck, Ph.D.
Megan L. Franke, Ph.D.
Christine D. Gutierrez, Ph.D.
Yasmin B. Kafai, Ed.D.
Connie L. Kasari, Ph.D.
Patricia M. McDonough, Ph.D.
Michael H. Seltzer, Ph.D.
Renee Smith Maddox, Ph.D.
Daniel G. Solorzano, Ph.D.
Zhixin (Justine) Su, Ph.D.
Amy S. Wells, Ph.D.

Adjunct Professors

Howard Gadlin, Ph.D.
Harry Handler, Ph.D.
Leslie Koltai, Ed.D.
Harold L. Pruett, Ph.D.

Adjunct Associate Professor

Phillip Ender, Ph.D.

Scope and Objectives

As one of the top-ranked public graduate program 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 will graduate with a broad understanding of educational theory and tested practice.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

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,

246B, 251D, 260, 262A, 262B, 262F, 262J, 273A, 400, 401, 402, 403, 420A, 422, 423, 424A, 424B, 424C, 424G, 437A, 440C, 441A, 441B, 442B, 443, 444A, 444B, 447, 448A, 448B, 470A, 470B, 490A.

Division 2 — Educational Psychology

Education 125A, 125B, 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, 421C, 421D, 421F, 433A, 433B, 501.

Division 3 — Higher Education and Work

Education M148, 180, 181, 192, 209A, 209C, 209D, 214C, 234, 235, 238, 239, 248, 249A, 249B, 259A, 261E, 261F, 262I, 263, 410A-410B, 431A, 431B, 431C, 432, 437B, 461A, 462.

Division 4 — Social Research Methodology

Education 200B, 200C, 202, 206C, 210A through 210E, 211A, 211B, 211C, 218A through 218D, 219, 221, M222A, 222B, 222C, 228, 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 100A-100B, 112, 264, 309A, 309B, 311, 312, 315A-315B, 316A-316B, 318A-318B, 320A-320B, 324A through 324D, 330A through 330D, 360, 409A, 409B, 413A-413B, 481, 489, 491A, 492.

Academic Interinstitutional Programs

Education 313A-313B, 313C-313D, 314A-314B, 317A, 317B, 317C, 319, 321A through 321D, 322A, 322B, 323, 326, 327, 328, 329, 331, 332.

Special Studies

Education 296A-296F, 299A-299B-299C, 310, 375, 498A-498B-498C, 499A-499B-499C, 596, 597, 598, 599.

Undergraduate Specialization in Education Program

Education 91A through 91E, 191B through C191E, 197A-197Z, 199.

Master's Degrees

The Department of Education offers the Master of Arts degree and the Master of Education degree.

Master of Arts

Admission

The Master of Arts (M.A.) degree in Education is an academic master's degree designed to meet the needs of individuals 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 for 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 of Education 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 Concurrent Degree

The Department of Education and the School of Law offer a concurrent degree program 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 schools, students are awarded both degrees on its completion. This program is not offered in 1995-96.

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.

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 consent of division head. Courses must be completed with a grade 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 this examination are given a second opportunity to take the examination at the discretion of the student's 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 theses and dissertations 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 Master of Education (M.Ed.) degree 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 for 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 Ser-

vices 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.

Latin American Studies/Education Program

The Department of Education and the Latin American Studies Program offer an articulated degree program which 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. This program is not offered in 1995-96.

Law/Education Program

See the Admission section under Master of Arts. This program is not offered this year.

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 studies is offered three times per year (Fall, Spring, and Summer Quarters). The M.Ed. examination in curriculum studies 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 studies 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 this examination. Students who fail this examination are given a second opportunity to take the examination at the discretion of the student's 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 (Ph.D.) degree and the Doctor of Education (Ed.D.) degree.

Doctor of Philosophy

Admission

The Doctor of Philosophy (Ph.D.) degree 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, a student must have a bachelor's degree or equivalent. Applicants must also have demonstrated academic excellence and the potential for scholarly research. A student is 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 for 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 of Education 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.

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.

Law/Education Program

See the Admission section under Master of Arts.

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 required 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. This requirement is satisfied by completing three methodology courses as specified in the list approved by the Department of Education; 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 divi-

sion 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. This 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 this 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 examination is offered twice yearly, once in Fall Quarter and once in Spring Quarter. The written qualifying 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 this examination. Students who fail this examination are given a second opportunity to take the examination at the discretion of the student's 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.) degree 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 Program

See the Admission section under Master of Arts.

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. This 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 this 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 this examination are given a second opportunity to take the examination at the discretion of the student's 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.

Lower Division Courses

91A. Infant Care and Development. 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. 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. Upper division standing preferred. 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. Upper division standing preferred. 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. 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

100A-100B. Social Foundations and Cultural Diversity in American Education (2 units each). (Formerly numbered 100.) Lecture, one hour; discussion, one hour. Prerequisite: credential program standing:

100A. Intensive consideration of American society, particularly its 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, and students' personal attitudes toward people of different cultural, linguistic, and racial backgrounds.

100B. Intensive consideration of American society and perspectives of cultural diversity in the U.S. and California, and its impact on education and classroom instruction, with focus on cultural contact, dynamics of prejudice, clashes between values, and strategies for conflict resolution. Use of historical, philosophical, and sociological perspectives.

M102. The Mexican American and the Schools. (Same as Chicana and Chicano Studies M102.) Prerequisite: consent of instructor. 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. (Same as Sociology M175.) Prerequisite: 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.

112. Psychological Foundations of Education. Prerequisite: consent of instructor. 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 for instructional practices.

125A. Education of Exceptional Individuals. Prerequisite: Psychology 10 or equivalent. 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.

125B. Principles for Teaching Exceptional Individuals. Prerequisite: consent of instructor. Approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management.

M148. Women in Higher Education. (Same as Women's Studies M148.) Limited to 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. 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.

181. Advanced Topics in Social Psychology of Higher Education. Lecture, three hours; discussion, one hour. Prerequisites: course 180, consent of instructor. Critical analysis of social psychological inquiry into college attendance, preparation, persistence, and outcomes. Examination of intellectual and personal development of individuals vis-à-vis differential college environments and instructional experiences with respect to students' gender, culture, motivation, involvement, and expectations.

C191A. Philosophy of Education: Ethics and Values. 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. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. 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. 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. Recommended (but not prerequisite): 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. 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.

192. Theory and Practice of the Teaching and Learning Function. Lecture, three hours; practicum placement. Prerequisite: consent of instructor. 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.

197A-197Z. Current Issues in Education. (Formerly numbered 197.) Lecture, three to four hours. Prerequisite: upper division standing. 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 Children. (Formerly numbered 325A.) Lecture, one hour; laboratory, six to eight hours. Prerequisite: course 125A or consent of instructor. 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 Children. (Formerly numbered 325B.) Lecture, one hour; laboratory, six to eight hours. Prerequisite: 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. Prerequisites: senior standing, consent of instructor. To be arranged with faculty member who will direct the study.

Graduate Courses

200A. Historical Research and Writing. 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. Prerequisite: course 210A or equivalent. Problems of conceptualization, organization, and gathering nonexperimental and quasi-experimental quantitative and qualitative data.

200C. Analysis of Survey Data in Education. Lecture, three hours; laboratory, two hours. Prerequisite: course 200B. Introduction to techniques of processing and analyzing nonexperimental and quasi-experimental quantitative data.

M201C. History of American Education. (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. Prevalent evaluation theories, systems for categorizing these theories, and process of theory development in educational evaluation.

C203. Educational Anthropology. Recommended (but not prerequisite): 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. Prerequisite: consent of division. 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. 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. Prerequisite: graduate standing or consent of instructor. 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. 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. Prerequisite: graduate standing or consent of instructor. Critical analysis of complex world of "development cooperation," with particular reference to bilateral and multilateral efforts in education.

204F. Nonformal Education in Comparative Perspective. 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. 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. Systematic introduction to the field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values.

206C. Introduction to Conceptual Analysis. 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. 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. Prerequisite: 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. 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. Lecture, two hours; discussion, two hours. Prerequisite: graduate standing or consent of instructor. 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. 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. 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. 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.

210A. Introduction to Research Design and Statistics. Fundamentals of research design. Language of research. Planning and conduct of research. Interpretation and reporting of research outcomes. Introduction to descriptive statistics: mean, median, mode, variance. Introduction to normal curve.

210B. Statistical Inference. Prerequisite: knowledge of research designs and univariate descriptive statistics. Regression, correlation, inference, normal curve tests, t-tests, simple and factorial analysis of variance, and selected nonparametric tests.

210C. Analysis of Variance. Prerequisite: course 210B or equivalent. Completely randomized designs, randomized block designs, nested designs, and their combinations into advanced factorial designs using fixed, random, and mixed models. Analysis of covariance, introduction to multiple regression and quasi-experimental designs.

210D. Multivariate Analysis. Prerequisite: course 210C or equivalent. 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.

210E. Factor Analysis. Prerequisites: courses 210D, 211B. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis.

211A. Measurement of Educational Achievement and Aptitude. Prerequisite: course 210A. 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.

211B. Measurement in Education: Underlying Theory. Prerequisite: 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. Prerequisites: courses 210C, 211B, or equivalent. Item response theory, applications to educational achievement tests, item bias, test information, test equating, computerized adaptive testing.

212A. Learning and Education. Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction.

212B. Motivation and Affect in Educative Process. Prerequisites: courses 210A, 212A. Review of theoretical and empirical literature on motivational factors in school settings and conditions for acquisition of affective outcomes.

212C. Cognition and Creativity in Education. Prerequisite: 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. 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. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisites: courses 213A, 214A, and 214B, or consent of instructor. 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.

214A. Counseling Theory and Practice. 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. 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.

214C. Principles of Career Planning. Examination of nature of careers across ages and ethnic and sexual groups in order to determine implications for career planning in postindustrial society.

214D. Career Counseling. Depth study of current theories, principles, problems, and practices of career counseling.

214E. Substance Abuse and Addiction. Theory and practice of prevention and intervention in substance abuse and addiction from perspective of counseling and educational practice

214F. Student Problems: Social Context. 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. (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. Prerequisite: course 213A or consent of instructor. 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. (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. Prerequisite: graduate standing. 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. (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. 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. 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 units, 2 units, 1 unit). (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.) Course M217G is prerequisite to M217H, which is prerequisite 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.

218A. Multiple Regression Analysis. Prerequisite: course 210B. Regression-based techniques for analyzing quantitative data; multiple regression methods, multiple correlation, partial correlation; introduction to general linear model, with direct application to educational inquiry.

218B. Advanced Quantitative Models in Non-experimental Research: Multilevel Analysis. Prerequisites: course 218A or equivalent, consent of instructor. 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.

218C. Structural Equation Modeling. Prerequisites: courses 210D, 210E, 218B, or equivalent. 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.

218D. Analysis of Categorical and Other Nonnormal Data. Prerequisites: courses 210D, 210E. Regression analysis with dichotomous and polytomous dependent variables, log-linear modeling, coefficients of association for categorical variables, factor analysis, and structural equation modeling.

219. Laboratory: Advanced Topics in Research Methodology. 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. 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. 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. Lecture, two hours; laboratory, two hours. Prerequisites: courses 209C (section 1), 210A, or equivalent. 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.

M222A. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (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. Lecture, three hours; discussion, one hour. Prerequisite: course M222A or consent of instructor. 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. Lecture, two hours; discussion, two hours. Prerequisite: course M222A or 222B or consent of instructor. 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.

223. Aesthetics and the Curriculum. 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. 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. Prerequisite: graduate standing. 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. Prerequisite: consent of instructor. 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.

227A. Research on Learning Characteristics of Exceptional Individuals. Prerequisite: 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. Prerequisite: 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. Prerequisite: 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. Lecture, two hours; discussion, two hours. Prerequisites: course 210A or equivalent, consent of instructor. 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.

229. Special Studies on Educational Policy and Planning. 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.

232. Instructional Analysis. Prerequisite: consent of instructor. 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.

234. Education and Social Stratification. 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.

235. Education and Work. Review of theoretical and empirical literature on issues concerning interface of education and work. Review of alternatives in school-to-work transition of youth and appraisal of present vocational training and manpower development programs.

236. Human Abilities. Prerequisite: course 210B or equivalent. 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.

238. Cross-National Analysis of Higher Education. 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. 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. Prerequisite: graduate standing or consent of instructor. Cultural foundations of persistent and troubling issues and tensions in American educational policy-making and practice.

241. Research Methodology in School Administration. Prerequisite: consent of instructor. Examination of research problems and strategies in school administration.

242. Economic Analysis for Educational Policy and Planning. Prerequisite: graduate standing. Introductory course focusing on concepts and quantitative methods from economics, statistics, and operations research applied to educational policy and planning issues. Instruction in programming microcomputers for instruction (BASIC) and management information systems (dBASE).

C244. Economics of Education. 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. Conceptual and theoretical underpinnings of cost-benefit analysis, critical analysis of current cost-benefit studies, and procedures for conduct of cost-benefit studies.

246A. Seminar: Mathematical Modeling in Educational Policy Analysis. Prerequisite: course 242 or consent of instructor. Stochastic and deterministic modeling techniques as applied to educational policy and planning issues. Mathematics review and instruction in use of MPS (Mathematical Programming System) and development of software for Monte Carlo computer simulation studies in education.

246B. Seminar: Operations Research — Systems Analysis in Education. Prerequisite: course 242 or consent of instructor. Application of advanced mathematical modeling techniques of operations research to educational policy and planning. Design of computer-based management information systems in education using dBASE.

248. Seminar: Perspectives on Lifelong Learning. From interdisciplinary perspective, lifelong learning is studied theoretically and as an area of educational research, policy, and practice. Conceptual distinctions among major proponents of lifelong learning and implications for schooling.

249A. Seminar: National Evaluations of Postsecondary Education. Critical review of national evaluation studies of higher education, including programs of general education and professional and graduate school programs; emphasis on design, methodology, and interpretation of large-scale evaluation studies.

249B. Seminar: Institutional Research and Program Evaluation. 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.

251A. Seminar: Philosophy of Education, Epistemology. Prerequisite: consent of instructor.

251C. Seminar: Philosophy of Education, Social Science Problems — Methodological Perspectives. Prerequisite: course 206C or consent of instructor.

251D. Seminar: Philosophy of Education, Problems in Ethics and Values. Prerequisite: course C206D or consent of instructor.

251E. Seminar: Philosophy of Education, Selected Issues.

252A. Seminar: Educational Organizations. Prerequisite: course 208A or consent of instructor.

252B. Seminar: Education and Social Change. Prerequisite: course 208A or consent of instructor.

M252C. Human Resources and Economic Development. (Same as Community Health Sciences M236.) Examination, in context of the developing countries, of interactions among economic development, population growth, levels of health and nutritional status, and educational investments.

253A. Seminar: Current Problems in Comparative Education.

253B. Seminar: African Education. Prerequisite: graduate standing or consent of instructor. 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.

253D. Seminar: Latin American Education.

253E. Seminar: European Education.

253F. Seminar: Education in Revolutionary Societies. 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. 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. 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. 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. Prerequisite: 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. Prerequisite: consent of instructor. May be repeated for credit. **255A.** Measurement; **255B.** Design; **255C.** Data Analysis.

256A. Seminar: Special Topics in School Learning. Prerequisite: consent of instructor.

256B. Seminar: Special Topics in Development. Prerequisite: consent of instructor.

257. Seminar: Research in Counseling Psychology. Prerequisite: consent of instructor. In-depth analysis of selected research approaches/areas in counseling psychology.

258A. Seminar: Problems in Instructional Research.

258B. Seminar: Problems in Instructional Development.

259A. Seminar: Research on Characteristics of Students. 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.

261E. Seminar: Education and Work.

261F. Seminar: Cognitive and Personal Development of College Students. Examination of cognitive development of college students; issues of personal and social development, including leadership, and interpersonal relations and skills.

262A. Seminar: The Social Studies.

262B. Seminar: Reading.

262F. Seminar: Research Topics in Bilingual/Multicultural Education. Prerequisite: consent of instructor.

262I. Seminar: Contemporary Issues in Education and Work.

262J. Seminar: Economic Education.

263. Seminar: Higher Education.

264. Seminar: Teacher Education. Prerequisite: consent of instructor. 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.

267. Seminar: Educational Technology.

271A. Proseminar: Educational Psychology (2 units). 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. 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. 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.

275. Race and Education. Limited to 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.

280A. Seminar: Selected Topics in Special Education (2 to 6 units). Prerequisite: consent of instructor. 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. Prerequisite: doctoral standing.

M281A. Seminar: Human Behavioral Ecology. (Same as Anthropology M229A and Psychiatry M279A.) Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Examination of predictive models from animal behavioral ecology used to study human diet and subsistence; settlement patterns and territoriality; sharing and helping; reproduction and mortality. Comparison with other economic and ecological approaches in anthropology.

M281B. Seminar: Reproduction, Families, and Parenting. (Same as Anthropology M229B and Psychiatry M279B.) Prerequisite: consent of instructor. Guided forum for graduate students to discuss and broaden their studies of human reproduction and child rearing from varied viewpoints. Representation and debate of theories, questions, and methods from social and biological sciences.

M281C. Seminar: Selected Topics in Human Ethology. (Same as Anthropology M229C and Psychiatry M279C.) Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Consideration of appropriateness and contributions of using animal behavior methodology in study of human behavior. Analysis: describing and recording behavior; causation; development, especially longitudinal studies; adaptation; evolutionary origins.

296A-296F. Seminars: Research Topics in Education (2 units each). Discussion, three hours. Prerequisite: consent of instructor. 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 units each). May be repeated for credit.

300. Dissertation Writing Workshop: Interdivisional Seminar. Lecture, one hour; discussion, two hours; laboratory, one hour. Prerequisite: consent of instructor. 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.

309A. Methodologies in Teaching Bilingual and English Language Development (3 units). Lecture, two hours; discussion, one hour. Prerequisite: credential program standing. Pedagogy for bilingual and English development instruction. Topics include legal foundations of bilingual programs, educational issues, organizational approaches, and communicative approach; discussion of instructional strategies and activities.

309B. Language Development in Content (3 units). Lecture, two hours; discussion, one hour. Prerequisite: credential program standing. Discussion of competencies needed by all content area teachers of limited English-proficient students, including strategies for teaching in and through English. Designed to assist classroom teachers in developing their knowledge and necessary skills to assure English language learners access to core curriculum.

310. Professional Communication for Graduate Students in Education (2 units). Prerequisite: consent of instructor. 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 units). Lecture, one hour; laboratory, 30 minutes. Prerequisite: consent of department. 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. Prerequisite: consent of instructor. 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.

313A-313B. Principles and Methods for Teaching Elementary Mathematics (6 to 12 units each). Prerequisite: consent of instructor. Course 313A is prerequisite to 313B. Problem-solving strategies and geometry for elementary teachers. Use of concrete materials, computers, calculators, cooperative learning, and content for elementary teachers. S/U grading.

313C-313D. Principles and Methods for Teaching Secondary Mathematics (6 to 12 units each). Prerequisite: consent of instructor. Course 313C is prerequisite to 313D. Problem-solving strategies in algebra, geometry, and trigonometry for secondary mathematics teachers. Use of concrete materials, computers, calculators, cooperative learning, and content for secondary teachers. S/U grading.

314A-314B. Principles and Methods for Curriculum, Instruction, and Leadership in Mathematics (6 to 12 units each). Prerequisite: consent of instructor. Course 314A is prerequisite to 314B. 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 units each). Prerequisite: consent of instructor. Course 315A is prerequisite 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 units each). Prerequisite: consent of instructor. Course 316A is prerequisite 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.

317A. Principles and Methods for Teaching Elementary Science — K-2 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of science and incorporation of science process skills for grades K-2. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

317B. Principles and Methods for Teaching Elementary Science — 3-4 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of science and incorporation of science process skills for grades 3-4. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

317C. Principles and Methods for Teaching Elementary Science — 5-6 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of science and incorporation of science process skills for grades 5-6. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

318A-318B. Principles and Methods for Multiple Subject Instruction (2 units each). Prerequisite: consent of instructor. Course 318A is prerequisite to 318B. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Focus on subjects commonly taught in elementary schools. Observation and participation in schools. S/U grading.

319. Principles and Methods for Teaching Composition — 1-12 (6 to 12 units). Prerequisite: consent of instructor. Drawing from current research and theory, participating teachers expand their repertoire of techniques for teaching writing and literature. Focus on drawing on expertise of classroom teachers and becoming teacher-writers in addition to writing teachers. S/U grading.

320A-320B. Principles and Methods for Single Subject Instruction (2 units each). Prerequisite: consent of instructor. Course 320A is prerequisite 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.

321A. Principles and Methods for Teaching Physics — 7-12 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of physics and incorporation of science process skills for grades 7-12. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

321B. Principles and Methods for Teaching Chemistry — 7-12 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of chemistry and incorporation of science process skills for grades 7-12. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

321C. Principles and Methods for Teaching Earth and Space Sciences — 7-12 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of Earth and space sciences and incorporation of science process skills for grades 7-12. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

321D. Principles and Methods for Teaching Life Sciences — 7-12 (6 to 12 units). Prerequisite: consent of instructor. Conceptual teaching of life sciences and incorporation of science process skills for grades 7-12. Demonstrations, hands-on experiences, and development of teaching materials. S/U grading.

322A. Principles and Methods for Using Computers in Science Instruction — K-12 (6 to 12 units). Prerequisites: courses 317A, 317B, and 317C, or 321A, 321B, 321C, and 321D, consent of instructor. Use of computers and current proven computer software to teach science content and process conceptually at all grade levels. Development of teaching units. S/U grading.

322B. Principles and Methods for Peer Leaders in Science Classrooms — K-12 (6 to 12 units). Prerequisites: courses 317A, 317B, and 317C, or 321A, 321B, 321C, and 321D, consent of instructor. Develops qualities in teachers necessary for leadership positions in science education at all grade levels. Exploration of leadership roles; leadership behavior practice. S/U grading.

323. Teacher-Researcher: Principles of Classroom Research (6 to 12 units). Prerequisite: consent of instructor. Guidance of teachers conducting research in their language arts classroom, K through community college, with emphasis on naturalistic research techniques, research relevant to proposed studies, research conducted by other teacher-researchers, publication of findings. S/U grading.

324A. Observation and Participation: Multiple Subject Instruction (2 to 6 units). Prerequisite: consent of instructor. Six hours per week of observation and participation in classrooms in which multiple subjects are taught, normally in elementary schools. Preparation for supervised teaching. S/U grading.

324B. Supervised Teaching: Multiple Subject Instruction (2 to 10 units). Prerequisites: course 324A, consent of instructor. Practice teaching under daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. S/U grading.

324C. Supervised Teaching: Multiple Subject Instruction (2 to 10 units). Prerequisites: course 324B, consent of instructor. Advanced practice teaching under daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. S/U grading.

324D. Supervised Teaching: Multiple Subject Instruction (2 to 10 units). Prerequisites: course 324C, consent of instructor. Advanced practice teaching under daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. S/U grading.

326. Principles and Methods for Teaching English/Language Arts — K-12 (6 to 12 units). Prerequisite: consent of instructor. Emphasis on teaching a literature-based language arts program incorporating process skills, modeling, hands-on experiences, and development of teaching and teacher-training materials. S/U grading.

327. Principles and Methods for Teaching Spanish Effectively (6 to 12 units). Prerequisite: consent of instructor. 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.

328. Principles and Methods for Integrating Content and Language Instruction (6 to 12 units). Prerequisite: consent of instructor. Theoretical rationale for integrating language teaching and content instruction for ESL students at intermediate or advanced level in English. Various Sheltered English techniques described, modeled, and used in hands-on workshops involving peer and expert coaching. S/U grading.

329. Integrating the Elementary School Curriculum — K-6 (6 to 12 units). Prerequisite: consent of instructor. Open to credentialed teachers. Interdisciplinary strategies emphasizing reading and writing in the content areas, relating science and mathematics, and promoting enrichment follow-up activities in other disciplines such as social studies and art. S/U grading.

330A. Observation and Participation: Single Subject Instruction (2 to 6 units). Prerequisite: consent of instructor. Six hours per week of observation and participation in classrooms in which single subjects are taught, normally in secondary schools. Preparation for supervised teaching. S/U grading.

330B. Supervised Teaching: Single Subject Instruction (2 to 10 units). Prerequisites: course 330A, consent of instructor. Practice teaching under daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. S/U grading.

330C. Supervised Teaching: Single Subject Instruction (2 to 10 units). Prerequisites: course 330B, consent of instructor. Advanced practice teaching under daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. S/U grading.

330D. Supervised Teaching: Single Subject Instruction (2 to 10 units). Prerequisites: course 330C, consent of instructor. Advanced practice teaching under daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. S/U grading.

331. History and Geography Themes in U.S. History and World History Courses (6 to 12 units). Prerequisite: consent of instructor. Emphasis on new curricular reform elements written into the 1987 California Framework. Lectures, seminars, and demonstrations on fundamental issues in history, with examples derived from the History/Social Science Framework. S/U grading.

332. The Immigrant Experience (6 to 12 units). Prerequisite: consent of instructor. Readings, films, interviews, and field trips to foster understanding of composition, origins, landscape expression, and ambitions of Los Angeles' new populations, since this city is the destination of many immigrant groups entering the U.S. S/U grading.

360. Teaching Clinical Practicum. Discussion, two hours; fieldwork, two hours. Prerequisite: consent of instructor and director of Teacher Education Laboratory. Seminar and directed field experience. Examination and analysis of different methods of subject matter instruction.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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.

409A. Language Structure, Acquisition, and Development (3 units). Lecture, two hours; discussion, one hour; ethnographic study. Prerequisite: credential program standing. 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 limited English-proficient students.

409B. Language Structure and Acquisition (3 units). Lecture, two hours; discussion, one hour; ethnographic study. Prerequisite: credential program standing. Rationale for bilingual/English language acquisition and development programs. Topics include historical and current theories and models of language programs that have implications for second language development and pedagogy. Consideration of psychological factors affecting first and second language development.

410A-410B. Fundamental Issues in Higher Education, Work, and Adult Development. Course 410A is prerequisite to 410B. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute the division. Emphasis on underlying social and political issues that shape higher education, work, and adult development.

410C. Perspectives on Higher Education. Lecture, two hours; discussion, two hours. 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. S/U or letter grading.

411A. Introduction to Educational Evaluation. 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. 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. Prerequisite: 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. Prerequisite: consent of instructor. 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-413B. Methodology for Primary Language Instruction (3 units each). Lecture, two hours; discussion, one hour. Prerequisite: credential program standing. Conducted in Spanish. **413A.** Required for BCLAD. Characteristics of bilingual programs, instructional delivery in bilingual classrooms, and factors to consider in selection and use of primary language materials. **413B.** Cultural similarities and differences among Spanish speakers in California. Causes for patterns of immigration into the U.S., manifestations of culture, and contributions of Spanish speakers to the U.S. and California.

415A. Assessment in Counseling Psychology. Prerequisites: courses 210A, 211A. 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.

415B. Advanced Assessment in Counseling Psychology. Prerequisites: course 415A, consent of instructor. 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. 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. Prerequisite: 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.

421C. Research and Evaluation of Early Childhood Programs. Prerequisite: course 421A or equivalent or consent of instructor. Critical review of evaluation models (e.g., summative, formative, implementation) and their utility for improving and evaluating quality of child-related programs.

421D. Parents and Community Agents in Child Development. Prerequisite: 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. 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. 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. 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. 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. Prerequisite: course 210A. Study of reading curricula and instructional procedures, with emphasis on rationale and research underlying their development and research comparing their effectiveness.

424C. Language in the Curriculum. Advanced study in school language curriculum; application to improvement of curriculum in the field.

424G. Curriculum Design for Bilingual Education. Prerequisite: consent of instructor. 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.

431A. Administration in Higher Education. Overview of college and university administration and introduction to policy research and analysis in post-secondary 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. 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.

431C. Innovative Forms and Practices in Higher and Continuing Education. New institutional forms (e.g., external degree programs and other nontraditional approaches to higher education, neighborhood learning centers, and peoples' colleges). Methodological innovations such as computer-assisted instruction, credit by examination, and independent study.

432. Seminar: Professional Topics in Higher Education.

433A. Instructional Product Development. Prerequisite: consent of instructor. Examination of procedures employed in systematic development of instructional products. Students acquire competencies associated with those procedures.

433B. Technological Development in Educational Media. Prerequisite: 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.

437A. Principles of Curriculum in Economic Education. Theories, principles, and concepts related to understanding the business and economic system; their application to teaching in secondary school.

437B. Corporate Educational Programs. History and scope of corporate training programs; current educational problems in training programs within industry as they are affected by automation and technological change.

440C. Administration of the Instructional Program. 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. 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. Prerequisite: course 441A or equivalent. 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. 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. Prerequisite: consent of instructor. 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).

444A. Legal Aspects of Access to Public Education. Prerequisite: course 442B or consent of instructor. Study of access to public education focused on issues of affirmative action, testing, tracking, bilingual/bicultural education, special education, correctional education, and malpractice suits.

444B. Equality of Educational Opportunity through Desegregation and Finance Case Law. Prerequisite: course 442B or consent of instructor. 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 units). Prerequisite: consent of instructor.

448A. Urban School Leadership. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Topics and instructors vary each term. Recent emphases included evaluation utilization and cost-effectiveness evaluation.

461A. Seminar: Adult and Continuing Education. Broad-ranging review of theory and practice in the field, with particular attention to college and university continuing education, but also to programs provided by industry, the professions, public schools, and other institutions.

462. Seminar: Community College. Topics include problems and practices in community college formation, instruction, student flow, administration, and/or evaluation.

470A. Seminar: Large Systems and Individual Schools. Prerequisite: consent of instructor.

470B. Seminar: Educational Government. Prerequisite: consent of instructor.

481. Knowledge and Inquiry in the Classroom. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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 units each). May be repeated for credit.

499A-499B-499C. Advanced Directed Field Experience (4 to 8 units each). May be repeated for credit.

501. Cooperative Program in Special Education (2 to 8 units). Prerequisite: 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 units). 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 units). 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 units). 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 units). Research for and preparation of doctoral dissertation. May be repeated for credit. S/U grading.

ELECTRICAL ENGINEERING

*School of Engineering and Applied
Sciences*

UCLA
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Professors

Asad A. Abidi, Ph.D.
Nicolao G. Alexopoulos, Ph.D.
A.V. Balakrishnan, Ph.D.
Harold R. Fetterman, Ph.D.
Tatsuo Itoh, Ph.D. (TRW Professor of Electrical
Engineering)

Stephen E. Jacobsen, Ph.D., *Associate Dean*
 Chandrashekhar J. Joshi, Ph.D.
 William J. Kaiser, Ph.D., *Vice Chair*
 Nhan Levan, Ph.D., *Vice Chair*
 Jia-Ming Liu, Ph.D.
 C. Kumar N. Patel, Ph.D.
 Yahya Rahmat-Samii, Ph.D.
 Izhak Rubin, Ph.D.
 Oscar M. Stafsudd, Ph.D., *Vice Chair*
 Chand R. Viswanathan, Ph.D.
 Kang L. Wang, Ph.D., *Chair*
 Paul K.C. Wang, Ph.D.
 Alan N. Willson, Jr., Ph.D., *Associate Dean*
 Eli Yablonoitch, Ph.D.
 Kung Yao, Ph.D.

Professors Emeriti

Frederick G. Allen, Ph.D.
 Francis F. Chen, Ph.D.
 Robert S. Elliott, Ph.D.
 Ellis F. King, M.S.
 Richard E. Mortensen, Ph.D.
 H.J. Orchard, M.Sc.
 Frederick W. Schott, Ph.D.
 Gabor C. Temes, Ph.D.
 Donald M. Wiberg, Ph.D.
 Jack Willis, B.Sc.

Associate Professors

Klaas Bult, Ph.D.
 Rajeev Jain, Ph.D.
 Brian H. Kolner, Ph.D.
 Dee-Son Pan, Ph.D.
 Henry Samuelli, Ph.D.
 Jason C.S. Woo, Ph.D.
 Ming-C. Wu, Ph.D.

Assistant Professors

Abeer A.H. Alwan, Ph.D.
 Nicholas Bambos, Ph.D.
 Bahram Jalali, Ph.D.
 Ioannis Kanellakopoulos, Ph.D.
 William H. Mangione-Smith, Ph.D.
 Kristofer S.J. Pister, Ph.D.
 Gregory J. Pottier, Ph.D.
 John D. Villasenor, Ph.D.

Adjunct Professors

Donald Amush, Ph.D.
 Giorgio Franceschetti, Ph.D.
 Joel Schulman, Ph.D.
 Pyotr Y. Ufimtsev, Ph.D.

Adjunct Associate Professors

Siegfried G. Knorr, Ph.D.
 Warren B. Mori, Ph.D.

Scope and Objectives

The Electrical Engineering Department emphasizes teaching and research in the fields of integrated circuits and systems, communications and telecommunications, signal processing, solid-state electronics, quantum electronics, electromagnetics, microwave and millimeter wave electronics, control systems, operations research, and applied plasma physics and fusion engineering. 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.

Bachelor of Science Degree

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 the student develops expertise in it.

The Major

Course requirements are as follows (186 minimum units required):

(1) Five core courses: Electrical Engineering 101, 102, 103, and two courses from Civil and Environmental Engineering 108, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, M105A (or Chemical Engineering M105A), 105D.

(2) Electrical Engineering 10, 110, 115A, 121A, 121B, 132A, 141, 161, Computer Science 51A, Mathematics 132; four two-unit courses selected from the laboratory courses offered by the Electrical Engineering Department, Computer Science 152A, 152B and, by petition only, Electrical Engineering 199; Mechanical, Aerospace, and Nuclear Engineering 192A and either Electrical Engineering 131A or a course in statistical mechanics.

(3) Any five major field elective courses (20 units) selected from those offered by the Electrical Engineering Department. With approval of the adviser, two may be selected from courses related to electrical engineering in other departments.

(4) Chemistry and Biochemistry 11A, 11B/11BL; Electrical Engineering 5C; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

(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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program in Electrical Engineering 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 in the Curricula and Courses section of this catalog.

Application forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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

Applied Plasma Physics and Fusion Engineering

Fundamental plasma waves and instability; interaction of microwaves and laser radiation with plasmas; plasma diagnostics; controlled nuclear fusion.

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 analog 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.

Quantum Electronics

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.

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

The degree may be taken in either of the two special areas: solid-state physical electronics or 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 any master's degree: Electrical Engineering 10, 110, 115A, 121A, 121B, 132A, 141, 161.

Applied Plasma Physics and Fusion Engineering

Prerequisite. A bachelor's degree in engineering or physics or the 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 additional 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 departmental adviser.

Additional Courses. Electrical Engineering 115A, 115AL, 115B, 115BL, 115C, 116, 122AL, 123A, 123B, 124, 162A, 163A, 163B, 164AL, 172, M208A, M208B, 270, 271, 272, M286, M287; Mechanical, Aerospace, and Nuclear Engineering 135, 150A, 150B, 235B, 250A, 252A, 252B; Physics 160, 180E, 222A, 222B, 222C, 231A, 231B, 231C.

Communications and Telecommunications

Prerequisite. 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 are 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 courses in the communications and telecommunications engineering area; five or more courses of which at least two are 200-level electrical engineering courses, subject to the approval of the student's adviser.

Control Systems

Prerequisite. A bachelor'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 eight 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 240A, 240B, 240C, 241A, 241B, 241C, 242.

Electromagnetics

Prerequisite. 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 these 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

Prerequisite. B.S. degree in Electrical Engineering, containing courses in electronics and integrated circuits equivalent to Electrical Engineering 115B, 115C, 118, and 121A. A written qualifying examination may be used to verify the background of beginning M.S. students who have not taken these courses. Those not passing the examination must take these 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 118, 215A, 215B, M216A.

Group II: Electrical Engineering 115D, 116, 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 these 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 prerequisite structure, consult the department.

In consultation with an adviser, the student 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 — Continuous and Combinatorial Optimization: Electrical Engineering 232E, 236A, 236B, 236C.

Group II — Stochastic Processes and Optimization: Electrical Engineering 232A, 232B, 237, 238.

Thesis Plan. Under the thesis plan, the student offers 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, the student may not apply any 500-level courses toward the course requirements.

Quantum Electronics

Prerequisite. A bachelor'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 is 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 upper division and graduate 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 under-

graduate core courses. Consult the departmental adviser for lists of these courses.

Signal Processing

Prerequisite. B.S. degree in Electrical Engineering.

Course Requirements. Nine four-unit courses, of which at least five must be at the graduate level (200 series), must be completed. Eight units (two courses) of Electrical Engineering 598 can be used 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 graduate-level courses that are required. All four courses listed in Group I must be completed. At least three courses must be chosen from Group II. Two courses may be chosen as either free electives or 598.

Group I: Electrical Engineering 113, 211A, 212A, 214A.

Group II: Electrical Engineering 116, 211B, 212B, 213A, 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 student's faculty adviser. If Electrical Engineering 113 or equivalent has already been taken as an undergraduate, then a Group II course or a free elective may be substituted, subject to the faculty adviser's approval.

Solid-State Electronics

The degree may be taken in either of two special areas: solid-state physical electronics or semiconductor device physics and design.

Prerequisite. B.S. degree in Engineering or equivalent.

Minimum Course Requirements. Nine courses, of which at least five must be at the graduate level. Two units of Electrical Engineering 229S are also required. 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 a bachelor's degree in the Electrical Engineering Department, on approval of the graduate adviser.

Semiconductor Device Physics and Design Requirements. Core: Electrical Engineering 123B, 124, 221A, 221B (should have had 121A, 121B as prerequisites). 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 a bachelor's degree in the Electrical Engineering Department, on approval of the graduate adviser.

Comprehensive Examination Plan

Applied Plasma Physics and Fusion Engineering

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.

Communications and Telecommunications

A written comprehensive examination is administered by the communications and telecommunications field committee. In case of failure, the student may be reexamined once with the consent of the graduate adviser. This 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, the student 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 the student is expected to graduate. In case of failure, the student 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, the student may be reexamined once with the consent of the graduate adviser.

Quantum Electronics

Consult the department. In case of failure of the comprehensive examination, the student may be reexamined once with the consent of the graduate adviser.

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 applied plasma physics and fusion engineering, communications and telecommunications, control systems, electromagnetics, operations research, and quantum electronics.

Integrated Circuits and Systems

The student is 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 Degrees

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. program 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.

Application forms, including a departmental supplement to the application, may be obtained by writing to the student's department of interest 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.

Major Fields or Subdisciplines

Applied plasma physics and fusion engineering; communications and telecommunications; control systems; electromagnetics; integrated circuits and systems; operations research; quantum electronics; signal processing; solid-state electronics.

Course Requirements

There is no formal course requirement for the Ph.D. degree, and one may theoretically substitute coursework by examinations. Normally, however, the student takes 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 the student fails 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.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in the Curricula and Courses section of this catalog.

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, the student takes a preliminary examination in the major field. The examination typically consists of both a written part and an oral part, and the student passes the entire examination and not in parts. The oral part shall not exceed two hours, and in some major fields need not be required at all. A student who fails 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, the student is 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.

Lower Division Courses

2. Principles and Advances in Electrical Engineering. Lecture, three hours; outside study, nine hours. Open to freshmen and sophomores outside the School of Engineering and Applied Science. Particularly intended for students in humanities and arts. Topics include elementary treatment of fundamental concepts and advances in electrical engineering. P/NP grading.

5C. Introduction to UNIX and C. (Formerly numbered 5.) 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.

10. Circuit Analysis I. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: Mathematics 33A (corequisite), Physics 8C. 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.

Upper Division Courses

100. Electrical and Electronic Circuits. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: Mathematics 33A, 33B, Physics 8C. 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.

101. Engineering Electromagnetics. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: Physics 8C, Mathematics 32A and 32B, or 33A and 33B. Electromagnetic field concepts, Maxwell equations, static and quasi-static electric and magnetic fields, energy flow and Poynting vector, waves in unbounded media, reflection and transmission of plane waves, radiation and antennas.

102. Systems and Signals. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: Mathematics 33A, 33B, Physics 8C. Systems: input-output description, linearity, time-invariance, and causality. Impulse response functions, superposition and convolution integrals. Laplace transforms and system functions. Periodic signals. Fourier series and transforms. Frequency responses, responses of systems to periodic signals. Sampling theorem. Discrete-time systems and elements of z-transforms.

103. Applied Numerical Computing. Lecture, three hours; recitation, one hour; outside study, 11 hours. Prerequisites: course 5C or Computer Science 10C or 10F, Mathematics 33A, 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.

110. Circuit Analysis II. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: 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.

110L. Circuit Measurements Laboratory (2 units). Laboratory, four hours; outside study, two hours. Prerequisite: 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.

113. Digital Signal Processing. Lecture, three hours; recitation, one hour; outside study, nine hours. Prerequisites: 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.

113L. Digital Signal Processing Laboratory (2 units). Laboratory, four hours; outside study, two hours. Prerequisite: 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.

114. Introduction to Speech and Image Processing. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: 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.

115A. Analog Electronic Circuits I. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 110. Equivalent circuit modeling of electron devices. Device/circuit/environment interactions. Design of single-stage amplifiers. Introduction to cascaded stages, coupling problems, and frequency responses.

115AL. Analog Electronics Laboratory I (2 units). Laboratory, four hours; outside study, two hours. Prerequisite: 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.

115B. Analog Electronic Circuits II. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 115A. Electron device/circuit/environment interactions, with emphasis on multistage amplifiers. Tuned amplifier considerations. Nonlinear situations requiring graphical method of solution. Emphasis on design techniques, including economics, reliability, and realization of performance specifications.

115BL. Analog Electronics Laboratory II. Laboratory, four hours; outside study, eight hours. Prerequisite: 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.

115C. Digital Electronic Circuits. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisites: courses 115B, 121A, Computer Science 51A. Transistor-level digital circuit analysis and design. Modern logic families (TTL, ECL, NMOS, CMOS), IC layout, MSI digital circuits (flipflops, registers, counters, PLAs, etc.), computer-aided simulation of digital circuits.

115D. Applied Electronic Circuits (3 units). Lecture, three hours; outside study, six hours. Prerequisites: courses 115B, 115C, 118. Applications of distributed circuits. Operational amplifier applications and limitations. Power amplifiers. Feedback and stability. Precision and analog circuits.

116. Communication Circuits (3 units). Lecture, three hours; outside study, six hours. Prerequisites: courses 113, 115B, 132A. Review of analog and digital radio communication techniques. Noise, nonlinear distortion, automatic gain control, data transmission filters. Analog and digital oscillators and phase-locked loops. Basic modulation and demodulation techniques.

118. Integrated Circuit Components. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: courses 115B, 121B. Realization of active and passive components in integrated circuit design. Passive components: resistors, capacitors, metal interconnections. Active devices: NPN and PNP BJTs, design rules; FET devices. Device interactions and layout rules.

121A. Physical Principles of Semiconductor Devices. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: Materials Science 14, and Chemistry 11B or Physics 8E. 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.

121B. Principles of Semiconductor Device Design. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 121A. Introduction to principles of operation of bipolar and MOS transistors, equivalent circuits, high-frequency behavior, voltage limitations.

122AL. Semiconductor Devices Laboratory. Lecture, one hour; laboratory, six hours; outside study, five hours. Prerequisites: 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.

123A. Fundamentals of Solid-State I. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: junior standing in engineering, Physics 8E. 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.

123B. Fundamentals of Solid-State II. Lecture, three hours; outside study, nine hours. Prerequisite: course 123A. Discussion of solid-state properties, lattice vibrations, thermal properties, dielectric, magnetic, and superconducting properties.

124. Semiconductor Physical Electronics. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: 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.

131A. Probability. Lecture, four hours; recitation, one hour; outside study, 10 hours. Prerequisites: 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.

131B. Introduction to Stochastic Processes (5 units). Lecture, four hours; outside study, 11 hours. Prerequisite: 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.

132A. Introduction to Communication Systems (5 units). Lecture, four hours; recitation, one hour; outside study, 10 hours. Prerequisites: 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.

132B. Data Communications and Telecommunication Networks (5 units). Lecture, four hours; recitation, one hour; outside study, 10 hours. Prerequisite: course 131A. Layered communications architectures. Queueing system modeling and analysis. Error control, flow and congestion control. Packet switching, circuit switching, and routing. Network performance analysis and design. Multiple-access communications: TDMA, FDMA, polling, random access. Local, metropolitan, wide area, integrated services networks.

136. Introduction to Engineering Optimization Techniques. Lecture, four hours; recitation, one hour; outside study, seven hours. Prerequisites: course 103, Mathematics 32A, and 33A, or consent of instructor. 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.

141. Principles of Feedback Control. Lecture, three hours; recitation, one hour; laboratory, one hour; outside study, seven hours. Prerequisite: course 102 or consent of instructor. Classical methods of analysis and design of feedback control systems as applied to problems selected from engineering, biology, and related areas.

142. Linear Systems: State-Space Approach. Lecture, four hours; laboratory, one hour; outside study, 10 hours. Prerequisite: course 102. State-space methods of linear system analysis and design, with application to problems in networks, control, and system modeling.

161. Electromagnetic Waves. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 101. Transmission line theory, guided waves in enclosed waveguides, Smith chart, phase and group velocity, cavity resonators, waves in complex media.

162A. Wireless Communication Links and Antennas. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: 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.

162B. Antenna Design II. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: 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.

163A. Introductory Microwave Circuits. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 161. Transmission lines description of waveguides, impedance transformers, power dividers, directional couplers, filters, hybrid junctions, nonreciprocal devices.

163B. Microwave and Millimeter Wave Active Devices. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisites: courses 121A, 121B, MESFET, HEMT, HBT, IMPATT, Gunn, small signal models, noise model, large signal model, loadpull method, parameter extraction technique.

163C. Active Microwave Circuits. Lecture, three hours; outside study, nine hours. Prerequisites: courses 115A, 161. Theory and design of microwave transistor amplifiers and oscillators; stability, noise, distortion.

164AL. Microwave Measurements Laboratory. Lecture, two hours; laboratory, four hours; outside study, six hours. Prerequisite or corequisite: course 163A. 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.

164BL. Active Microwave Circuit Design Laboratory. Lecture, two hours; laboratory, four hours; outside study, six hours. Prerequisite: course 164AL. 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).

172. Introduction to Lasers and Quantum Electronics. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 101 or equivalent or consent of instructor. Physical applications and principles of lasers, Gaussian optics, resonant cavities, atomic radiation, laser oscillation and amplification, cw and pulsed lasers.

172L. Laser Laboratory. Laboratory, four hours; outside study, eight hours. Prerequisite or corequisite: course 172 or consent of instructor. Properties of lasers, including saturation, mode-locking, and relaxation effects. Laser applications, including optics, modulation, communication, holography, interferometry, and nonlinear effects.

173. Photonic Devices. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 101 or consent of instructor. 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.

173L. Photonics Laboratory. Laboratory, four hours; outside study, eight hours. Prerequisite or corequisite: course 173 or consent of instructor. Introduction to measurement of basic photonic devices, including LEDs, lasers, detectors, and amplifiers; fiber-optic fundamentals and measurement of fiber systems. Optical modulation via Pockels, Kerr magnetic optic, and acousto-optic effect.

174. Semiconductor Optoelectronics. Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisite: course 172 or consent of instructor. 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.

175. Fourier Optics. (Formerly numbered 165.) Lecture, three hours; recitation, one hour; outside study, eight hours. Prerequisites: 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.

M185. Plasma Physics. (Same as Physics M122.) Lecture, four hours; outside study, eight hours. Prerequisite: course 101 or Physics 110A. Senior-level introductory course to physics of plasmas and ionized gases and fundamentals of controlled fusion. Particle motion in magnetic fields; fluid behavior, plasma waves; resistivity and transport; equilibrium and stability; kinetic effects. Discussion of illustrative laboratory experiments.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, consent of instructor. 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.

Graduate Courses

M208A. Analytical Methods of Engineering I. (Same as Mechanical, Aerospace, and Nuclear Engineering M291A.) Prerequisites: 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.

M208B. Analytical Methods of Engineering II. (Same as Mechanical, Aerospace, and Nuclear Engineering M291B.) Prerequisite: course M208A or Mechanical, Aerospace, and Nuclear Engineering M291A or consent of instructor. 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.

208C. Semigroups of Linear Operators and Applications. Lecture, four hours; other, eight hours. Prerequisite: course M208B or equivalent. 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.

211A. Digital Image Processing I. Lecture, three hours; laboratory, four hours; outside study, five hours. Prerequisites: course 113, computer programming experience. 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.

211B. Digital Image Processing II. Lecture, three hours; laboratory, four hours; outside study, five hours. Prerequisite: 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.

212A. Theory and Design of Digital Filters. (Formerly numbered 212.) Lecture, three hours; outside study, nine hours. Prerequisite: 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.

212B. Multirate Systems and Filter Banks. Lecture, three hours; outside study, nine hours. Prerequisite: 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.

213A. Advanced Digital Signal Processing Circuit Design. Lecture, three hours; outside study, nine hours. Prerequisites: 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.

214A. Digital Speech Processing. (Formerly numbered 214.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Prerequisite: course 113 or equivalent. 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.

215A. Analog Integrated Circuit Design. Lecture, three hours; outside study, nine hours. Prerequisite: course 115B. Bipolar and CMOS operational amplifier design; gain stages, frequency compensation, output stages; voltage references; analysis of noise and distortion; wideband amplifiers.

215B. Advanced Digital Integrated Circuits. Lecture, three hours; outside study, nine hours. Prerequisites: 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.

215D. Analog Microsystem Design. Lecture, three hours; outside study, nine hours. Prerequisites: courses 113, 215A. Analog signal processing families. Discrete-time switched-capacitor circuits. Continuous-time filters. A/D and D/A converters. Samplers, modulators, oscillators. System-level circuit design.

M216A. LSI in Computer System Design. (Same as Computer Science M258A.) Lecture, four hours; laboratory, four hours. Prerequisites: graduate standing in computer science or electrical engineering, consent of instructor. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on a chip.

M216B-M216C. LSI in Computer System Design. (Same as Computer Science M258B-M258C.) Lecture, four hours; laboratory, four hours. Prerequisite: course M216A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. In Progress grading.

219A. Special Topics in Circuits and Signal Processing. Lecture, three hours; outside study, nine hours. Prerequisite: consent of instructor. Advanced treatment of topics selected from research areas in circuit theory, integrated circuits, or signal processing.

221A. Physics of Semiconductor Devices I. Prerequisite: course 121A. Physical principles and design considerations of junction devices.

221B. Physics of Semiconductor Devices II. Prerequisite: course 121A. Principles and design considerations of field effect devices and charge-coupled devices.

221C. Microwave Semiconductor Devices. Prerequisite: 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.

222. Integrated Circuits Fabrication Processes. Prerequisites: 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.

223. Solid-State Electronics I. Prerequisites: courses 124 and 270, or consent of instructor. Energy band theory, electronic band structure of various elementary, compound, and alloy semiconductors, defects in semiconductors. Recombination mechanisms, transport properties.

224. Solid-State Electronics II. Prerequisite: 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.

225. Superlattices and Quantum Wells. Prerequisite: 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.

229. Seminars: Advanced Topics in Solid-State Electronics. Prerequisites: 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.

229S. Advanced Electrical Engineering Seminar (2 units). Prerequisite: successful completion of Ph.D. major field examination or consent of instructor. 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. Prerequisite: course 131A or equivalent. 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.

230B. Digital Communication Systems. Lecture, four hours; outside study, eight hours. Prerequisites: 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.

230C. Algorithms and Processing in Communication and Radar. Prerequisite: 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.

230D. Signal Processing in Communications. Lecture, four hours; other, eight hours. Prerequisite: 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.

231A. Information Theory: Channel and Source Coding. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

231B. Error Control Codes and Cryptography. Prerequisite: course 231A. Introduction to Galois fields with applications to error control codes and cryptography. Linear block codes, cyclic codes, BCH codes, Reed/Solomon codes, and Goppa codes. Digital circuit implementation of encoders, decoders, and cryptographic systems. Conventional and public key cryptosystems and key management.

231C. Rate Distortion Theory and Source Coding Techniques. Prerequisites: courses 230A and 231A, or consent of instructor. Sources and distortion measures, rate distortion function and its evaluation for discrete and continuous sources, source coding theorems, comparisons of practical coding systems to theoretical bounds, speech and image quantization.

231D. Spread Spectrum Communications. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

231E. Channel Coding Theory. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

232A. Stochastic Modeling with Applications to Telecommunication Systems. Prerequisite: course 131A or equivalent. 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.

232B. Telecommunication Switching and Queueing Systems. Prerequisite: 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.

232C. Telecommunication Architecture and Networks. Prerequisite: 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.

232D. Telecommunication Networks and Multiple-Access Communications. Prerequisite: 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.

232E. Graphs and Network Flows. Prerequisite: course 136 or consent of instructor. 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.

236A. Linear Programming. Prerequisite: Mathematics 115A or equivalent knowledge of linear algebra. Basic graduate course in linear and combinatorial programming. Simplex method, duality, geometry, decomposition, complementary pivot theory, and quadratic programming; introduction to computational complexity theory.

236B. Nonlinear Programming. Prerequisite: course 236A or equivalent. Basic graduate course in nonlinear programming. Convex sets and functions and their basic properties. Kuhn/Tucker points, saddle points, and nonlinear or conjugate duality theory. Development of algorithms and convergence theory.

236C. Optimization Methods for Large-Scale Systems. Prerequisite: course 236B. Theory and computational procedures for decomposing large-scale mathematical programming problems. Generalized linear programming, decomposition algorithms, column generation, economic implications. Application to stochastic programming and optimal control. Topics in nonconvex programming; minimizing concave functions on convex polyhedra, reverse convex programming.

237. Dynamic Programming. Prerequisite: course 232A. 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. Detailed examples from inventory theory, finance, and transportation systems.

238. Reliability Theory with Applications. Prerequisite: course 131A or equivalent. Basic graduate course in reliability theory. Reliability models for complex systems, coherent structures, modular decomposition, reliability bounds. Constant, monotone hazard functions. Optimization problems in reliability: redundancy allocations, maintenance policies, stress-strength and safety considerations in engineering design. Statistical problems, current topics.

239AS. Topics in Communication. Prerequisite: consent of instructor. 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.

239BS. Topics in Operations Research. Prerequisite: consent of instructor. 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.

240A. Linear Dynamic Systems. Prerequisite: course 142 or equivalent. State-space description of dynamic systems. Deduction of state spaces from input-output data. State controllability and observability. Stability and state feedback stabilizability; state observer.

240B. Linear Optimal Control. Prerequisites: courses 141 or equivalent and 240A, or consent of instructor. Introduction to optimal control, with emphasis on detailed study of LQR, or linear regulators with quadratic cost criteria. Relationships to classical control system design.

240C. Optimal Control. Prerequisite: course 240B. Applications of variational methods. Pontryagin maximum principle, dynamic programming and nonlinear programming to problems of optimal control theory and practical systems.

241A. Stochastic Processes. Prerequisite: course 131B or equivalent. 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.

241B. Kalman Filtering. Prerequisites: courses 240A, 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.

241C. Stochastic Control. Prerequisites: courses 240B, 241B. Estimation and control of linear discrete-time and continuous-time stochastic systems; separation theorem and applications; Kalman filtering.

242. Nonlinear Control. Prerequisite: course 240B. Techniques for studying nonlinear control systems, with emphasis on their stability; Liapunov direct method; input-output stability; Popov method; linearization.

M243. Biological Control Systems. (Same as Anesthesiology M222.) Prerequisite: course 141 or equivalent. Introduction to application of control theory to modeling and analysis of biological control systems, such as respiratory system, cardiovascular system, and neuromuscular system. Emphasis on solving problems of current interest in biomedicine.

249S. Topics in Control. Prerequisite: consent of instructor. 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.

250A. MEMS Device Physics and Fabrication. Lecture, three hours; discussion, one hour; outside study, eight hours. Recommended (but not prerequisite): integrated circuit processing knowledge. Introduction to physics and fabrication of micro electro mechanical 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.

250B. MEMS System Design. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: course 250A or equivalent. Introduction to micro electro mechanical 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.

250C. Microsensors and Microinstruments. Lecture, three hours; laboratory, three hours, outside study, six hours. Prerequisite: course 250B or equivalent. Fundamentals of micro electro mechanical 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.

260A-260B. Advanced Engineering Electrodynamics. Prerequisites: 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.

261. Microwave and Millimeter Wave Circuits. Prerequisite: course 163A or consent of instructor. 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.

262. Antenna Theory and Design. Prerequisites: 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.

263. Reflector Antennas Synthesis, Analysis, and Measurement. Lecture, four hours; other, eight hours. Prerequisites: courses 260A-260B or equivalent. Reflector pattern analysis techniques. Single and multi-reflector 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.

266. Computational Methods for Electromagnetics. Prerequisites: 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.

267. Nonlinear Microwave Circuits. Lecture, four hours; outside study, eight hours. Prerequisites: courses 161, 163A, 163B. Nonlinear device modeling, harmonic balance and Volterra series analysis, application to mixers, frequency multipliers, and amplifiers.

270. Applied Quantum Mechanics. Lecture, four hours; outside study, eight hours. Prerequisites: 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.

271. Classical Laser Theory. Lecture, four hours; outside study, eight hours. Prerequisite: course 172 or equivalent. Microscopic and macroscopic laser phenomena and propagation of optical pulses using classical formalism.

272. Dynamics of Lasers. Lecture, four hours; outside study, eight hours. Prerequisite: course 271 or consent of instructor. 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.

273. Nonlinear Optics. Lecture, four hours; outside study, eight hours. Prerequisites: courses 172 and 270, or consent of instructor. 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.

279S. Special Topics in Quantum Electronics. Lecture, four hours; outside study, eight hours. Prerequisite: consent of instructor. 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. Lecture, four hours; outside study, eight hours. Prerequisites: 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.

285B. Advanced Plasma Waves and Instabilities. Prerequisites: 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.

M286. Principles of Magnetic Confinement Fusion. (Same as Mechanical, Aerospace, and Nuclear Engineering M237A.) Prerequisites: courses M185, and 285A and 285B or Physics 222A-222B, or consent of instructor. Plasma requirements for controlled fusion. Structure of magnetic fields. Theory of MHD equilibrium and stability. Shear and minimum-B stabilization. Resistive and microinstabilities. Neoclassical diffusion physics of tokamak and tandem-mirror plasmas. Neutral beams and auxiliary heating. Alternate concepts.

M287. Fusion Plasma Physics and Analysis. (Same as Mechanical, Aerospace, and Nuclear Engineering M237B.) Prerequisite: 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.

296AA-296ZZ. Seminars: Research Topics in Electrical Engineering (2 units each). Lecture, two hours; outside study, four hours. Prerequisite: consent of instructor. 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 units). Prerequisites: graduate standing in electrical engineering, consent of instructor. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisites: graduate standing in electrical engineering, consent of instructor. 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). Prerequisites: graduate standing in electrical engineering, consent of instructor. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations (2 to 16 units). Prerequisites: graduate standing in electrical engineering, consent of instructor. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). Prerequisites: graduate standing in electrical engineering, consent of instructor. 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). Prerequisites: graduate standing in electrical engineering, consent of instructor. 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). Prerequisites: graduate standing in electrical engineering, consent of instructor. Usually taken after student has been advanced to candidacy. S/U grading.

ENGINEERING SCHOOLWIDE PROGRAMS

*School of Engineering and Applied
Science*

UCLA
6426 Boelter Hall
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Los Angeles, CA 90095-1601
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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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet

Master of Engineering

Admission

The Engineering Executive Program, leading to the Master of Engineering degree (M.Engr.), enrolls a limited number of students in a two-year work-study program. It is specifically designed for experienced professionals who intent 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.

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 under Graduate Study at the beginning of this listing.

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.

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.

Lower Division Course

97. Introduction to Engineering Disciplines. (Formerly numbered 98.) 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 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 units). Prerequisite: 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 units each). Limited to students in Engineering Executive Program. 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.

471A-471B-471C. The Engineer in the General Environment (3 units, 3 units, 1½ units). Limited to students in Engineering Executive Program. Influences of human relations, laws, social sciences, humanities, and fine arts on development and utilization of natural and human resources. Interaction of technology and society past, present, and future. Change agents and resistance to change. In Progress grading for courses 471B-471C only.

472A-472D. The Engineer in the Business Environment (3 units, 3 units, 3 units, 1½ units). Limited to students in Engineering Executive Program. 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 grading (credit to be given on completion of courses 472B and 472D).

473A-473B. Analysis and Synthesis of a Large-Scale System (3 units each). Recitation, two and one-half hours. Limited to students in Engineering Executive Program. Problem area of modern industry or government is selected as class project, and its solution is synthesized using quantitative tools and methods. Project also serves as laboratory in organization for a goal-oriented technical group. In Progress and S/U grading.

495. Teaching Assistant Training Seminar. Prerequisites: graduate standing in engineering, appointment as a teaching assistant. 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 units). Prerequisite: 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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Professors

Michael J.B. Allen, Ph.D., D.Litt.
Paula Gunn Allen, Ph.D.
Martha Banta, Ph.D.

Calvin B. Bedient, Ph.D.
 A.R. Braunmuller, Ph.D.
 Frederick L. Burwick, Ph.D.
 Michael J. Colacurcio, Ph.D.
 James E. Goodwin, Ph.D.
 Christopher W. Grose, 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.
 Barbara L. Packer, Ph.D.
 Jonathan F.S. Post, Ph.D.
 Gregory M. Sarris, Ph.D.
 Debora K. Shuger, Ph.D.
 Valerie A. Smith, Ph.D., *Vice Chair*
 Eric Sundquist, Ph.D., *Chair*
 Robert N. Watson, Ph.D.
 Samuel Weber, Ph.D.
 Thomas R. Wortham, Ph.D., *Vice Chair*
 Stephen Yenser, Ph.D.

Professors Emeriti

Robert Martin Adams, Ph.D.
 Walter E. Anderson, Ph.D.
 Charles A. Berst, Ph.D.
 Vinton A. Dearing, Ph.D.
 Robert W. Dent, Ph.D.
 John J. Espey, B.Litt., M.A.
 Robert P. Falk, Ph.D.
 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.
 King-Kok Cheung, Ph.D.
 Edward I. Condren, Ph.D.
 Donald J. Cosentino, Ph.D.
 Albert D. Hutter, Ph.D.
 Jack Kolb, Ph.D.
 Robert M. Maniquis, Ph.D.
 Harryette R. Mullen, Ph.D.
 Raymund A. Paredes, Ph.D.
 Vincent P. Pecora, Ph.D.
 Karen E. Rowe, Ph.D.
 Richard A. Yarborough, Ph.D.

Assistant Professors

Robert D. Aguirre, Ph.D.
 Blake Allmendinger, Ph.D.
 Ali Behdad, Ph.D.
 Christopher Cannon, Ph.D.
 Helen Deutsch, Ph.D.
 Lowell Gallagher, Ph.D.
 Deborah M. Garfield, Ph.D.
 Rachel C. Lee, Ph.D.
 Jayne E. Lewis, Ph.D.
 Jinqi Ling, Ph.D.
 Arthur L. Little, Jr., Ph.D.
 David Wong Louie, M.F.A.
 Claire E. McEachern, Ph.D.
 Kenneth Reinhard, Ph.D.

Judith A. Rosen, Ph.D.
 Sonia Saldivar-Hull, Ph.D.
 Jenny Sharpe, Ph.D.

Senior Lecturers

David Stuart Rodes, Ph.D.
 Jerome Cushman, A.B., B.S.L.S., *Emeritus*

Adjunct Professor

Carolyn See, 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. (UCLA students who were declared English majors with a concentration in American studies prior to Fall Quarter 1995 have the option to complete the work required by that concentration as described in the 1994-95 *UCLA General Catalog*.)

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

You must have completed the Subject A requirement before taking any courses in

English (other than English 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 the 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.

Bachelor of Arts in English

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 3, 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, and six additional courses of which four must be selected from 140A, 140B, 142C, or 150 through 190.

You are encouraged to choose additional electives from courses 140A through M197. English 140A is especially recommended if you plan graduate work in literature. You may wish to select several courses in the relevant classical and postclassical foreign literatures and thought.

Special Programs

The department offers optional concentrations in creative writing and in world literature, as well as a special program for international students. 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.

World Literature — This program 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.

Creative Writing — This program consists of English 142A and 142B and a minimum of 10 additional upper division English courses: three creative writing courses from the 133A through 134C series, taken in a single genre (poetry or short story), three literature courses paralleling the creative writing specialization, and four electives selected from courses 140A through 190. You may declare this program as a concentration only after you have completed three creative writing workshops in a single genre. If you are planning to select this program, contact the departmental counselor for further details.

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, you must satisfy all requirements listed under "Preparation for the Major"; you may fulfill the departmental foreign language requirement with your 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 M197. If you complete this program and wish to pursue graduate study, you should consult the departmental counselor about programs of study and requirements for admission.

Bachelor of Arts in American Literature and Culture

Preparation for the Major

Required: English 3, 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 M102, 103, M104A, M104B, M104C, M105, 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).

Waiver for Instructional Credential in English

Students interested in obtaining a single subject secondary school credential in English or multiple subject credential for elementary education should consult with a departmental counselor regarding availability and requirements for a waiver from the English subject matter examination required by the California Commission on Teacher Credentialing. If you are interested in elementary school education, you are strongly urged to participate in the Diversified Liberal Arts Program (DLAP), administered by the College Counseling Service, A316 Murphy Hall. You are also encouraged to select additional courses in language, children's literature, literature for adolescents, American literature, and literature for minorities as some of your electives. For additional information on courses leading to the credential, consult the Graduate School of Education and Information Studies at (310) 825-8328.

Honors Program

Admission — The honors program is open to majors with a 3.5 departmental and a 3.25 overall grade-point average. If you have a lower GPA, you may petition for admission to the program, but these grade-point averages must be achieved before graduation in order to qualify for honors. You should apply by Spring Quarter of your 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 Fall Quarter of your senior year, you must take course 199HA. During Winter and Spring Quarters, you take courses 199HB and 199HC, in which you write a thesis under the direction of a faculty member. The thesis determines whether you receive high honors, honors, or no honors.

Bachelor of Arts in English/Greek

See Classics

Bachelor of Arts in English/Latin

See Classics

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

All persons 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. Those that 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 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 correspondingly higher score on the Subject Test. Applicants must submit a minimum of three letters of recommendation attesting to the applicant's 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 address given at the beginning of this listing.

Areas of Study

See Course Requirements below.

Course Requirements

All graduate students in the first and second stages of the 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 an acceptable thesis is completed. Nine letter-graded English courses are required for the M.A. degree; 14 letter-graded courses are required for students in the Ph.D. program. These courses must be at the graduate level (200 or above). With the approval of the vice chair, Ph.D. students may take up to three of these 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 who elect to 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. Students who are undecided take English 596 for a maximum of one year and at the end of that time decide either to pursue the doctorate or to switch to the M.A. thesis plan.

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.

First Stage Evaluation. At the beginning of the second year in the program, the graduate committee reviews students' files, which includes 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.

Comprehensive Examination Plan

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, each student, without giving an explanation, may exempt one particular 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 this 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.

Students in the Ph.D. program receive the M.A. after they have satisfied one foreign language requirement and passed the first qualifying examination.

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

See above under Master's Degree.

Major Fields or Subdisciplines

See above under Master's Degree.

Written and Oral Qualifying Examinations

First Stage. For first-stage evaluation, see above under Course Requirements.

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 prospectus. 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. The candidate 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.

Lower Division Courses

- A. Introduction to University Discourse (No credit). See listing under English Composition.
2. Approaches to University Writing. See listing under English Composition.

3. English Composition, Rhetoric, and Language. See listing under English Composition.

3H. English Composition, Rhetoric, and Language (Honors). See listing under English Composition.

4. Critical Reading and Writing. Enforced requisite: course 3. Preparation: satisfaction of Subject A requirement. Introduction to literary analysis, with close reading and carefully written exposition of selections from one or more of the principal modes of literature: poetry, prose fiction, and drama. Minimum of six papers (three to five pages each).

4H. Critical Reading and Writing (Honors). Discussion, three hours. Enforced requisite: course 3. Preparation: satisfaction of Subject A requirement. Introduction to literary analysis, with close reading and carefully written exposition of selections from one or more of the principal modes of literature: poetry, prose fiction, and drama. Minimum of six papers (three to five pages each).

10A. English Literature to 1660 (5 units). Lecture, three hours; discussion, one hour. Enforced requisites: courses 3, 4. Preparation: satisfaction of Subject A requirement. 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 units). Lecture, three hours; discussion, one hour. Enforced requisites: courses 3, 4, 10A. Preparation: satisfaction of Subject A requirement. 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 units). Lecture, three hours; discussion, one hour. Enforced requisites: courses 3, 4, 10A, 10B. Preparation: satisfaction of Subject A requirement. 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. Enforced requisite: course 3. Preparation: satisfaction of Subject A requirement, submission of creative or expository writing samples to a screening committee. 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. 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, Brown- ing, Yeats, Joyce, and Eliot.

80. Major American Authors. 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. Preparation: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 171, 172, or 174. Development, with emphasis on form, of the American novel from its beginning to the present day. Includes works of such novelists as Hawthorne, James, Fitzgerald, and Faulkner.

88A-88Z. Lower Division Seminars: Special Topics in English. 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. 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. 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. 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. 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. 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. Seminar, three hours. Enforced requisites: courses 3, 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. Prerequisite: 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.

101. Gay and Lesbian Literature. Prerequisite: satisfaction of Subject A requirement. Late-19th- and 20th-century fiction, drama, and poetry written on gay and lesbian themes. Special emphases (on different genres and on gay male or lesbian literature) vary with individual instructors.

M102. Asian American Literature. (Same as Asian American Studies M112.) Prerequisite: satisfaction of Subject A requirement. Prose and poetry by Asian Americans of Chinese, Japanese, Filipino, Korean, or other Asian origins. Study of interaction of autobiography and fiction, nourishing and limiting influences of mainstream American and Asian literary traditions, and conflict between ideological and literary criteria. P/NP or letter grading.

103. Jewish American Fiction. Prerequisite: 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. (Same as Afro-American Studies M104A.) Prerequisite: 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. (Same as Afro-American Studies M104B.) Prerequisite: 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. (Same as Afro-American Studies M104C.) Prerequisite: 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.

M105. The Chicano Experience in Literature. (Same as Chicana and Chicano Studies M105.) Prerequisite: satisfaction of Subject A requirement. Study of literature in English by and about Chicanos. Survey of depiction of the Chicano experience in American literature generally, with emphasis on development of Chicano literature itself, its cultural backgrounds, and distinctive uses of language.

106. Native American Literary Studies. Prerequisite: 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. (Same as Women's Studies M107A.) Prerequisite: 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. (Same as Women's Studies M107B.) Prerequisite: 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. (Same as Women's Studies M107C.) Prerequisite: 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. Prerequisite: 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. Prerequisite: 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. Prerequisite: 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.** Prerequisite: 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.** (Same as Folklore M111.) Prerequisite: 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.** (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.** (Same as Folklore M121.) Prerequisites: satisfaction of Subject A requirement, junior standing. Survey of folklore of the peoples of Britain, with attention to their history, function, and regional differences.
- M111D. Celtic Mythology.** (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.** (Same as Folklore M112.) Prerequisite: 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.** (Same as Folklore M127.) Prerequisite: Folklore 101 or consent of instructor. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research.
- M111G. Oral Traditions in Africa.** (Same as Folklore M155.) Prerequisite: upper division standing. Survey of African folk traditions: folktales, epic, heroic poetry, and folk song.
- 112. Children's Literature.** Prerequisite: 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.** Prerequisite: 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.** Prerequisites: satisfaction of Subject A requirement, consent of instructor. 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.** Prerequisite: 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.** Prerequisite: 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.** Prerequisite: satisfaction of Subject A requirement. Study of science fiction and speculative literatures.
- 117. Detective Fiction.** Prerequisite: satisfaction of Subject A requirement. Study of British and American detective fiction and the literature of detection.
- 118. Film and Literature.** Prerequisite: 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.** Prerequisite: 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.** Prerequisite: 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.** Prerequisite: satisfaction of Subject A requirement. Introduction to techniques of linguistic description as applied to pronunciation, grammar, and vocabulary of modern English.
- 133A-133B-133C. Creative Writing: Poetry.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, consent of instructor (following submission of writing samples). Weekly exercises in writing of poetry, with practice in standard forms and meters and study of techniques. Classroom discussion based on student use. Only one course in sequence may be repeated for credit.
- 134A-134B-134C. Creative Writing: Short Story.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, consent of instructor (following submission of writing samples). Three stories of average length to be completed during each term. Some of these may, with instructor's consent and student's wish, be substantial revisions of other stories presented. Classroom discussion based on stories presented. Only one course in sequence may be repeated for credit.
- 135A-135B-135C. Creative Writing: Drama.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, consent of instructor (following submission of writing samples). Exploration of capacity of each student to write for the theater. Class discussion of student writing, individual conferences, rehearsed readings, and laboratory productions. Only one course in sequence may be repeated for credit.
- 137. Advanced Computer Techniques for Students of English.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C, and Program in Computing 1 and 10A or consent of instructor. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet*.
- 142B. Shakespeare: Later Plays.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C, 142A. Intensive study of representative problem plays, major tragedies, Roman plays, and romances.
- 142C. Shakespeare: Selected Topics.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C, 142A, 142B. Designed for students interested in further study of Shakespeare. Limits of investigation set by individual instructors.
- 143. Milton.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Study of major works of Milton, with emphasis on *Paradise Lost*.
- 150. Later Medieval Literature.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. 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.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Study of major works as literary documents and as products of later 18th-century thought.
- 156. Drama, 1660 to 1842.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Survey of English drama from the Restoration to the Licensing Act.
- 157. The Novel to 1832.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Survey of works of major English novelists from Defoe through Scott.
- 160. Earlier Romantic Literature.** Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Intensive study of writings by Byron, Keats, Percy Shelley, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Survey of major English novelists from Dickens through Hardy.

165. 20th-Century British Poetry. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C (for theater and film and television majors the 10A, 10B, 10C prerequisites 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Study of British and American drama, with its principal continental influences, since World War II.

170A. American Literature to 1775. (Formerly numbered 170.) Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Historical survey of American literature through the Colonial period. P/NP or letter grading.

170B. American Literature, 1775 to 1832. (Formerly numbered 170.) Prerequisites: satisfaction of Subject A requirement, courses 3, 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. (Formerly numbered 171.) Prerequisites: satisfaction of Subject A requirement, courses 3, 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. (Formerly numbered 172.) Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. (Formerly numbered 174.) Prerequisites: satisfaction of Subject A requirement, courses 3, 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. (Formerly numbered 177.) Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. (Formerly numbered 173.) Prerequisites: satisfaction of Subject A requirement, courses 3, 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. (Formerly numbered 176.) Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Study of American poetry since end of World War II. P/NP or letter grading.

175. American Nonfictional Prose. Prerequisites: satisfaction of Subject A requirement, courses 3, 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.

178. American Drama. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 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. Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Study of some aspect of American literature and its relationships to other national literature. P/NP or letter grading.

Courses 180 through 189 are designed to permit a small number of students (normally 15) to engage in concentrated study in an area in which they have a particular interest and in which they have taken adequate upper-division background courses. **Prerequisites:** satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in a specific term. For further details, see the departmental counselor. Courses may be repeated for credit.

180. Specialized Studies in Medieval Literature.

180X. Specialized Studies in Literature.

181. Specialized Studies in Renaissance Literature.

182. Specialized Studies in 17th-Century Literature.

183. Specialized Studies in 18th-Century Literature.

184. Specialized Studies in Romantic Literature.

185. Specialized Studies in Victorian Literature.

186. Specialized Studies in 20th-Century British Literature.

187. Specialized Studies in Colonial American Literature.

188. Specialized Studies in 19th-Century American Literature.

189. Specialized Studies in 20th-Century American Literature.

190. Literature and Society. Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Intensive study of some aspect of relationship between literature and social, economic, or political history. May be repeated for credit.

196. Interracial Encounters in Contemporary American Literature. Prerequisites: satisfaction of Subject A requirement, courses 3, 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.

M197. Topics in Afro-American Literature. (Same as Afro-American Studies M197.) 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.

199. Special Studies in English (2 to 4 units). Prerequisite: consent of instructor. Intensive directed research project. To enroll or obtain information, see departmental counselor.

199HA. Honors Seminar. Prerequisite: 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. Prerequisites: course 199HA, consent of instructor. Tutorial in which students write theses under direction of a faculty member. In Progress grading.

199I. Independent Studies for Internships (2 to 4 units). Prerequisite: consent of instructor. 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. Bibliographical tools of English and American literary scholarship; introduction to descriptive bibliography and basic methods of research. Periods covered vary.

201A. History of Literary Criticism. Study of major documents in Western literary theory from Plato through T.S. Eliot.

201B. Modern Literary Criticism. Study of developments and trends in 20th-century literary criticism.

202. Enumerative and Descriptive Bibliography. 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. 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. 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. (Same as Folklore CM205.) Lecture, three hours. Prerequisite: Folklore 101 or consent of instructor. 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. Detailed study of history, characteristics, and changing forms of the language from its origin until about 1900.

- 211. Old English.** 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.** Prerequisite: course 211. Detailed study of linguistic aspects of Middle English and of representative examples of the better prose and poetry.
- 213. Early Modern English.** 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.** 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.** Prerequisite: consent of instructor. Studies in grammar. Readings in the glosses and other texts. Comparative considerations.
- 217A-217B. Medieval Welsh.** Prerequisite: consent of instructor. Studies in grammar. Readings in the Mabinogi and other texts. Comparative considerations.
- 218. Celtic Linguistics.** Prerequisite: consent of instructor. 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 units).** Prerequisite: consent of instructor, following 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.** (Same as Folklore M235.) Prerequisite: consent of instructor. Seminar on methods of analyzing African and African Diaspora myth and ritual.
- 238. Colloquium (2 to 4 units).** Special topics from various fields in lecture, proseminar, or seminar format. S/U grading.
- Seminar courses (240 to the end of the 200 series) are open to all graduate students with adequate preparation and may be repeated for credit. Students must pre-enroll with the graduate counselor. Continuing students must sign up for seminars before the end of the preceding term. A prospectus announcing topics for all seminars is available in the department office in early summer for the ensuing academic year.
- 240. Studies in History of the English Language.** 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.
- 241. Studies in Structure of the English Language.** Prerequisite: consent of instructor. Topics in various aspects of structure of modern English, especially syntax and semantics.
- 242. Language and Literature.** 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.
- M243A. The Ballad.** (Same as Folklore M243A.) Prerequisite: consent of instructor. Study of English and Scottish popular ballads and their American derivatives, with some attention to European analogues.
- M243B. Problems in Ballad Scholarship.** (Same as Folklore M243B.) Prerequisite: course M243A or consent of instructor. Intensive investigation of a problem or problems in study of the popular ballad.
- 244. Old and Medieval English Literature.** Studies in poetry and prose of Old and medieval English literature; limits of investigation set by individual instructor.
- 245. Chaucer.**
- 246. Renaissance Literature.** Studies in poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation set by individual instructor.
- 247. Shakespeare.**
- 248. Earlier 17th-Century Literature.** Studies in poetry and prose of 17th-century English literature up to the Restoration; limits of investigation set by individual instructor.
- 249. Milton.** Studies in poetry and prose of John Milton; limits of investigation set by individual instructor.
- 250. Restoration and 18th-Century Literature.** Studies in English poetry and prose, 1660 to 1800; limits of investigation set by individual instructor.
- 251. Romantic Writers.**
- 252. Victorian Literature.** Studies in English poetry and prose of the Victorian period; limits of investigation set by individual instructor.
- 253. Contemporary British Literature.**
- 254. American Literature to 1900.** Studies in Colonial and 19th-century American literature; limits of investigation set by individual instructor.
- 255. Contemporary American Literature.** Studies in contemporary American poetry and prose; limits of investigation set by individual instructor.
- 256. Studies in the Drama.** Studies in drama as a genre from its beginning to the present; limits of investigation set by individual instructor.
- 257. Studies in Poetry.** Studies in various themes and forms of poetry from Old English to the present; limits of investigation set by individual instructor.
- 258. Studies in the Novel.** Studies in evolution of the genre from its beginning to the present; limits of investigation set by individual instructor.
- 259. Studies in Criticism.**
- 260. Studies in Literature and Its Relationship to the Arts and Sciences.** Studies in interrelationships of literature, arts, and sciences; limits of investigation set by individual instructor.
- M260A. Topics in Asian American Literature.** (Same as Asian American Studies M297A.) Lecture, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans.
- M262. Studies in Afro-American Literature.** (Same as Afro-American Studies M200E.) Prerequisite: consent of instructor. 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.** Lecture, three hours. Prerequisite: 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.
- 264. Studies in Rhetoric.** Discussion, three hours. Special topics in classical and modern rhetoric, including substantial practice in rhetorical analysis of literary texts.
- 265. Seminar: Literary Data Processing.** Prerequisites: courses 200, 203. Subjects alternate between (1) team writing of a large program to solve or help solve a research problem proposed by a faculty member (who usually joins in supervising the seminar) and (2) compilation and interpretation of literary statistics (with cooperation of a member of Statistical/Bio-mathematical Consulting Clinic).
- M266. Cultural World Views of Native America.** (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.
- 270A-270B. English for the Two-Year College.** Prerequisite: course 275 or English Composition 120B. Discussion and practice of two-year college instruction in reading and composition. In Progress grading.
- 272. Current Issues in Teaching English.** Focus on one of a variety of topics of special current interest.
- 275. Stylistics and the Teaching of English.** Strongly recommended for teaching assistants. Introduction to study of language and style and its application to teaching English, including rhetoric, linguistics, and grammar.
- M298. Interdisciplinary Studies in the 17th and 18th Centuries.** (Same as History M298.) Topics vary according to participating faculty.
- M299. Interdisciplinary American Studies (6 units).** (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 units).** Prerequisite: 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.
- 501. Cooperative Program (2 to 8 units).** Prerequisite: 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 units).** Prerequisite: consent of instructor. For 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 units).** For second-stage Ph.D. students preparing for second qualifying examination. S/U grading.
- 598. M.A. Research and Thesis Preparation (4 or 8 units).** Prerequisite: graduate standing. May not be applied toward any course requirement for degree. S/U grading.
- 599. Ph.D. Dissertation Research (4 or 8 units).** Limited to Ph.D. candidates unable to enroll in seminars in their fields or to candidates concurrently enrolled in such seminars. (Exception to this rule must be requested by petition.) S/U grading.

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

Lecturers

Bruce Beiderwell, Ph.D.
Jennifer Bradley, Ph.D.
Teddi Chichester, 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., *Director*
Susan Griffin, Ph.D.
Jeanne Gunner, Ph.D., *Assistant Director*
Daniel Hayes, M.F.A.
Claudia Ingram, J.D., Ph.D.
Kathleen Irace, Ph.D.
Janette Lewis, Ph.D.
Bonnie Lisle, Ph.D.
Sonia Maasik, M.A.
Sandra Mano, Ph.D.
John Mascaro, Ph.D.
Anita McCormick, Ph.D.
Cynthia Merrill, Ph.D.
Geraldine Moyle, Ph.D.
Mitzi Myers, Ph.D.
Stephen Osborne, Ph.D.
Shelby Popham, Ph.D.
Susan Popkin, Ph.D.
Jeffrey Smith, M.A.

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).

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 A or 2. Placement in these courses is determined by performance on the Subject A Examination. For more information regarding Subject A, see Undergrad-

uate Degree Requirements in the Undergraduate Study section of this catalog.

Composition Requirement

The College of Letters and Science and each of the University's professional schools set their own composition requirement. Completing English 3 with a grade of C or better meets the requirement in all divisions. For further information about the composition requirement, see the introductory copy for your college or school.

Students who score 700 or better on the SAT II Subject Test in Writing are eligible to take the English 3 Proficiency Examination. Outstanding performance on this examination fulfills the composition requirement. For further information, contact the Student Services Office.

Lower Division Courses

A. Introduction to University Discourse (No credit). Lecture, five hours. Preparation: appropriate score on Subject A Examination. English A 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 English 2.

2. Approaches to University Writing. 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. Lecture, three hours. Enforced requisite: course 2 or English as a Second Language 35 (C or better). 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). Completion of this course with a grade of C or better satisfies English Composition requirement.

3H. English Composition, Rhetoric, and Language (Honors). 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. (Formerly numbered 129.) Prerequisites: satisfaction of Subject A and English Composition requirements, sophomore standing or consent of instructor. 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. Prerequisite: satisfaction of Subject A and English Composition requirements. Students must be concurrently enrolled in a course offered in conjunction with English 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. Prerequisite: 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. Prerequisite: satisfaction of Subject A and English Composition requirements. Review of terminology of English grammar and survey of development of modern grammars, with special attention to transformational-generative grammar. Introduction to basic concepts in sociolinguistics, dialectology, and stylistics, especially as applied to analysis and evaluation of writing assigned in secondary school.

120C. Language Study for Teachers of Subjects Other Than English: Secondary School. Prerequisite: 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. (Formerly numbered 100W.) Prerequisite: junior standing or consent of instructor. 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. **129A.** Literature; **129B.** Social Sciences; **129C.** Physical and Life Sciences; **129D.** Fine Arts.

130A. Composition for Teachers: Elementary School. Prerequisite: 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. Prerequisite: 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. (Formerly numbered 131A-131J.) Prerequisites: satisfaction of Subject A and English Composition requirements, upper division standing. 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. **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. (Formerly numbered 132.) Prerequisites: satisfaction of Subject A and English Composition requirements, upper division standing. 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. Lecture, three hours. Prerequisites: satisfaction of Subject A requirement, course 3, one course from 131 series, consent of instructor. 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. Seminar, three hours. Prerequisites: satisfaction of Subject A and English Composition requirements, course 4 or 129 or one course from 131 series, upper division standing. One-term field studies course designed to provide students with academic background in and firsthand knowledge of media writing. P/NP or letter grading.

Graduate Courses

300. Teaching English. 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 units each). Discussion, 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 3 classes. **495B.** Must be taken concurrently with first teaching assignment. Examination of specialized problems which occur in teaching English 3 and introduction to techniques for teaching English 2 and ESL.

495C. Supervised Teacher Preparation (2 units). Prerequisites: 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

Professors

Climis A. Davos, Ph.D. (*Environmental Policy*)
Curtis D. Eckhart, Ph.D. (*Toxicology, Ecotoxicology*),
Vice Chair
John R. Froines, Ph.D. (*Industrial Hygiene and
Toxicology*), *Chair*
William C. Hinds, Sc.D. (*Industrial Hygiene*)
Mohammad G. Mustafa, Ph.D. (*Inhalation Toxicology*)
Irwin H. Suffet, Ph.D. (*Environmental Chemistry*)
Arthur M. Winer, Ph.D. (*Air Pollution*)
Robert A. Mah, Ph.D. (*Microbiology*), *Emeritus*

Associate Professors

Richard F. Ambrose, Ph.D. (*Ecological Assessment,
Restoration*)
Shane Que Hee, Ph.D. (*Industrial/Environmental
Hygiene Chemistry*)
Jane L. Valentine, Ph.D. (*Environment/Water Quality*)

Assistant Professors

Michael D. Collins, Ph.D. (*Developmental Toxicology*)
L. Donald Duke, Ph.D. (*Environmental Assessment*)
Wen-Chen Victor Liu, Ph.D. (*Occupational
Ergonomics*), *in Residence*

Lecturers

Larry Baresi, Dr.P.H.
Frank C. Gomez, Dr.P.H.
Mario Panaqua, B.A.
Walter Wegst, Ph.D.

Adjunct Assistant Professors

Edward J. O'Neill, M.D., M.P.H.
David M. Pekelney, Ph.D.
Diane L. Saber, Ph.D.

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants who expect to concentrate 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.

See the Master of Public Health (M.P.H.) Admission section under Public Health School-

wide Programs. Admission requirements for the Master of Science in Environmental Health Sciences are the same as for the M.P.H.

Areas of Specialization

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 if the student has taken a similar course elsewhere and can pass the waiver examination.

Mandatory departmental core courses include Environmental Health Sciences 101, 201, 210, 230, 240, 250 (may be repeated for credit), 410A, 410B, M411, 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 can be waived if the student has 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 take a comprehensive examination (Plan II).

Comprehensive Examination Plan

If the comprehensive examination/report option (Plan II) is approved, the candidate completes a research activity (Environmental Health Sciences 596) of at least eight units in addition to the course requirements and prepares 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, the student 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 student files 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 (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) a combined Graduate Record Examination (GRE) score of 1,200 for the verbal and quantitative sections, or 1,800 for the verbal, quantitative, and analytical sections; 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) a combined Graduate Record Examination (GRE) score of 1,200 for the verbal and quantitative sections, or 1,800 for the verbal, quantitative, and analytical sections; (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 bio-

statistics, and Environmental Health Sciences 101.

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 the student is ready to take the University Oral Qualifying Examination. Two of the faculty must be tenured. Two of the four must hold appointments in Public Health; one must be an outside member who holds no appointment in Public Health; one of the four must be from the minor field.

At least two members of the doctoral committee (one from Environmental Health Sciences and one from another department) must hold the Ph.D. degree. The doctoral committee administers the oral qualifying examination after the student has successfully completed the written examination, advises the student on the course of study, and reviews the dissertation.

After passing the University Oral Qualifying Examination, the student 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.

Upper Division Courses

100. Introduction to Environmental Health. Lecture, three hours; discussion, one hour. Prerequisites: one course each in chemistry and biology, consent of instructor. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants.

101. Environmental Health. Lecture, three hours; discussion, one hour. Prerequisites: one course each in chemistry and biology, consent of instructor. Broad coverage of environmental health, including airborne and waterborne pollutants; pollutants from urban industrial and agricultural wastes; pollution from pesticide chemicals, mining, and energy production and consumption; chemical food additives; and occupational exposure to chemical and physical hazards.

199. Special Studies (2 to 4 units). Prerequisites: Senior standing, consent of instructor and department chair (based on written proposal outlining course of study). 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.

Graduate Courses

201. Seminar: Health Effects of Environmental Contaminants (2 units). Prerequisites: courses 101, 210, 230, 250, consent of instructor. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. May be repeated for credit.

202. Seminar: Environmental Chemistry (2 units). Seminar, one hour. Prerequisites: courses 100 or 101, 410A, and 410B, or consent of instructor. Environmental chemistry aspects of environmental health sciences through multimedia analyses and biological and microbiological analyses. May be repeated for credit.

210. Public Health and Environmental Microbiology. Lecture, three hours. Prerequisites: one course each in biology, organic chemistry, and biochemistry, consent of instructor. 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.

211. Science and Politics of Environmental Regulation. Lecture, three hours. Prerequisite: consent of instructor. Analysis of how science, law, administration, economics, and politics influence state and national environmental regulation from formulation to implementation, including rule making, public participation, federalism, enforcement, and judicial review.

212. Applied Ecology. (Formerly numbered Environmental Science 298B.) Prerequisite: one ecology course or consent of instructor. 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.

220. Biological Effects of Air Pollution. Lecture, three hours; discussion, one hour. Prerequisites: one course each in chemistry and biology, consent of instructor. Survey of biological effects and assessment methods of air contaminants present in urban, industrial, and occupational environments.

225. Atmospheric Transport and Transformations of Airborne Chemicals. Prerequisites: science, engineering, or public health major, one year of calculus, and one course each in physics, organic chemistry, and physical chemistry, or consent of instructor. 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.

230. Environmental Management. Lecture, four hours; discussion, one hour. Prerequisites: Economics 100, Political Science 142 or 143, Mathematics M112A, 115A, or equivalent. Introduction to foundations and principles of environmental management, decision making, and evaluation of environmental policies and programs.

231. Environmental Decision Systems Analysis. Lecture, four hours; discussion, one hour. Prerequisite: 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.

232. Environmental Policy Decision Making. Prerequisites: courses 230, 231, consent of instructor. 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.

235. Quantitative Methods for Environmental Assessment. Lecture, four hours; discussion, one hour. Prerequisites: bachelor's degree in science, engineering, or public health, one term of statistics, and one year of advanced mathematics, or consent of instructor. 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.

- M239. Pollution Prevention Forum Series (2 units).** (Same as Urban Planning M262C.) 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.
- 240. Fundamentals of Toxicology.** Prerequisites: 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.
- 241. Environmental Toxicology: Trace Contaminants.** Lecture, three hours; discussion, one hour. Prerequisite: one organic chemistry course. Essentials of toxicology in relation to trace contaminants.
- M249. Toxics Reduction: Science, Engineering, and Policy Issues.** (Same as Urban Planning M262A and Chemical Engineering M290U.) Lecture, three hours. Prerequisites: Urban Planning 260A and 260B, or consent of instructor. 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.
- 250. Introduction to Occupational Safety and Health.** Prerequisite: consent of instructor. 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).
- 251. Introduction to Occupational Medicine (3 units).** Prerequisites: course 250, consent of instructor. Introduction to health effects of occupational exposures, including recognition, evaluation, and prevention of occupational diseases. Emphasis on concepts of disease mechanisms, manifestations, and prevention.
- 252D. Properties and Measurement of Airborne Particles.** Prerequisites: 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.
- 252E. Identification and Measurement of Gases and Vapors.** Lecture, three hours; discussion, one hour; other, two hours. Prerequisites: course 250, one year each of chemistry, physics, and calculus, consent of instructor. Theoretical and practical aspects of industrial hygiene sampling and measurement of gases and vapors.
- 252F. Industrial Hygiene Measurements Laboratory (3 units).** 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.
- 252G. Industrial and Environmental Hygiene Assessment.** Lecture, one hour; discussion, two hours; laboratory, two hours; other, four hours. Prerequisites: courses 101, 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.
- 253. Physical Agents in the Work Environment (2 units).** Prerequisites: course 250, one year of physics, consent of instructor. Physics, measurement methods, health effects, and control methods for radiation (ionizing and nonionizing), noise, and heat in the workplace environment.
- 254. Health Hazards of Industrial Processes.** Lecture, two hours; four field trips. Prerequisites: courses 250, 255, consent of instructor. Industrial processes and operations and occupational health hazards that arise from them.
- 255. Control of Airborne Contaminants in Industry.** Lecture, two hours; laboratory, two hours. Prerequisites: courses 250, 252D, one year of physics, consent of instructor. Principles and applications of control technology to industrial environments, including general and local exhaust ventilation, air cleaning equipment, and respiratory protection.
- 256. Biological Monitoring in Occupational/Environmental Health.** Lecture, three hours; discussion, one hour; assignments, three hours. Prerequisites: courses 101, 250, 252E, Biostatistics 100A, consent of instructor. Principles and application of biological monitoring for assessment of occupational exposure to organic and inorganic chemicals.
- 257. Critical Review of Scientific Basis of Occupational Standards.** Prerequisites: courses 240, 250, 251, Epidemiology 100, consent of instructor. 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.
- 258. Identification and Analysis of Hazardous Wastes.** Lecture, three hours; discussion, one hour; laboratory, one hour; one field trip. Prerequisites: courses 250, 252E, Biostatistics 100A, consent of instructor. 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.
- 259. Occupational Ergonomics (2 units).** (Formerly numbered 298A.) Prerequisite: course 250. Exploration of ergonomic principles for study of worker's safety, health, and performance.
- 259C. Seminar Series: Occupational Ergonomics (2 units).** (Formerly numbered 298C.) Prerequisites: courses 250 and 259, or consent of instructor. 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. Introduction to Occupational Safety (2 units).** (Formerly numbered 298A.) Prerequisite: graduate standing. 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.
- 261. Chemical Behavior of Aquatic Systems.** Lecture, three hours. Prerequisites: course 101, Chemistry 11A, 11B, 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.
- 262. Environmental Microbiology.** Lecture, three hours. Prerequisites: 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.
- 263. Geochemistry of Groundwater (2 units).** Prerequisites: Biostatistics 100A, Chemistry 11A, 103, Earth and Space Sciences 1, consent of instructor. Geochemistry of groundwater as impacted by the geologic environment and other natural factors and changes in composition due to water use.
- 264. Fate and Transport of Organic Chemicals in the Aquatic Environment.** (Formerly numbered 213.) Prerequisite: 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.
- 400. Field Studies in Environmental Health Sciences (2 or 4 units).** Prerequisite: consent of instructor. 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.
- 401. Environmental Measurements.** Lecture, two hours; laboratory, four hours. Prerequisites: course 101, Chemistry 11A, 11CL, consent of instructor. 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.
- 410A. Instrumental Methods in Environmental Sciences.** (Formerly numbered 410.) Lecture, four hours; discussion, two hours; other, two hours. Prerequisites: one year each of physics, chemistry, and biology, consent of instructor. Theory and principles of instrumental methods through lectures and group discussions.
- 410B. Instrumental Methods Laboratory in Environmental Health Sciences.** (Formerly numbered 410.) Lecture, one hour; discussion, one hour; laboratory, four hours; other, two hours. Prerequisites: course 101; one year each of physics, chemistry, and mathematics, consent of instructor. Laboratory techniques and instrumentation used in preparation and analysis of biological, environmental, and occupational samples.
- M411. Environmental Health Sciences Seminar (2 units).** (Same as Environmental Science M411.) Prerequisite: consent of instructor. Required of graduate students in environmental health sciences 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.** Lecture, three hours; discussion, one hour. Prerequisites: courses 101, 401, consent of instructor. 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.
- 462. Environmental Hygiene and Appropriate Technologies (2 units).** Prerequisite: consent of instructor. 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.
- 470. Environmental Hygiene Practices (2 units).** Prerequisites: courses 101, 230, 401, Epidemiology 100, consent of instructor. Field principles and practices of environmental sanitation as applicable to the sanitarium. Topics include theory, code enforcement, and inspection procedures for applicable environmental topic areas.
- 495. Teacher Preparation in Environmental Health Sciences (2 units).** Prerequisites: 18 units of cognate courses in area of specialization, consent of department chair. 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 units).** Prerequisite: 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.

502. UCLA/Hawaii Western Consortium Exchange (4 to 16 units). Prerequisite: 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 at University of Hawaii, Manoa, as part of UCLA/UH Western Consortium Exchange Program. Only the equivalent of eight quarter units taken at UH may be applied toward degree. Extra units may be applied toward department requirements by petition to Public Health Student Affairs Office. UH letter-graded courses appear on UCLA transcript with letter grades, while UH Cr/NCR-graded courses appear as S/U grades. Grade points from these courses are not counted in UCLA grade-point average.

596. Directed Individual Study or Research (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

Kyle D. Bayes, Ph.D., *Emeritus (Chemistry and Biochemistry)*
Austin J. MacInnis, Ph.D., *Emeritus (Biology)*
Robert A. Mah, Ph.D., *Emeritus (Environmental Health Sciences)*
David Okrent, Ph.D., *Emeritus (Mechanical, Aerospace, and Nuclear Engineering)*
Richard L. Perrine, Ph.D., *Emeritus (Civil and Environmental Engineering)*

Associate Professors

Richard F. Ambrose, Ph.D. (*Environmental Health Sciences*)
Trudy Cameron, Ph.D. (*Economics*)
Janet G. Hering, Ph.D. (*Civil and Environmental Engineering*)
Shane Que Hee, Ph.D. (*Environmental Health Sciences*)
Walter E. Reed, Ph.D. (*Earth and Space Sciences*)

Assistant Professors

Warren Blier, Ph.D. (*Atmospheric Sciences*)
Michael D. Collins, Ph.D. (*Environmental Health Sciences*)
L. Donald Duke, Ph.D. (*Environmental Health Sciences*)
Johannes J. Feddema, Ph.D. (*Geography*)

Assistant Field Program Supervisor

Diane M. Perry, Ph.D. (*Environmental Health Sciences*)

Scope and Objectives

Enlightened management of the environment is necessary to maintain a suitable quality of life. Such management requires scientists trained in a multiplicity of environmental disciplines. These interdisciplinary, interactive skills are developed through the UCLA graduate Environmental Science and Engineering Program, leading to the Doctor of Environmental Science and Engineering (D.Env.) degree.

The goal of the program is to prepare professional environmental analysts to deal with the complexities of various courses of action on the environment and resources, to develop recommendations for sound environmental policies, and to devise means to implement policies adopted.

The present focus of the program, that of interdisciplinary training in the environmental sciences and its application, is a successful one. Graduates have been employed in technical assessment and management positions with governmental agencies, consulting firms, and industrial firms concerned with environment-related projects.

No undergraduate major is offered; however, studies can be arranged along several routes. Students with majors in the natural sciences, geography/environmental studies, public health, or engineering who have environmental or energy problem solving as a professional goal may wish to supplement their course preparation in consultation with the program faculty.

Although participating faculty members are mainly 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.

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 the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

None.

Doctoral Degree

Admission

In addition to meeting University minimum standards, applicants for the Doctor of Environmental Science and Engineering degree (D.Env.) 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 mathematics and other special qualifications such as research experience. In exceptional cases, applicants with graduate training in fields of science or engineering who have not earned a master's degree may be considered for admission. In these cases, the applicant must show evidence of graduate training equivalent to the

ENVIRONMENTAL SCIENCE AND ENGINEERING

*Interdepartmental Program
School of Public Health*

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46-081 Center for the Health Sciences
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Los Angeles, CA 90095-1772
(310) 825-9901

Professors

David T. Allen, Ph.D. (*Chemical Engineering*)
Richard Berk, Ph.D. (*Sociology*)
Yoram Cohen, Ph.D. (*Chemical Engineering*)
William G. Cumberland, Ph.D. (*Biostatistics*)
Climis A. Davos, Ph.D. (*Environmental Health Sciences*)
John R. Froines, Ph.D. (*Environmental Health Sciences*)
Malcolm S. Gordon, Ph.D. (*Biology*)
William C. Hinds, Sc.D. (*Environmental Health Sciences*)
Raymond V. Ingersoll, Ph.D. (*Earth and Space Sciences*)
Anthony R. Orme, Ph.D. (*Geography*)
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*)
Martin Wachs, Ph.D. (*Urban Planning*)
Arthur M. Winer, Ph.D. (*Environmental Health Sciences*), *Director*

master's degree, including some 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 these courses may be taken after the student has arrived at UCLA.

Admission to the D.Env. program is made through recommendation of a faculty committee who have 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, at the address given at the beginning of this listing.

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. 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, hy-

drological, and atmospheric processes of the environment; and the interrelationships between these compartments. Minimum requirements are as follows: Environmental Health Sciences 212, 225, 240, 264, an elective in environmental toxicology, 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. 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.

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 a minimum of three core courses and seven breadth courses. Twenty-four quarter units of the Environmental Science and Engineering 400-series courses are required. 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 from courses offered through the Environmental Science and Engineering 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 to 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 oral examination is administered by the doctoral committee, a four-person faculty committee that guides the student 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. After successful completion of the written and oral examinations and the problems course requirements, the student is advanced to candidacy.

Graduate Courses

400A. Environmental Science and Engineering Problems Course (8 units). Prerequisite: consent of instructor and program director. Primarily intended for students enrolled in environmental science and engineering doctoral program. 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 units). Prerequisites: successful completion of course 400A, consent of instructor and program director. 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 units). Prerequisites: successful completion of course 400B, consent of instructor and program director. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems.

400D. Environmental Science and Engineering Problems Course (8 units). Prerequisite: successful completion of course 400C and of internship approved by doctoral committee and program director. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems.

410A-410B-410C. Environmental Science and Engineering Workshops (2 units each). (Formerly numbered 410.) Prerequisite: consent of instructor. Primarily intended for students enrolled in environmental science and engineering doctoral program 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 units). (Same as Environmental Health Sciences M411.) Prerequisite: consent of instructor. Required of graduate students in environmental health sciences for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading.

501. Cooperative Program (2 to 8 units). Prerequisite: 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 units). Prerequisite: consent of instructor and program director. Supervised investigation of advanced environmental problems. S/U grading.

EPIDEMIOLOGY

School of Public Health

UCLA
71-254 Center for the Health Sciences
Box 951772
Los Angeles, CA 90095-1772
(310) 825-8579

Professors

Roger Detels, M.D., M.S.
Ralph R. Frerichs, D.V.M., Dr.P.H., *Chair*
Sander Greenland, Dr.P.H.
Jess F. Kraus, Ph.D.
Hal Morgenstern, Ph.D.

Professors Emeriti

Lawrence R. Ash, Ph.D., *Associate Dean Emeritus for Student Affairs*
Allan Ralph Barr, Sc.D.
Ruth A. Boak, Ph.D., M.D.
John M. Chapman, M.D., M.P.H.
John F. Schacher, Ph.D.
Barbara R. Visscher, M.D., Dr.P.H.

Associate Professor

Scott P. Layne, M.D., *Acting*

Assistant Professor

Matthew P. Longnecker, M.D., Sc.D.

Lecturers

Jonathan D. Frisch, Ph.D.
Martine Jozan, M.D., Dr.P.H., *Assistant Researcher*
Constance S. Sullivan, Dr.P.H.
Anne H. Coulson, *Senior Lecturer Emerita, Research Epidemiologist*

Adjunct Professors

Brian E. Henderson, M.D.

Thomas M. Mack, M.D., M.P.H.
John M. Peters, M.D., M.P.H., Sc.D.

Adjunct Associate Professors

David E. Coady, M.D., M.P.H.
James R. Greenwood, Ph.D., M.P.H.
Susan M. Preston-Martin, Ph.D., M.P.H.
Gary H. Spivey, M.D., M.P.H.

Adjunct Assistant Professors

Deborah L. Ackerman, Ph.D.
Roberta M. Malmgren, Ph.D.
Marc A. Strassburg, Dr.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 spe-

cialization in epidemiology (see Public Health Schoolwide Programs).

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

See the Master of Public Health (M.P.H.) Admission section under Public Health Schoolwide Programs. Admission requirements for the Master of Science in Epidemiology are the same as for the M.P.H.

Master of Science in Preventive Medicine and Public Health

The program is not admitting new students at this time.

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 the student intends to write a thesis, four units of Epidemiology 598 (thesis research) may also be applied to the 18-unit elective requirement.

Mandatory core courses are Epidemiology 200 (four units), 201A (six units), 201B (six units), 220 (four units), 290 (2 units) or 291 (2 units), Biostatistics 100A (4 units) or 110A, 100B (four units) or 110B; one additional statistics course (four units) in regression or multivariate methods that is approved by the Department of Epidemiology; and Biostatistics 403 (four units) or Epidemiology 410A-410B (two units each) 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 the student passes 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 have 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 chosen, 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 the student 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 (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 (four units), Epidemiology 202B 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 (two units per quarter). 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. The 12 units 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. Two of the four must hold appointments in Public Health; one must be an outside member who holds no appointment in Public Health; one of the four must be from the minor field.

After completing the course requirements and passing both the written doctoral examination and the oral qualifying examination, the student may be advanced to candidacy and complete work on a dissertation in the principal field of study.

Lower Division Course

88. Lower Division Seminar: Special Topics in Epidemiology. 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.

Upper Division Courses

100. Principles of Epidemiology. Lecture, two hours; discussion, four hours. Prerequisite: 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.

199. Special Studies (2 to 4 units). Prerequisites: senior standing, consent of instructor and department chair (based on written proposal outlining course of study). 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.

Graduate Courses

200. Epidemiology I. Lecture, two hours; laboratory, four hours. Prerequisites: Biostatistics 100A (may be taken concurrently), one full biological sciences course, consent of instructor. Not open for credit to students with credit for course 100. Introduction to epidemiology, including factors governing health and disease in populations.

201A-201B. Epidemiologic Methods I and II (6 units each). Lecture, four hours; discussion, two hours; other, 12 hours. Prerequisites: Biostatistics 100A, 100B, at least two upper division biology or social sciences courses, consent of instructor. Recommended (but not prerequisite): course 100 or 200 or equivalent. 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.

202A-202B. Epidemiology: Theory and Methodology. Prerequisites for course 202A: course 201B; for course 202B: course 202A, consent of instructor. 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 units). Prerequisite: consent of instructor. 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. Advanced Applied Epidemiology. Prerequisites: courses 201A-201B. Students submit written reviews of published research articles in applied epidemiology to be discussed in seminar format. Issues include study design, analysis, and causal inferences. New studies to be proposed and critiqued. S/U or letter grading.

210. Public Health Research Using Available Data (2 units). Lecture, one hour; discussion, one hour. Prerequisites: courses 100, 410A or Biostatistics 403 or equivalent, Biostatistics 100A, consent of instructor. 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.

M214. Immunology of AIDS (2 units). (Same as Microbiology and Molecular Genetics M262B and Microbiology and Immunology M262B.) Lecture, one hour; discussion, one hour. Prerequisites: Microbiology and Immunology 202A, 202B, 202C, 202D, M258B, or equivalent, consent of instructor. Lecture and student discussion of assigned publications. Topics include specific anti-HIV immune responses, activation of immune system by HIV, and basic mechanisms that underlie HIV-induced immunodeficiency. S/U or letter grading.

220. Principles of Infectious Disease Epidemiology. Lecture, three hours. Prerequisites: course 100 or 200 or equivalent, consent of instructor. Ascertainment of infection, transmission, and epidemiological parameters rather than clinical and pathological aspects. Specific diseases discussed in depth to illustrate epidemiologic principles.

221. Prevalent and Emerging Infectious Diseases in the World (2 units). Lecture, four hours. Prerequisites: course 100 or 200, Biostatistics 100A, 100B. Course 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.

223A. Protozoal Diseases of Man. Prerequisite: consent of instructor. 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.

223B. Protozoal Diseases of Man (2 units). Laboratory, four hours. Prerequisite 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.

224A. Helminth Diseases of Man. Prerequisite: consent of instructor. 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.)

224B. Helminthic Diseases of Man (2 units). Laboratory, four hours. Prerequisite: consent of instructor. Diagnosis and practical microscopic recognition of nematodes, trematodes, and cestodes parasitic in man and animals. Pathology produced by these infections)

227. AIDS: A Major Public Health Challenge. Prerequisites: course 100 or 200 or equivalent, Biostatistics 100A or 110A, consent of instructor. 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. (Same as Microbiology and Immunology M275.) Lecture, three hours. Prerequisites: course 100 and Biostatistics 100A or equivalent, two biology courses, consent of instructor. 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.

230. Epidemiology of Sexually Transmitted Diseases. Prerequisites: course 100 or 200, consent of instructor. Sexually transmitted diseases; medical/biologic aspects, epidemiology and control in developed and developing countries. S/U or letter grading.

240. Cardiovascular Epidemiology. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Topics include definition, pathogenesis, descriptive epidemiology, magnitude of risk factors, strategies for prevention, lipoprotein metabolism, epidemiology of diabetes, hypertension, and chronic lung disease.

241. Epidemiology of Neurologic Disease (2 units). Prerequisites: course 100 or 200, consent of instructor. Epidemiologic characteristics of selected chronic neurologic diseases, with particular emphasis on etiology and possible control.

242. Epidemiology of Cancer. Prerequisites: course 100 or 200, consent of instructor. Etiological concepts and mechanisms. Pathogenesis, diagnosis, and classification of neoplastic diseases. Epidemiologic principles and methods as applied to cancer. Classical studies in cancer epidemiology. Models of causal association.

243. Epidemiology of Cancer (2 units). Lecture, one hour; discussion, one hour. Prerequisites: course 242, consent of instructor. Current issues in cancer epidemiology, including etiologic research, screening programs, prevention.

244. Research Methods in Cancer Epidemiology (2 units). Prerequisites: course 100, Biostatistics 100A, consent of instructor. Biologic, quantitative, philosophical, and administrative considerations in epidemiologic cancer research. Hypothesis specification and choice of study design. Uses of descriptive epidemiology, cohort studies, case control studies. Clustering, screening, and cancer control. Means of identifying subjects and controls. Design of instruments. Sources of bias and confounding.

246. Epidemiology of Aging (2 units). Prerequisites: course 100 or 200 or equivalent, consent of instructor. 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 units). Prerequisite: course 100 or equivalent. 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.

251. Epidemiology of Nonintentional Injuries. Lecture, three hours; discussion, two hours. Prerequisites: course 100 or 200, Biostatistics 100A, consent of instructor. Pertinent epidemiology 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.

252. Epidemiology of Assault, Homicide, and Suicide (2 units). Lecture, two hours; discussion, one hour. Prerequisites: course 100 or 200, consent of instructor. Presentation and evaluation of epidemiologic research approaches to study of violent injury, including description of incidence, study design, risk factor analysis, and control evaluation.

253. Acute Traumatic and Chronic Repetitive Injuries from Work-Related Exposures (2 units). Lecture, two hours; discussion, one hour. Prerequisites: course 100 or equivalent, Biostatistics 100A, consent of instructor. 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.

260. Environmental Epidemiology. Lecture, two hours; discussion, one hour; independent study, three hours. Prerequisites: course 100 or 200, consent of instructor. Methodological problems and approaches of epidemiology for assessing health impact of major types of environmental exposure.

261. Occupational Epidemiology. Lecture, two hours; discussion, two hours. Prerequisites: course 100 or 200 or equivalent, consent of instructor. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments.

263. Genetic Epidemiology (2 units). Prerequisites: course 100 or 200, consent of instructor. Proper design, analysis, interpretation, and application of analytical methods used by genetic epidemiologists, including studies of familial prevalence, twins, migrants, genetic marker-disease associations, and more complex analyses of genetic models.

264. Meta-Analysis in Epidemiology (2 units). Lecture, 90 minutes; discussion, 30 minutes. Prerequisites: courses 201A-201B, Biostatistics 406 or one multivariate analysis course beyond 100C or 200C. Designed to teach epidemiology doctoral students how to conduct and evaluate a meta-analysis of epidemiologic data.

266. Nutritional Epidemiology. (Formerly numbered M266.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: courses 201A-201B, Biostatistics 100D or 110C, one prior nutrition course, consent of instructor. Designed to prepare students for conduct of research relating diet to health. Topics include methods of diet assessment, error in measurement of diet, methods of adjusting for energy intake in epidemiologic analysis, and analysis of epidemiologic data relating diet to disease.

267. Epidemiology of Chronic Disease. Prerequisite: course 100 or 200. Lecture topics include descriptive epidemiology and risk factors for heart disease and cancer; discussion sessions focus on recent articles; laboratory sessions feature use of spreadsheets for graphic display of data. S/U or letter grading.

268. Introduction to Pharmacoepidemiology (2 units). Prerequisites: course 200, consent of instructor. 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 grading.

270. Epidemiology and Health Policy (2 units). Prerequisites: courses 100 or 201A-201B, Biostatistics 100B or 110B, Health Services 100, consent of instructor. 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.

M276. Structure and Function of Nutrients Implicated in Etiology of Chronic Disease. (Same as Community Health Sciences M267.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisite: one prior organic chemistry course. Basic nutrition course for public health and science majors.

280. Parasitic Diseases and Global Health. Prerequisite: consent of instructor. 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 interventional strategies for their control.

281. Epidemiology for Developing Countries. Prerequisites: courses 100 and/or 200, Biostatistics 100A, consent of instructor. Uses of epidemiology for assessing the burden of illness in the community, establishing program priorities, and developing disease intervention or prevention strategies.

282. Rapid Epidemiologic Surveys in Developing Countries. Prerequisites: courses 100 and/or 200, Biostatistics 100A, 100B, consent of instructor. Microcomputer-assisted planning and organizing of epidemiologic surveys in developing countries, including teaching of methods for two-stage cluster sampling, training interviewers, and use of microcomputers to develop questionnaires, select sample population, process and analyze data, and prepare final report.

290. Seminar: Epidemiology — Infectious and Tropical Disease (2 units). Prerequisite: consent of instructor. Review of research on specific diseases of public health importance. May be repeated for credit. S/U grading.

291. Seminar: Epidemiology — Methodology (2 units). Prerequisites: course 100 or 200, consent of instructor. 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 units). Prerequisites: course 201B, consent of instructor. Current research in epidemiology. May be repeated for credit. S/U grading.

293. International HIV/AIDS Seminar (2 units). Prerequisite: consent of instructor. 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.

400. Field Studies in Epidemiology (2 or 4 units). Prerequisite: consent of instructor. 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.

410A. Management of Epidemiologic Data (2 units). Prerequisites: 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.

410B. Management of Epidemiologic Data (2 units). Prerequisites: course 410A or equivalent, consent of instructor. Data management for various epidemiologic study designs, confidentiality concerns; data management systems; introduction to mainframe computer.

411. Research Resources in Epidemiology (2 units). Lecture, one hour; discussion, one hour. Prerequisites: course 100 or 200, Biostatistics 100A, consent of instructor. 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.

414. Practical Epidemiologic Investigations (2 to 4 units). Lecture, one to two hours; laboratory, one to two hours. Prerequisites: course 100 or 200 or equivalent, consent of instructor. Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Data collection, analysis, and written presentation of findings.

M417. Injury Prevention Strategies and Countermeasures (2 units). (Same as Community Health Sciences M417.) Prerequisites: course 100 or equivalent, consent of instructor. 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.

495. Teacher Preparation in Epidemiology (2 units). Prerequisites: 18 units of cognate courses in area of specialization, consent of department chair. 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 units). Prerequisite: 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.

502. UCLA/Hawaii Western Consortium Exchange (4 to 16 units). Prerequisite: 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 at University of Hawaii, Manoa, as part of UCLA/UH Western Consortium Exchange Program. Only the equivalent of eight quarter units taken at UH may be applied toward degree. Extra units may be applied toward department requirements by petition to Public Health Student Affairs Office. UH letter-graded courses appear on UCLA transcript with letter grades, while UH Cr/NCr-graded courses appear as S/U grades. Grade points from these courses are not counted in UCLA grade-point average.

596. Directed Individual Study or Research (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

ETHNOMUSICOLOGY AND SYSTEMATIC MUSICOLOGY

School of the Arts and Architecture

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Visiting Assistant Professors

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Danny Lee
Christina Magaldi
Ernest Siva, M.M.

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 multidisciplinary 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.

Bachelor of Arts in Ethnomusicology

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 and Systematic Musicology 10A-10B-10C, 20A-20B-20C, and 16 units of performance organizations (courses 91A-91Z).

The Major

Required: Ethnomusicology and Systematic Musicology M180, 181, C190A, six elective courses selected from 106A, 106B, 106C, M108A, 108B, M110A, M110B, 113 through 121, M126, 128, 130, 136A through 172B, 174, 176, C179, 199E, 199S, and four upper division courses from other departments related to your area of concentration and selected in consultation with a faculty adviser.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants for the Master of Arts in Ethnomusicology must have completed a bachelor's degree in music or a field related to ethnomusicology or systematic musicology. Applicants whose degree is not in music are required to provide evidence of their musical aptitude and ability.

Applicants for either degree 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.

By March 15 — Notice of acceptance or denial is sent.

February 28 — Late applications received by February 28 are reviewed only if there is space available in the program.

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 and Systematic Musicology offers the degree of Master of Arts 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 and Systematic Musicology 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 and Systematic Musicology 106A, 106B, 106C, 113, M126, 128, 130, 136A, 136B, 146, 147, 156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 173, 176, M180, 181. Ethnomusicology and Systematic Musicology 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 and Systematic Musicology 200, C201A-C201B, 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 two electives from the department's graduate or upper division offerings, selected courses in Western music, a related discipline, or particular area outside the department as approved by the student's men-

tor. Students who have not taken Ethnomusicology and Systematic Musicology 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 and Systematic Musicology 292F may be counted to satisfy one of the electives. Students must enroll in a minimum of two quarters of ethnomusicology performance organizations, Ethnomusicology and Systematic Musicology 91A-91Z, which are not applied to their degree.

Specialization in Systematic Musicology. In addition to a six-course core (Ethnomusicology and Systematic Musicology 200, C201A, C203, one course from 271, 273, 275, 283, or Musicology 269, and two terms of Ethnomusicology and Systematic Musicology 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 as 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. 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 student's course of study. 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.

The comprehensive examination plan is not available for the systematic musicology specialization.

Thesis Plan

Students who are not pursuing the systematic musicology specialization may elect either the thesis or comprehensive examination; students in systematic musicology must write a thesis.

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.

For students not in the systematic musicology specialization, a three-year limit from the beginning of the M.A. coursework is normally im-

posed 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 for the Ph.D. 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.

By March 15 — Notice of acceptance or denial is sent.

February 28 — Late applications received by February 28 are reviewed only if there is space available in the program.

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 and Systematic Musicology offers the degree Doctor of Philosophy 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 and Systematic Musicology 200, C201A, C201B, 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 and Systematic Musicology 290, and one course from 271, 273, 275, or 283. Students may count one quarter of Ethnomusicology and Systematic Musicology 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 and Systematic Musicology 91A-91Z), which are not 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 and Systematic Musicology 200, C201A, C203, two courses of 279, and one from Ethnomusicology and Systematic Musicology 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 and Systematic Musicology 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 or six 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 of 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.

Lower Division Courses

1A-1B. Fundamentals of Sound and Music of the World (2 units, 4 units). 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. Lecture, two hours; discussion, four hours; laboratory, two hours. Limited to ethnomusicology and world arts and cultures majors. Course 10A is prerequisite to 10B, which is prerequisite 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. 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. 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 units 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; **91J.** 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.

Upper Division Courses

106A-106B-106C. Music of the American Indians. 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.** Athabascan, Pueblo, Plains, and Modern Pan-Indian Trends; **106C.** Sociology of American Indian Music.

M108A-108B. Music of Latin America. Lecture, three hours. Prerequisite: consent of instructor. Course M108A is not prerequisite 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.); **108B.** Latin South America.

M110A-M110B. The African American Musical Heritage. (Same as Afro-American Studies M110A-M110B and Folklore M154A-M154B.) Prerequisite: consent of instructor. 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. (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. Lecture, three hours. Prerequisite: consent of instructor. History of ethnic and art music in Brazil, with some reference to Portuguese antecedents.

M115. Musical Aesthetics in Los Angeles. (Formerly numbered 115.) (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.

M118. Chicano/Latino Music in the U.S. (Formerly numbered 116.) (Same as Chicana and Chicano Studies M116.) Lecture, three hours. Prerequisite: consent of instructor. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of the U.S.

117. American Popular Music. 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. Prerequisite: consent of instructor. 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.

120A-120B. Development of Jazz. Introduction to jazz; its historical background and its development in the U.S.

121. Cross-Cultural Perspectives in Jazz. Prerequisite: consent of instructor. 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. 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. (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. (Same as Folklore M181.) Prerequisite: consent of instructor. 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.

128. Folk Music of Eastern Europe. Prerequisite: consent of instructor. 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.

130. Folk Music of the Mediterranean. Lecture, three hours. Prerequisite: consent of instructor. 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.

CM132. Celtic Folk Music. (Same as Folklore CM132.) Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisite: consent of instructor. 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. Examination of melodic, metric, and formal structures of Indian classical music in context of religious, sociocultural, and historical background of the country.

156A-156B. Music of China. Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. **156A.** History and theory of music of China, including survey of various provinces and their instrumental techniques. **156B.** Prerequisite: course 156A. Introduction to various notational systems. Analysis of representative styles.

157. History of Chinese Opera. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisite: consent of instructor. **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 Pi' Pa, including transcription and analysis. **158C.** Comprehensive study of Chinese musical instruments, classification system, specific musical notation, and use in context of Chinese society.

160A. Survey of Music in Japan. 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. Lecture, two hours; laboratory, one hour. Prerequisite: 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. Lecture, three hours. Prerequisite: consent of instructor. 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.

172A-172B. Psychology of Music. **172A.** 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.** Prerequisite: course 172A or consent of instructor. Study of psychological factors and problems in music from points of view of listener, performer, and composer.

173. Experimental Research in Music. Prerequisite: consent of instructor. 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. Lecture, three hours. Designed for nonmajors. Historical survey of musical aesthetic thought and practice. Selected readings and musical examples.

175. Sociology of Music. Introduction to sociology of music, its principles and basic concepts, and its critical significance for sociomusicological inquiry, including study of popular music, ethnomusicology, and cultural politics of music. P/NP or letter grading.

176. Problems in Musical Aesthetics. Prerequisite: course 174 or consent of instructor. Critical approach to musical problems of aesthetic analysis, description, values, theories, including both Western and non-Western considerations.

C179. Proseminar: Systematic Musicology. Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Folklore M180.) Prerequisite: consent of instructor. Intensive study of methods and techniques necessary to understand traditional music.

181. Anthropology of Music. Prerequisite: consent of instructor. 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.

C190A-C190B. Proseminars: Ethnomusicology. Lecture, three hours. Prerequisites: courses 10A-10B-10C and 20A-20B-20C, or consent of instructor. May be concurrently scheduled with courses C201A-C201B.

199E. Special Studies in Ethnomusicology (2 to 4 units). Hours to be arranged. Prerequisites: senior standing, 3.0 GPA, consent of instructor and department chair. 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 units). Hours to be arranged. Prerequisites: senior standing, 3.0 GPA, consent of instructor and department chair. 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 units). Lecture, three hours. Prerequisite: graduate standing. Guided writing, utilizing specific bibliography, in ethnomusicology and systematic musicology.

C201A-C201B. Proseminars: Ethnomusicology. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. Basic literature and schools of thought in the field of ethnomusicology from the late 19th century to the present. May be concurrently scheduled with courses C190A-C190B. Additional assignments, as well as evidence of greater depth of study, required of graduate students.

C203. Proseminar: Systematic Musicology. Lecture, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: course 106A or 106B or 106C or consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered 211.) (Same as Afro-American Studies M211.) Seminar, three hours. Prerequisites: courses M110A-M110B or consent of instructor, graduate standing. 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. Seminar, three hours. Prerequisite: course 128 or consent of instructor. 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. (Same as Folklore CM232.) Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: course 136A or 136B or consent of instructor. 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. Lecture, three hours. Prerequisite: course 282 or course in ear training, analysis, and theory or consent of instructor. 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. Lecture, three hours. Prerequisite: course 282 or course in ear training, analysis, and theory or consent of instructor. 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. Lecture, three hours. Prerequisite: course 146 or 147 or consent of instructor. 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.

250A-250B. Music of Indonesia. Lecture, three hours. Prerequisite: course 20C or consent of instructor. 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. Seminar, three hours. Prerequisite: course 20C or consent of instructor. 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.

271. Seminar: Acoustics of Music (6 units). Seminar, three hours. Prerequisite: course 170 or consent of instructor. 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 units). Seminar, three hours. Prerequisite: course 173 or consent of instructor. 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 units). Seminar, three hours. Prerequisite: course 176 or consent of instructor. 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. Seminar, three hours. Prerequisites: course 170, consent of instructor. 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 units each). Seminar, three hours; laboratory, two hours. Prerequisites: courses C201A-C201B. Fieldwork concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects.

282. Seminar: Analysis (6 units). Seminar, three hours. Prerequisites: graduate standing in ethnomusicology, or course M180 and consent of instructor. 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 units). Seminar, three hours. Prerequisites: courses C201A-C201B or consent of instructor. Musical instruments studied in terms of their structures, performance contexts, cultural significance, and patterns of change.

284. Seminar: Anthropology of Music. Prerequisites: courses C201A-C201B. Analysis of current anthropological paradigms and issues that have major impact on ethnomusicology.

285. Seminar: Comparative Music Theory (6 units). Seminar, three hours. Prerequisite: consent of instructor. 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. (Same as Folklore M258.) Seminar, three hours. Prerequisite: consent of instructor.

290. Seminar: Ethnomusicology (6 units). Seminar, three hours. Prerequisites: courses 20A-20B-20C, 200, and C201A-C201B, or consent of instructor. May be repeated for credit.

292A-292Z. Seminars: Special Topics in Ethnomusicology. (Formerly numbered 292.) Prerequisites: graduate standing, consent of instructor. Designed to utilize 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 units). Prerequisite: 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 Ethnomusicology and Systematic Musicology (2 units). Eight weekly two-hour sessions, plus intensive training session during Fall Quarter registration week. Prerequisite: appointment as teaching apprentice in Ethnomusicology and Systematic Musicology 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.

596. Directed Individual Studies (2, 4, or 6 units). 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 units). May be repeated for credit. S/U grading.

598. Guidance of M.A. Thesis (4, 8, or 12 units). May be repeated for credit. S/U grading.

599. Guidance of Ph.D. Dissertation (4, 8, or 12 units). May be repeated for credit. S/U grading.

EUROPEAN STUDIES

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Debra L. Silverman, Ph.D. (*History*)
Anthony Vidler, Dipl. Arch. (*Art History*)

Associate Professor

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Assistant Professors

Richard Anderson, Ph.D. (*Political Science*)
Stephen Frank, Ph.D. (*History*)
John B. Hatch, Ph.D. (*History*)
Malina Stefanovska, Ph.D. (*French*)

Visiting Assistant Professor

Christof H. Rühl, Ph.D. (*Economics*)

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 in-

herent 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.

Bachelor of Arts Degree

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. You are expected to declare the major at the end of your 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 you will have completed all lower division requirements by the end of your junior year must be presented.

Foreign Language Requirement

You must prepare for the major by studying a European language other than English. This language — your declared foreign language — helps to focus the major and determine options for your period of study abroad. You are expected to fulfill the specific requisites of your selected language department (French, Germanic Languages, Italian, Slavic Languages and Literatures, Spanish and Portuguese) for entrance into upper division courses. If you wish to study Latin or Greek, you 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 requirements). You must complete the lower division foreign language requirement by the end of your 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 your declared foreign language; one course from Art History 54, 57, Musicology 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, 18, Women's Studies 10.

By carefully selecting courses for the Preparation for the Major, you can fulfill your 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 your 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 below, 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 your senior year you must write an extended paper offering original research on a topic of interest to you. Topics must be approved by a faculty adviser selected by you and endorsed by the program's executive committee.

You must consult with the program chair to design your upper division coursework.

Study in Europe — The program expects you to spend at least one term — and preferably a full academic year — studying in the European country most relevant to your 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 you have financial or personal considerations that may prevent you from going overseas. To obtain UCLA credit after returning to campus, you must have your foreign transcripts evaluated by the program faculty and staff.

Upper Division Courses

101. Introduction to European Studies. 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, immigration, and international relations.

102. Special Topics in European Studies. Discussion, three hours; outside study, nine hours. Prerequisite: consent of instructor. Variable topics. May be repeated for credit.

199. Seminar for Thesis Writers. Discussion, three hours; outside study, nine hours. Limited to and required of senior European studies majors. Seminar on research methods for required senior thesis in European studies.

European Studies Upper Division Course List

All courses are not offered every academic year. You 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
M154. Women in Culture and Society
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
110D. 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. Generic and Topical Studies in Ancient Literature
- 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
161. Introduction to Classical Mythology
162. Classical Myth in Literature
165. Ancient Athletics
- 166A. Greek Religion
- 166B. Roman Religion
167. Greek and Roman Magic
168. Introduction to Comparative Mythology
180. Introduction to Classical Linguistics
190. The Medieval Book
- Czech (Slavic Languages)** 155A-155B. Czech Literature
- 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 of 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
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
- M128. Hungarian Folklore and Mythology
- M129. Folklore and Mythology of the Ugric Peoples
- CM132. Celtic Folk Music
- M140. From Boccaccio to Basile (in English)
- 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 in European and Euro-American Cultures
- 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-120D. 20th Century
- 130A-130B-130C. History of French Civilization and Institutions
132. Contemporary France
140. 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
163. Contemporary French Theater 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
151. Historical Geography of Cities
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
- 101A. Introduction to German Poetry
- 101B. Introduction to German Drama
- 101C. Introduction to German Narrative Prose
104. Introduction to German Enlightenment, *Sturm und Drang*, and Classicism
105. Introduction to German Literature from Romanticism to Realism
106. Introduction to Modern Literature
107. Introduction to Contemporary Literature
- 119A. German Literature in the Age of Chivalry, in English Translation
- 119B. Weimar Classicism and Its Influence, in English Translation
- 119C. The Faust Tradition from the Renaissance to the Modern Age, in English Translation
- 119D. Romantic Heritage in German Literature, in English Translation
- 119E. Pattern and Chaos: Modern German Literature and Thought, in English Translation
- 119F. From Dream to Nightmare: The German-Jewish Experience, in English Translation
- M119G. Interwar Central European Prose
- M119H. Postwar Central European Prose
- 121A. Special Problems in Literature
- 121B. German Film in Cultural Context: Early German Film
- 121C. German Film in Cultural Context: New German Film
- 121D. Selected Topics in German Culture and Civilization
- 121E. Women in German Literature
122. Studies in German Literature before 1750
123. Goethe
124. Romanticism
130. Methodology of Literary Criticism
132. Goethe's *Faust*
134. German Folklore
- 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** 100A. History and Historians
- 100B. History and Contemporary Theory
118. Introduction to Roman Law
119. The Christian Church, 100 to 1517
120. 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. War and Diplomacy in Europe
 130A-130B-130C. Europe in the Age of Revolution, 1750 to 1850
 135A-135B. Marxist Theory and History
 137A-137B-137C. History of Women in Europe
 139. Renaissance England
 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-195B-195C. History of Science
 M195F-M195G. History of Biological Sciences
Humanities 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. Literature and the Visual Arts, 1700 to the Present
 C161. Fiction and History
 M162. Interwar Central European Prose
 C163. Crisis of Consciousness in Modern Literature
 C164. The Modern Continental Novel
 M165. The Holocaust in Literature
 M166. Postwar Central European Prose
 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
 C195. Heidegger, Language, and Literature
 C196. Derrida as a Reader of Heidegger
Hungarian (Germanic Languages) 120A-120B. Readings in Hungarian
 120C. Readings in Hungarian Literature
 121A-121B. Survey of Hungarian Literature in Translation
 130. Hungarian Civilization and Culture
 M135. Hungarian Folklore and Mythology
 M136. Folklore and Mythology of the Ugric Peoples
Italian 102A-102B-102C. Italian Cultural Experience
 103A, 103B, 103C. Readings in Italian Literature
 105. Tradition and Innovation in Italian Culture
 110A-110B. *Divine Comedy* in English
 113A-113B. Dante's *Divina Commedia*
 114A-114B. Italian Literature of the Middle Ages
 116A-116B. Italian Literature of the Renaissance
 118. Italian Literature of the 18th Century
 119. Italian Literature of the 19th Century
 120. Italian Literature of the 20th Century
 121. Italian Cinema
 122. Italian Theater
 M140. From Boccaccio to Basile (in English)
 150. Italian 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
 130. Medieval Latin Prose
 133. Medieval Latin Poetry
Musicology 122. Studies in History of Musical Thought
 133. Bach
 134. Beethoven
 135A-135B-135C. History of Opera
 139. History and Literature of Church Music
 156. Studies in Musical Genres
 188A-188F. The Master Composer
 189. 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
 112. Nature of the State
 113. Problems in 20th-Century Political Theory
 115. Theories of Political Change
 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
 151. Comparative Urban Government
 152. British Government
 153. Governments of Western Europe
 153A. Game-Theoretic Approach to West European Politics
 154. Governments of Central Europe
 155. Advanced Pluralist Democracies
 156A. Government and Politics of Russia
 156B. Government and Politics of Post-Soviet States
 157. Governments of Eastern Europe
 158A-158B. Socialism in Europe
 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. Medieval Portuguese Literature

- C126. Baroque and Neoclassical Portuguese Literature
- C127. Romanticism and Realism in 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. Survey of Russian Literature to Pushkin
119. Survey of 19th-Century Russian Literature
120. Survey of 20th-Century Russian Literature
- 124A-124F. Studies in Russian Literature
125. The Russian Novel in Its European Setting
126. Survey of Russian Drama
127. Women in Russian Literature
128. Russian Science Fiction
- 130A-130B-130C. Russian Poetry
134. Pushkin
- 140A-140D. Russian Prose
- 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
- C186. Voices of Women in Scandinavian Literature
187. Scandinavian Film: Bergman and Others
- Serbo-Croatian (Slavic Languages)** 154A-154B. Yugoslav Literature
- Slavic (Slavic Languages)** M125. Interwar Central European Prose
- M126. Postwar Central European Prose
177. Baltic Languages and Cultures
- 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
- 119C. Introduction to Study of Literature: Drama
- 120A-120B. Survey of Spanish Literature
122. Medieval Literature: Prose

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: Social and Political
- 110B. Feminist Theories: Criticism
- 110C. Feminist Theories: Perspectives on Gender and Science
- M110D. Philosophical Analysis of Issues in Feminist Theory
- M154. Women in Culture and Society
- M158. Women in Italian Culture
- M162. Sociology of Gender
- M165. Psychology of Gender
- Yiddish (Germanic Languages)** 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

FILM AND TELEVISION

School of Theater, Film, and Television

UCLA
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Professors

Jerzy Antczak, M.A.
Nicholas K. Browne, Ed.D.
Gilbert Cates, M.A., *Dean*
Gyula Gazdag, M.F.A.
Lewis R. Hunter, M.A.
Stephen D. Mamber, Ph.D.
Dan F. McLaughlin, B.A.
Robert Rosen, M.A., *Chair*
Delia N. Salvi, Ph.D.
Vivian Sobchack, Ph.D., *Associate Dean*
Peter Wollen, B.A.

Professors Emeriti

William B. Adams, M.A.
John D. Boehm, M.A.
Edgar L. Brokaw, B.A.
Shirley M. Clarke, A.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.
Teshome H. Gabriel, Ph.D.
Robert A. Nakamura, M.F.A.
Richard Walter, M.A.

Assistant Professors

A.P. Gonzalez, M.A.
Chon A. Noriega, Ph.D.
C. Fabian Wagmister, M.F.A.

Lecturers

John Cones, J.D.
Robert Friedman
Sid Ganis
Robert Jennings, M.A.
Stacey Lassally, J.D.
Robert Norton
Pierce O'Donnell, J.D.
Nigel Pearson, J.D.
Cathy Rabin, Ph.D.
Arnold Rifkin
Joe Roth
Jay Sandrich, B.A.
Tom Sherak, A.A.
Nigel Sinclair, LL.M.
Kenneth Suddleson, J.D.

Adjunct and Visiting Professors

Burt Brinckerhoff, *Visiting*
Patrick Drummond, *Visiting*
Peter Guber, LL.M., *Visiting*
Robert M. Silberling, M.F.A., *Visiting*
John Simmons, M.F.A., *Visiting*
Robert Trachinger, *Adjunct*

Visiting Associate Professors

Max Almy, M.F.A.
John T. Caldwell, Ph.D.
Marina Goldovskaya, Ph.D.
Jonathan Kuntz, Ph.D.

Adjunct and Visiting Assistant Professors

Harold Ackerman, M.A., *Adjunct*
Scott Brownlee, C.A.P., *Visiting*
Dee Caruso, M.A., *Adjunct*
Thomas F. DeNove, *Visiting*
Vera Dika, Ph.D., *Adjunct*
Velina Houston, Ph.D., *Visiting*
Wes Kenney, B.A., *Visiting*
Valerie Lettera, M.F.A., *Visiting*
J.D. Lobue, B.S., *Visiting*
Denise Mann, M.F.A., *Adjunct*
Barbara Marks, *Adjunct*
Richard Marks, B.A., *Adjunct*
Daniel Pyne, M.F.A., *Visiting*
Nancy Sackett, M.F.A., *Adjunct*
Myri Schreiberman, M.F.A., *Adjunct*
Herb Stein, B.A., *Visiting*

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.

Bachelor of Arts in Motion Picture/Television

Preparation for the Major

Students are admitted for Fall Quarter only. Admission is competitive, and only a limited

number of students can be accepted each year. Prior to entry, you must complete at least 84 quarter units (56 semester units) with a 3.0 GPA or better and the general education requirements of the School of Theater, Film, and Television. You are also required to submit a portfolio of original written work consisting of (1) a personal essay, (2) a critical essay on a film, and (3) a creative writing sample. For further information on admission, contact the Student Services Office, School of Theater, Film, and Television, 103 East Melnitz Building, UCLA, Los Angeles, CA 90095-1622.

The Major

Required: Film and Television 130A, 130B, 175A-175B, 185, two film/television history courses from 106A, 106B, 106C, 108, 110A, two film/television theory and criticism courses from 107, 110B, 110C, 112, 113, 114, 116, and 18 to 24 units of film and television elective courses for a minimum total of 68 upper division units in the major. It is recommended that the majority of the required courses be completed during the junior year.

You 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of Film and Television offers the Master of Arts degree (M.A.) and the Master of Fine Arts degree (M.F.A.) in Film and Television.

Master of Arts

Admission

Students are admitted 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 a grade 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 four full consecutive days and examines a broad range of knowledge in film and television. After completion, the committee grades the student either pass or fail. The student 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 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: anima-

tion, 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.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 Master of Arts in African Area Studies with the Master of Fine Arts in Film and Television, with a specialization in motion picture/television.

Course Requirements

A total of 18 courses is required for the degree, five of which must be at the graduate level. At least three courses must be in the 200 series in film history, aesthetics, or structure. 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 students fulfilling projects appropriate to their specializations. No later than the beginning of the final quarter of residence, the student 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 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 international 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

During the first six quarters, 13½ courses must be taken. During the first year of residence, Film and Television 211B, 215, and 273 must be completed, while Film and Television 274 is required in the last quarter in residence. In addition to this core sequence, Film and Television 496 is also required. Further, students must select nine graduate elective courses, at least six of which must be from film and television.

Each student must select courses from three areas of concentration, chosen to broaden their familiarity and competence in related subject areas. A suggested list of concentrations is as follows: film theory, criticism, narrative studies, film and the other arts, authors, genres, documentary, film history, American film, European film, non-Western film and television, television studies, media and society, film and television as a business enterprise, and film and television production. It is expected that the dissertation topic will emerge from one of the concentrations.

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 the student passes the written examination, a doc-

toral committee is formed to administer the University Oral Qualifying Examination. Students are advanced to candidacy only on successful completion of this examination.

A dissertation demonstrating ability to carry out independent and significant inquiry in a historical, theoretical, or critical field of film and television is required. Final award of the Ph.D. depends on successful completion of the dissertation.

Upper Division Courses

106A. History of the American Motion Picture (6 units). 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 units). 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 units). 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 units). Lecture/screenings, eight hours; discussion, one hour. Study and analysis of unconventional developments in the motion picture.

108. History of Documentary Film (6 units). 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. Lecture/viewing, six hours; discussion, one hour. Critical survey of broadcasting here and abroad. Consideration of social responsibilities and educational implications of broadcasting.

110B. Problems and Issues in Broadcast Media. Lecture, four hours; discussion, two hours; laboratory, to be arranged. Prerequisite: consent of instructor. Study of current issues and problems related to public and commercial broadcast programming and management, including analysis of contemporary criticism of broadcast media.

110C. World Media Systems. Lecture/viewing, four hours; discussion, one hour. Prerequisites: course 110A or equivalent, upper division standing, consent of instructor. 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 units). 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 units). 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 units). 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. 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. Lecture, four hours; laboratory, to be arranged. Study of and practice in film criticism.

M117. Chicanos in Film/Video (6 units). (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. Laboratory, six hours. Prerequisite: consent of instructor. Projects in acting for television, video, and film. May be repeated twice for credit.

128. Media and Ethnicity. Prerequisite: consent of instructor. 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 units). (Same as Theater CM129.) Lecture, two hours; screenings, two hours. Prerequisite: upper division or graduate standing in theater/film and television. 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 units). 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. Discussion, three hours. Prerequisite: consent of instructor. Problems in film and television writing.

131. Nontheatrical Screenwriting for Film and Television (4 or 8 units). Discussion, three hours. Prerequisite: consent of instructor. 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 units). Workshop, three hours. Prerequisites: course 130B and/or consent of instructor. Course in film and television writing. Original screenplays to be developed. May be repeated twice for credit.

150. Basic Cinematography: Film and Electronic. Lecture, three hours; laboratory, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. Limited to film and television majors. Introduction to principles and practices of film and television sound recording, including supervised exercises.

153. Color Cinematography. Lecture, three hours. Prerequisite: consent of instructor. History and theories of color photography, with emphasis on present-day methods in film and television production. Comparative study of additive and subtractive systems as employed by Technicolor, Ansco, Kodak, and others.

154. Film Editing. Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. 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. Workshop, eight hours. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Television Directing. Laboratory, six hours. Prerequisites: courses 130B, 185, consent of instructor. Introduction to and 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 units, 4 to 8 units). Prerequisite: consent of instructor. Limited to film and television majors. **175A.** Lecture, four hours; laboratory, eight hours. Writing, preproduction, and production for a short 16mm nonsynch film. **175B.** Lecture, three hours; laboratory, eight hours. Completion of postproduction (editing, creation of nonsynch sound tracks) for short film begun in course 175A.

176A-176B. Undergraduate Production II (8 units each). Lecture, three hours; laboratory, to be arranged. Prerequisites: courses 175A-175B, 185, consent of production faculty. 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 units). Laboratory, four hours. Prerequisite: consent of instructor. 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. Technical Film and Television Laboratory (2 or 4 units). Laboratory, to be arranged. Prerequisite: consent of instructor. Limited to film and television majors. Laboratory on 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. Lecture, three hours; laboratory, three hours. Prerequisite: consent of instructor. History and use of creative arts used in animation to form effective communication on film.

181B. Writing for Animation (4 to 8 units). Lecture, six hours; laboratory, to be arranged. Prerequisites: course 181A, consent of instructor. 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 units). Lecture, six hours; laboratory, to be arranged. Prerequisites: course 181A, consent of instructor, storyboard at first class meeting. 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 units). Laboratory, six hours (additional hours to be arranged). Prerequisite: consent of instructor. Limited to film and television majors. Instruction and exercises in basic techniques of television and video production.

187A-187B-187C. Producing and Directing Field Television Programming (4 units, 6 units, 6 units). Laboratory, three hours (additional hours to be arranged). Prerequisites: course 185, consent of instructor. **187A.** Introduction to field or remote broadcasting utilizing multiple- and single-camera video. Educational goals in student productions to be clarity of concept, simplicity in production, and meeting deadlines. **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.

189. Overview of Motion Picture Industry. Discussion, three hours. Prerequisite: consent of instructor. Evolution of economic and business structure of motion pictures from early beginnings to present, stressing methods of operation and influence of social and economic pressures that contributed to changing financial, distribution, and exhibition practices.

192. Film and Television Internship (4 to 8 units). Field experience, to be arranged. Prerequisite: consent of instructor. 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. Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisite: consent of instructor. 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. Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisite: consent of instructor. 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 units). Prerequisites: senior standing, 3.0 GPA in major, consent of instructor. May be taken for a maximum of eight units.

Graduate Courses

Certain graduate courses concerned with individual student projects may be repeated for credit on recommendation of the departmental graduate adviser. Graduate courses are not open to undergraduate students.

200. Bibliography and Methods of Research in Film and Television (6 units). Discussion, three hours; laboratory, four to six hours (additional screenings and/or video laboratory work as required). Prerequisites: graduate standing, consent of instructor. 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 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. 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 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: course 106B, graduate standing, consent of instructor. Studies in selected historical movements such as expressionism, socialist realism, surrealism, neorealism, New Wave, etc. May be repeated twice for credit.

206C. Seminar: American Film History (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: course 106A, graduate standing, consent of instructor. Study of central topics in American film history. May be repeated twice for credit.

207. Seminar: Experimental Film (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. Studies of form, style, politics, and history of experimental, innovative, avant-garde, and minority film and video.

208A. Seminar: Film Structure (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. Examination of various film conventions, both fictional and nonfictional, and of role of structure in motion picture.

208B. Seminar: Classical Film Theory (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. Study of principal topics and lines of inquiry that characterize theoretical writings of Arnheim, Eisenstein, Bazin, Mitry, etc.

208C. Seminar: Contemporary Film Theory (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: course 208B, graduate standing, consent of instructor. Study of redefinition of aims and methods of film theory through contemporary writings.

209A. Seminar: Documentary Film (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. Nonfictional film and its relation to contemporary culture.

209B. Seminar: Fictional Film (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. Film as fiction and its relation to contemporary culture. May be repeated once for credit.

209D. Seminar: Animated Film. Discussion, three hours; laboratory, three hours. Prerequisites: graduate standing, consent of instructor. Critical study of animated film: its historical development, structure, style, use, and relation to contemporary culture.

210. Seminar: Contemporary Broadcast Media. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. 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. Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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. Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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. 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. Discussion, four hours; viewing, to be arranged. Prerequisite: course 110A or equivalent. Examination of origins and development of American television. Topics include industry structure, economics, policy and regulation, and programming.

218. Culture, Media, and Society. Lecture, four hours; screenings, to be arranged. Prerequisite: consent of instructor. 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 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. 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. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. 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 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. Intensive examination of works of outstanding creators of films. May be repeated twice for credit.

222. Seminar: Film Genres (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. 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. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. 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. 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 units). (Same as Theater CM229.) Lecture, two hours; screenings, two hours. Prerequisite: upper division or graduate standing in theater/film and television. 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.

247. Production Planning in Film and Television. Discussion, three hours. Prerequisite: consent of instructor. 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.

268. Seminar: Short Film. Lecture, two hours; discussion, two hours. Prerequisites: graduate standing, consent of instructor. Study of problems presented by conceptualization of form and structure of the short film, with classical and student examples.

270. Seminar: Film Criticism (6 units). Discussion, three hours; film screenings, four to six hours. Prerequisites: graduate standing, consent of instructor. 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. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. 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 units). 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. Discussion, three hours. Prerequisite: second-year standing in film and television Ph.D. program. 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. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. Study of aesthetic and ideological impulses of selected films from Asia, Africa, and Latin America.

277. Seminar: Narrative Studies. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. 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. Prerequisites: course 247, graduate standing, consent of instructor. 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. Prerequisites: course 247, graduate standing, consent of instructor. 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. Lecture, two hours; discussion, two hours. Prerequisites: course 247, graduate standing, consent of instructor. 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. Discussion, three hours (additional hours as required). Prerequisites: graduate standing, consent of instructor. Study and practice of issues in archival research and administration.

298A-298B. Special Studies in Film and Television (2 to 4 units each). Lecture/discussion. Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisite: 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. Lecture, two hours; laboratory, six hours. Prerequisite: consent of instructor. Limited to film and television graduate 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 units each). Laboratory, 12 hours; fieldwork, to be arranged. Prerequisites: courses 405, 409, 410A-410B-410C, 433, consent of instructor. Limited to 10 film and television graduate 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 units each). Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Prerequisites: courses 405, 409, 410A-410B-410C, 433, consent of instructor. Limited to film and television graduate 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 units each). Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Prerequisites: courses 405, 409, 410A-410B-410C, 433, consent of instructor. 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 units). Laboratory, eight hours; other, to be arranged. Prerequisite: consent of instructor. Limited to film and television graduate 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 narrated three-camera project.

406. Experimental Video Workshop. Laboratory, six hours; other, to be arranged. Prerequisite: consent of instructor. Limited to film and television graduate 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 units). Laboratory, 12 hours. Prerequisite: consent of instructor. Limited to film and television graduate 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. Discussion, four hours; laboratory, to be arranged. Prerequisite: consent of instructor. Limited to film and television graduate students. Individual instruction in electronic editing. **408A.** On-Line Editing; **408B.** Off-Line Editing.

409. Directing the Actor for the Camera Workshop. Workshop, six hours; laboratory, to be arranged; laboratory preparation, two to four hours. Prerequisite: consent of instructor. Limited to film and television M.F.A. production program graduate 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 units, 12 units, 8 units). (Formerly numbered 401A-401D.) Lecture/discussion/laboratory, 24 hours; fieldwork, to be arranged. Prerequisites: courses 405, 409, consent of instructor. Limited to film and television graduate 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 units).** Lecture, three hours; discussion, one hour; laboratory, six hours. Prerequisite: consent of instructor. Limited to film and television graduate 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 units).** Lecture, six hours; discussion, two hours; laboratory, 16 hours. Prerequisites: course 417, consent of instructor. Limited to film and television graduate 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.** Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: courses 417, 418, consent of instructor. Limited to film and television graduate 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.** Lecture, four hours; workshop. Prerequisites: first film project, consent of instructor. Limited to film and television graduate 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.** Studio workshop, six hours. Prerequisites: course 423A, consent of instructor. Limited to film and television graduate 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.** Lecture, three hours. Prerequisite: consent of instructor. Limited to film and television graduate students. Introductory course in problems of film and television screenwriting.
- 433. Writing the Short Screenplay.** Lecture, three hours. Prerequisite: consent of instructor. Limited to film and television graduate 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 units).** Discussion, three hours. Prerequisites: course 135, consent of instructor. 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.** Discussion, three hours. Prerequisites: courses 402A-402B or 403A-403B or 404A-404B, consent of instructor. Limited to film and television graduate 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.** Discussion, three hours. Prerequisite: consent of instructor. Limited to film and television graduate 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.** Laboratory, to be arranged. Prerequisite: consent of instructor. Limited to film and television graduate 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.** Lecture, three hours; laboratory, four hours. Prerequisite: consent of instructor. Limited to film and television graduate students. Principles and practices of film and television sound recording, including supervised exercises.
- 452B. Music Recording Workshop.** Lecture, four hours; laboratory, eight hours. Prerequisite: consent of instructor. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television.
- 452C. Film and Television Sound Rerecording.** Lecture, three hours; laboratory, three hours. Prerequisite: consent of instructor. Limited to film and television graduate 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.** Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor based on 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.** Lecture, three hours. Prerequisite: consent of instructor. Limited to film and television graduate 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 units each).** Hours to be arranged. Prerequisite: consent of instructor. Limited to film and television graduate students. Special problems in direction of fictional and documentary films.
- 468A-468B. Advanced Professional Video Workshops (8 units each).** Lecture, three hours; laboratory, to be arranged. Prerequisites: courses 405, 410A-410B-410C, 423A, consent of instructor. Limited to film and television graduate 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.
- 475. Film I (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. Study of basic techniques of film production, including preproduction planning and production of a group short film.
- 476. Video I (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. Study of basic techniques of television and video production, including completion of one or more projects.
- 478. Video II (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: courses 185, 405 or 476, graduate standing, consent of instructor. 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 units each).** Lecture, three hours; laboratory, to be arranged. Prerequisites: courses 181A, 181B, 181C, consent of instructor. 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 units).** Preparation for thesis production, four to eight hours. Prerequisites: graduate standing in M.F.A. production program, consent of instructor. 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.** Laboratory, eight hours. Prerequisites: graduate standing in M.F.A. production program, consent of instructor. Completion of projects in final stages of postproduction. May not be repeated.
- 488A. Interactive Animation (4 to 8 units).** Lecture, six hours; laboratory, to be arranged. Prerequisites: courses 181A, 181C, 489A, consent of instructor. 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 units).** Lecture, six hours; laboratory, to be arranged. Prerequisites: course 488A, consent of instructor. 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 units).** Lecture, six hours; laboratory, four to eight hours; other, to be arranged. Prerequisites: courses 181A, 181C, a completed animated film, consent of instructor. 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 units).** Lecture, six hours; laboratory, four to eight hours. Prerequisite: 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 units).** 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 units).** Full- or part-time at a studio or on a professional project. Prerequisites: graduate standing, advanced standing in M.F.A. program, consent of instructor. 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 units).** Prerequisite: 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 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.
- 596B. Directed Individual Studies: Writing (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.
- 596C. Directed Individual Studies: Directing (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.
- 596D. Directed Individual Studies: Design (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.
- 596E. Directed Individual Studies: Acting (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

596F. Directed Individual Studies: Production (2 to 12 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

597. Preparation for Ph.D. Qualifying Examinations in Film and Television (2 to 12 units). 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 units). Hours to be arranged. Prerequisite: 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 units). Hours to be arranged. Prerequisite: advancement to Ph.D. candidacy. Research and writing for Ph.D. dissertation. May be repeated. S/U grading.

Related Courses in Other Departments

Communication Studies 187. Ethical and Policy Issues in Institutions of Mass Communication

Design 165C. Communication Design: Video Image

English 118. Film and Literature

Italian 46. Italian Cinema and Culture

121. Italian Cinema

FOLKLORE AND MYTHOLOGY

*Interdepartmental Program
College of Letters and Science*

UCLA
1041 Public Policy Building
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Los Angeles, CA 90095-1459
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Professors

Shirley L. Arora, Ph.D. (*Spanish and Portuguese*)

Marianna D. Birnbaum, Ph.D., *in Residence*
(*Germanic Languages*)

Jesse L. Byock, Ph.D. (*Germanic Languages*)

Marga Cottino-Jones, Ph.D. (*Italian*)

Jacqueline C. Djedje, Ph.D. (*Ethnomusicology and Systematic Musicology*)

Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology and Systematic Musicology*)

Michael O. Jones, Ph.D. (*History*)

James R. Massengale, Ph.D. (*Scandinavian Languages*)

Joseph F. Nagy, Ph.D. (*English*)

Herbert E. Plutschow, Ph.D. (*East Asian Languages and Cultures*)

James W. Porter, M.A. (*Ethnomusicology and Systematic Musicology*)

Professors Emeriti

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*)

Vladimir Markov, Ph.D. (*Slavic Languages and Literatures*)

Philip L. Newman, Ph.D. (*Anthropology*)

Douglass R. Price-Williams, Ph.D. (*Anthropology*)

Jaun 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

Donald J. Cosentino, Ph.D. (*English*), *Chair*

Steven Lattimore, Ph.D. (*Classics*)

Colin Quigley, Ph.D. (*World Arts and Cultures*)

Beverly J. Robinson, Ph.D. (*Theater*)

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.

Although no undergraduate degree program is offered in folklore and mythology, students majoring in world arts and cultures may select folklore and mythology as their area of concentration. 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, you 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Two letters of recommendation from former instructors or other comparable references are required, 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.

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, M214, 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, the student 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 doctoral program 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 (1) a major field of folklore and mythology; (2) at least five of the minimum number of nine courses required for the Ph.D. are to be selected from courses carrying folklore prefixes; (3) the number of graded Folklore 596 courses that can be counted among the minimum of nine courses required for the Ph.D. is limited to two; (4) of the minimum number of nine courses required for the Ph.D., at least two are to be folklore seminars (e.g., Folklore 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 student's 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.

Lower Division Courses

15. Introduction to American Folklore Studies. 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. 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. Survey of various forms of folklore and examination of their historical and social significance.

C105. Perspectives in American Folklore Research. Lecture, three hours. Prerequisite: course 101 or consent of instructor. 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. (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. Lecture, three hours. Prerequisites: course 15 or 101 and/or consent of instructor. 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. Prerequisite: course 101 or consent of instructor. Study of traditional genres or forms of Afro-American folklore and their cultural functions.

M111. Literature of Myth and Oral Tradition. (Same as English M111A.) Prerequisite: 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. (Same as English M111E.) Prerequisite: 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. Prerequisite: consent of instructor. 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. Prerequisite: junior standing. 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 units). (Same as German M119I.) Lecture, four hours. History and reception of folklore collections in Europe, with particular attention to ideology and influence of Grimms' tales. Study and interpretation of selected tales in English and their transformations and appropriation in literature, film, advertising, and pedagogy.

M121. British Folklore and Mythology. (Same as English M111C.) Prerequisites: satisfaction of Subject A requirement, junior standing. Survey of folklore of the peoples of Britain, with attention to their history, function, and regional differences.

M122. Celtic Mythology. (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. 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. (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. (Same as English M111F.) Prerequisite: course 101 or consent of instructor. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research.

M128. Hungarian Folklore and Mythology. (Same as Hungarian M135.) General course for students in folklore and mythology, with emphasis on types of folklore and varieties of folklore research.

M129. Folklore and Mythology of the Ugric Peoples. (Same as Hungarian M136.) Survey of traditions of the smaller Ugric nationalities (Voguls, Ostyaks, etc.).

130. North American Indian Folklore and Mythology Studies. Prerequisite: course 101 or consent of instructor. 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. Prerequisite: course 101 or consent of instructor. Survey of folklore of India, with special reference to content and dissemination of oral epics, ballads, legends, and beliefs.

CM132. Celtic Folk Music. (Same as Ethnomusicology CM132.) Prerequisite: consent of instructor. 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.

M140. From Boccaccio to Basile (in English). (Same as Italian M140.) Lecture, three hours. Study of origins and development of the Italian novella in its themes, structure, historical context, and European ramifications. Designed for students in other departments who wish to become acquainted with either the premises or growth of similar literary genres. Also intended for students majoring in folklore and mythology, who are given insight into Italian popular tales when these (as in the case of Boccaccio) were translated into highly sophisticated literary forms, as well as when (as in the case of Basile) they become embedded into the folk tradition of the Western world.

M142. Introduction to Jewish Folklore. (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. Prerequisite: junior standing. 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. (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. (Same as Russian M150.) Lecture, three hours. Lectures and readings in Russian.

M154A-M154B. The African American Musical Heritage. (Same as Afro-American Studies M110A-M110B and Ethnomusicology M110A-M110B.) Prerequisite: consent of instructor. 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. (Same as English M111G.) Prerequisite: upper division standing. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

163. Folklore and Oral History. Prerequisite: junior standing. 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. Prerequisite: junior standing. 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. (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. Prerequisite: course 15 or 101 or consent of instructor. 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. Prerequisite: junior standing. 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. (Same as Ethnomusicology M180.) Prerequisite: consent of instructor. Intensive study of methods and techniques necessary to understand traditional music.

M181. Folk Music of Western Europe. (Same as Ethnomusicology M126.) Prerequisite: consent of instructor. 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.

M182. Japanese Folklore. (Same as Japanese M182.) Lecture, three 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 found in Japan.

183. Korean Folklore. Lecture, three hours. Survey of Korean folklore and its perspectives and methods — oral literature, performing folk arts, social folk custom, and material culture.

CM184. Dance in European and Euro-American Cultures. (Formerly numbered CM184D.) (Same as World Arts and Cultures CM184.) Survey of social, ceremonial, and ritual European-based dance; consideration of role of dance in society, its cultural significance, and historical background. Emphasis on various European and European-American regional and national dance traditions. Concurrently scheduled with course CM284.

M185. The Hero in the Bible and the Ancient Near East. (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. Prerequisite: course 15 or 101 or consent of instructor. 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 units). Prerequisites: senior standing, consent of instructor.

Graduate Courses

200A. Folklore Bibliography, Theory, and Research Methods. (Formerly numbered 200A, 200B.) Lecture, three hours; discussion, one hour. Prerequisite: graduate standing in folklore and mythology or consent of instructor. Basic course in theory, current trends, and bibliography for folklore graduate students, including research techniques in contemporary folkloristics.

200B. Folklore Collecting and Field Research. (Formerly numbered 200C.) Lecture, three hours; discussion, one hour. Prerequisite: course 200A or consent of instructor. Discussion/demonstration of theoretical concepts and practical techniques of data gathering and field research in folklore.

M202. Folklore Archiving. (Same as Library and Information Science M202.) Lecture, two hours; laboratory, two hours. Exploration and analysis of alternative data indexing, storage, and retrieval systems and procedures for folklore archival collections, supplemented by firsthand experience in creating and managing databases, utilizing both manual and computerized techniques.

CM205. Perspectives in American Folklore Research. (Same as English M205.) Lecture, three hours. Prerequisite: course 101 or consent of instructor. 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. 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. Lecture, three hours. Prerequisites: course 200A and/or consent of instructor. 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. Prerequisite: graduate standing. Theoretical and methodological constructs which have contributed to the body of black cultural expression in the U.S.

213. Folk Belief and Custom. Prerequisites: course 101 and one course from 118, M121, M122, 124, M126, M128, M149, M150, Anthropology 156, German 134, 240A, 240B, 240C. Study of beliefs and customs in the folk community: life cycle, calendrical and agricultural customs, and legal antiquities.

M214. Ethnography of Humor. (Same as Anthropology M232S.) Lecture, three hours. Prerequisite: graduate standing in folklore and mythology or anthropology. 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. Prerequisite: course 200A or consent of instructor. Study of categories of legendry and their relation to myth, custom, ritual, popular beliefs, and ballads.

216. Folktale. Prerequisite: course 200A or consent of instructor.

217. Folk Speech. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisites: course 200A, coursework in Celtic studies. 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 (*laoidhe/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. (Same as Italian M230A-M230B.) Lecture, two hours.

CM232. Celtic Folk Music. (Same as Ethnomusicology CM232.) Prerequisite: consent of instructor. 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. (Same as English M235.) Prerequisite: consent of instructor. Seminar on methods of analyzing African and African Diaspora myth and ritual.

240. Introduction to Jewish Folk Literature. Prerequisites: upper division standing and consent of instructor, or graduate standing. Examination of both historic and generic methods used in study of Jewish folk literature.

M241. Folklore and Mythology of the Near East. (Same as Near Eastern Languages M241.) Prerequisite: course 101 or equivalent.

M243A. The Ballad. (Same as English M243A.) Prerequisite: consent of instructor. Study of English and Scottish popular ballads and their American derivatives, with some attention to European analogues.

M243B. Problems in Ballad Scholarship. (Same as English M243B.) Prerequisite: course M243A or consent of instructor. Intensive investigation of a problem or problems in study of the popular ballad.

C245. Applied Folkloristics. Prerequisite: graduate standing. 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. 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. (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. Advanced studies in folk traditions and mythologies of the Finno-Ugric speaking nations.

M257. South American Folklore and Mythology Studies. (Same as Anthropology M232R.) Prerequisite: Anthropology 174P or consent of instructor. Examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these people.

M258. Seminar: Folk Music. (Same as Ethnomusicology M287.) Seminar, three hours. Prerequisite: consent of instructor.

259. Seminar: Folklore. Prerequisite: course 200A or consent of instructor. Seminar focusing on selected topics in folklore and mythology. May be repeated for credit.

260. Organizational Folklore, Culture, and Symbolism. Prerequisite: graduate standing. 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.

M281. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (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).

C285. Film and Folklore. Prerequisite: graduate standing. 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. (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. Prerequisite: junior standing. 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.

CM284. Dance in European and Euro-American Cultures. (Formerly numbered CM284D.) (Same as World Arts and Cultures CM284.) Survey of social, ceremonial, and ritual European-based dance; consideration of role of dance in society, its cultural significance, and historical background. Emphasis on various European and European-American regional and national dance traditions. Concurrently scheduled with course CM184.

M286A-M286B. Studies in Hispanic Folk Literature. (Same as Spanish M286A-M286B.) Lecture, two hours.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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. Prerequisite: consent of program chair. 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. Lecture, 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 6 units). Prerequisite: 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 units).

597A. Preparation for M.A. Comprehensive Examination (2 to 4 units). Prerequisites: graduate standing in folklore and mythology, consent of instructor. S/U grading.

597B. Preparation for Ph.D. Qualifying Examinations (4 to 8 units). Prerequisites: successful completion of M.A. comprehensive examination, consent of instructor. S/U grading.

598. M.A. Thesis Preparation (2 to 4 units).

599. Ph.D. Dissertation Research (4 to 8 units). Prerequisite: advancement to Ph.D. candidacy. S/U grading.

Related Courses in Other Departments

Anthropology 118A, 118B. Museum Studies

133R. Aesthetic Systems

156. Comparative Religion

230P. Ethnology

232Q. Myth and Ritual

233Q. Aesthetic Anthropology

M272. Indians of South America

273. Cultures of the Middle East

274. Cultures of the Pacific Islands

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

203. Museum Studies

220. Oceanic, Pre-Columbian, African, and Native North American Art

Classics 161. Introduction to Classical Mythology

162. Classical Myth in Literature

166A. Greek Religion

166B. Roman Religion

168. Introduction to Comparative Mythology

268. Seminar: Comparative Mythology

English 112. Children's Literature

Ethnomusicology and Systematic Musicology

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

156A-156B. Music of China

160A. Survey of Music in Japan

181. Anthropology of Music

C190A-C190B. Proseminars: 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-215D. Medieval Literature

German (Germanic Languages) 134. German Folklore

240A. Theories, Methods, and History of Germanic Folklore

240B. Folk Song and Ballad

240C. Oral Prose Genres

245B. Germanic Antiquities

262. Seminar: Germanic Folklore

History 193A. History of Religions: Myth

Italian 214D. Boccaccio's *Decameron*

218C. 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

The following courses offered in the departments of language and literature do not require reading knowledge of any foreign language.

Afrikaans (Germanic Languages) 114. Afrikaans Literature in Translation

Ancient Near East (Near Eastern Languages) 150A-150B-150C. Survey of Ancient Near Eastern Literatures in English

Arabic (Near Eastern Languages) 150A-150B. Survey of Arabic Literature in English

151. Survey of Modern Arabic Literature in English

Armenian (Near Eastern Languages) 150A-150B. Survey of Armenian Literature in English

Bulgarian (Slavic Languages) 154. Survey of Bulgarian Literature

Chinese (East Asian Languages) 150. Chinese Literature in Translation: Classical Literature

151. Chinese Literature in Translation: Modern Literature

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. Generic and Topical Studies in Ancient Literature

Czech (Slavic Languages) 155A-155B. 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
163. Contemporary French Theater 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
119A. German Literature in the Age of Chivalry, in English Translation
119B. Weimar Classicism and Its Influence, in English Translation
119C. The Faust Tradition from the Renaissance to the Modern Age, in English Translation
119D. Romantic Heritage in German Literature, in English Translation
119E. Pattern and Chaos: Modern German Literature and Thought, in English Translation
119F. From Dream to Nightmare: The German-Jewish Experience, in English Translation
M119G. Interwar Central European Prose
M119H. Postwar Central European Prose

Humanities All courses

Hungarian (Germanic Languages) 121A-121B. Survey of Hungarian Literature in Translation

Iranian (Near Eastern Languages) 150A-150B. Survey of Persian Literature in English

Italian 42A-42B. Italian Civilization or Italy through the Ages
46. Italian Cinema and Culture
50A-50B. Masterpieces of Italian Literature
102A-102B-102C. Italian Cultural Experience
105. Tradition and Innovation in Italian Culture
110A-110B. *Divine Comedy* in English
121. Italian Cinema
122. Italian Theater
M140. From Boccaccio to Basile (in English)
150. Italian 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

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. Survey of Russian Literature to Pushkin
119. Survey of 19th-Century Russian Literature
120. Survey of 20th-Century Russian Literature
124A-124F. Studies in Russian Literature
125. The Russian Novel in Its European Setting
126. Survey of Russian Drama

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
C186. Voices of Women in Scandinavian Literature
187. Scandinavian Film: Bergman and Others

Serbo-Croatian (Slavic Languages) 154A-154B. Yugoslav Literature

Slavic (Slavic Languages) M125. Interwar Central European Prose
M126. Postwar Central European Prose

Spanish (Spanish and Portuguese) 60A-60B-60C. Hispanic Literatures in Translation

Ukrainian (Slavic Languages) 152. Ukrainian Literature

Yiddish (Germanic Languages) 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

Emily Apter, Ph.D.
Patrick Coleman, Ph.D., *Undergraduate Studies Director*
Eric Gans, Ph.D., *Graduate Studies Director*
Peter Haidu, Ph.D.
Stephen D. Werner, Ph.D.
Marc Bensimon, Ph.D., *Emeritus*
Francis J. Crowley, Ph.D., *Emeritus*
Hassan el Nouty, Docteur ès Lettres, *Emeritus*
Milan S. La Du, Ph.D., *Emeritus*
L. Gardner Miller, Docteur ès Lettres, *Emeritus*
Oreste F. Pucciani, Ph.D., *Emeritus*

Associate Professors

Jean-Claude Carron, Docteur ès Lettres, *Chair*
Shuhsi Kao, Ph.D.
Sara Melzer, Ph.D.

Assistant Professors

Andrea Loselle, Ph.D., *Undergraduate Adviser*
Malina Stefanovska, Ph.D.

Lecturers

Nicole Dufresne, Ph.D.
Kimberly Jansma, Ph.D.
Colette Brichant, Docteur d'Université, *Emerita*
Padoue A. de Martini, B.A., *Emeritus*
Jacqueline Hamel-Baccash, Licenciée ès Lettres, *Emerita*
Madeleine Korol-Ward, Ph.D., *Emerita*

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 four 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.

Bachelor of Arts Degrees

Preparation for the Majors

Required: French 1, 2, 3, 4, 5, 6, 12, or equivalent. You normally take course 6 before undertaking course 12. If you receive a grade of A in course 5, you may enroll in course 12 concurrently with course 6, with consent of instructor. Students in Plan D must also take Linguistics 20.

The Majors

Four plans are offered by the department:

Plan A (General) leads to the Bachelor of Arts in French and subsequently to the standard elementary or secondary instructional credential. *Required:* Thirteen upper division courses, including French 100, 101, 102; two courses from 114A, 114B, 114C; at least two courses in French culture and two in French literature; four additional elective courses normally 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 within Plan A 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 B (Literature) 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 five courses in French literature; three additional elective courses normally 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.

Plan C (French Studies), 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 D (French and Linguistics) leads to the Bachelor of Arts in French and Linguistics. In addition to the normal preparation for the major, you 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 103, 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 your knowledge of French exceeds the preparation usually received in courses preparing for the major and if you demonstrate the requisite attainment in French 100, 101, or 102, you 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. 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. You 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, you are admitted to the program.

To graduate with departmental honors, you must complete a minimum of two honors projects in the context of nonhonors upper division courses (French 115A and above) taken for honors credit. You 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, you fill out a completion form.

On the basis of your coursework and field of interest, you are expected to formulate a research topic you wish to pursue in greater depth. You take course 170 where you receive regular personal supervision from a faculty member in the research, methodology, and writing of your 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.

You may begin the honors program toward the end of your junior year or during your senior year. The honors projects and course 170 may be taken over two terms minimum. You 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 will be recorded on your final transcript if you fulfill all requirements for the program. You may submit your final honors thesis for the departmental prize.

Instructional Credential in French

If you wish a single subject instructional credential in French, you must have the consent of the French Department in order to gain admission to student teaching. For the single subject credential, consent is contingent on a major (or equivalent) in French and the successful completion of French 370. For additional information, consult the Graduate School of Education and Information Studies, 1009 Moore Hall (310-825-8328), and/or the French Department.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants to the Master of Arts program in French must hold a Bachelor of Arts 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 address given at the beginning of this listing.

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 francophone 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 will be written). This 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 the student has passed this examination. If the student fails this examination, the examining committee determines whether the student 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 Ph.D. program in French, completion of the master's 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.

Admitted students holding the M.A. or an equivalent degree from another institution must take an oral *examen de passage* in two periods of literary history (to be chosen in consultation with the graduate adviser) in order to be formally admitted to the doctoral program. This examination, administered by the M.A. committee, should be taken during the first year in residence. In case of failure it may be repeated once.

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 three additional seminars taken after obtaining the M.A. (a balance should be sought between theoretical and literary-historical relevance to the student's proposed period of specialization); (3) at least two graduate courses in other departments related to the area of specialization. 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 the 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 are to 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, the student is admitted to the University Oral Qualifying Examination. The oral should be taken during the same quarter as the written qualifying examinations. The student 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.

Lower Division Courses

If you have taken French elsewhere, you must take a placement test administered by the department. Depending on the results of the placement test or with recommendation of an instructor, you may be permitted to enroll in a course of study at a more advanced level.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition.

1. Elementary French. Lecture, five hours.

1G. Elementary French for Graduate Students (3 units). Preparation for GSFLT or other language examinations. A passing grade does not imply satisfaction of language requirements. S/U grading.

2. Elementary French. Lecture, five hours. Enforced requisite: course 1 (C - or better).

2G. Elementary French for Graduate Students (3 units). 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. Lecture, five hours. Enforced requisite: course 2 (C - or better).

4. Intermediate French. Lecture, five hours. Enforced requisite: course 3 (C - or better).

5. Intermediate French. Lecture, five hours. Enforced requisite: course 4 (C - or better).

6. Intermediate French. Enforced requisite: course 5 (C - or better).

10A-10D. French Conversation (2 units each). Discussion, three hours. Enforced requisite: course 3 (B or better).

12. Introduction to Study of French Literature. 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. Lecture, three hours; outside study, nine hours. Knowledge of French not required. Study of contemporary French institutions and issues in political, cultural, and socio-economic realms. Structure of and recent developments in French society.

15. Theory and Correction of Diction. 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. 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. 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. 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

Requisites to all upper division courses taken in partial fulfillment of the French major are French 6, 12, or equivalent. Credit is ordinarily not allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition. Courses 105 through 109 are not sequential and may be taken in any order, provided the requisites for each course are fulfilled.

- 100. Introduction to Written Expression.** Lecture, three hours. Prerequisite: course 6 or equivalent. Development of writing techniques in French, with emphasis on revision of grammatical structures.
- 101. Intermediate Exposition.** Lecture, three hours. Prerequisite: course 100 or equivalent. Development of narrative techniques in writing, with emphasis on editing for grammar and style.
- 102. Advanced Exposition.** Lecture, three hours. Prerequisite: course 101 or equivalent. Development of analytic writing skills in French, with emphasis on rhetorical techniques and skillful argument.
- 103. Composition and Style.** Lecture, three hours. Prerequisite: course 102 or equivalent. Designed to develop proficiency in composition and style, with concentration on three linguistic skills of reading, writing, and translating.
- 105. Structure of French.** Lecture, three hours. Prerequisites: course 15, consent of instructor. 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.** Lecture, three hours. Prerequisite: course 100 or consent of instructor. Communicative and rhetorical strategies; techniques of oral exposition, argumentation, and analysis.
- 108A-108B-108C. Advanced Practical Translation.** Lecture, three hours:
- 108A.** Prerequisite: course 103 with a grade of B or consent of instructor. Introduction to translation of advanced texts of general interest, with work in theory of translation.
- 108B.** Prerequisite: course 108A or consent of instructor. Practice in translation of technical documents and texts; comparative stylistics of translation.
- 108C.** Prerequisite: course 108B or consent of instructor. Advanced work in areas of general and specialized interest.
- 109. French Business: Its Language and Culture.** Lecture, three hours. Prerequisite: course 6 or equivalent. Study of language of economics and business in France as well as its specific practices and customs.
- 114A-114B-114C. Survey of French Literature.** Lecture, three hours. Prerequisite: course 12 or consent of instructor. 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, Laclous, 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. 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 satiric, fantastic, and religious in the bourgeois drama of Arras, and utterly charming in the unclassifiable *Aucassin et Nicolette*.

116A-116B-116C. Renaissance. (Formerly numbered 116A-116D.) Lecture, three hours:

116A. La Pléiade and 16th-Century Poetry. Study of the linguistic and poetic "revolution" brought about by *Deffense 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. (Formerly numbered 117A-117D.) 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 Rochefoucauld, La Bruyère, La Fayette, and La Fontaine.

117C. Culture and Society. (Formerly numbered 117D.) Study of 17th-century political, social, religious, and courtly aspects, including libertine and *salons milieu*, la Fronde, and Versailles.

118A-118B-118C. 18th Century. Lecture, three hours:

118A. Satire. Readings include Montesquieu's *Lettres persannes*, Diderot's *Neveu de Rameau* 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 Laclous' *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. 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-120D. 20th Century. Lecture, three hours:

120A. Early 20th-Century Writers. Readings of works by Claudel, Apollinaire, Valéry, Gide, and Proust.

120B. Literature from 1918 to 1945. Study of works by surrealists and other major writers such as Céline, Malraux, Giraudoux, and Anouilh.

120C. Post-World War II Literature. Study of works by existentialists and other major writers such as Robbe-Grillet, Beckett, Genet, Ponge, and Duras.

120D. Post-May 1968 Literature. Study of representative works from the "revolution" of 1968 to the present.

121A-121B. Contemporary Francophone Literature. 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.

121B. Quebec Literature. Survey of modern *Québécois* literary works.

124. The Short Story. Lecture, three hours. Survey of short fiction forms in France and the French-speaking world.

125. Evolution of French Comedy. 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. Prerequisites: 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. Lecture, three hours. Social, cultural, and political institutions and/or movements in 20th-century France.

140. Women's Studies in French Literature. (Formerly numbered 158.) Lecture, three hours. Exploration of a selected aspect of the situation of women in French literature as author, character, symbol, etc.

141. Cinema and Literature in France. (Formerly numbered 138.) 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. 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. (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.

Courses 150 through 156 may be repeated once for credit with consent of major adviser.

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. Lecture, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered 160.) 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.

The following courses may not be taken for graduate credit but may be taken as the equivalent of out-of-department electives by undergraduate majors.

162. Modern French Thought in Translation. (Formerly numbered 143.) Lecture, three hours. Reading and discussion of contemporary works in translation.

163. Contemporary French Theater in Translation. (Formerly numbered 142.) Lecture, three hours; discussion, one hour.

164A-164B-164C. The French Novel in Translation. (Formerly numbered 144A-144B-144C.) Lecture, three hours. Texts and authors to be studied announced in advance for each offering.

165. Topics in French Literature in Translation. (Formerly numbered 145.) 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. (Formerly numbered 140.) Prerequisites: junior or senior standing in French with 3.5 GPA in major, completion of two honors projects, consent of department. 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 units). Prerequisites: junior or senior standing, consent of instructor, consultation with undergraduate adviser. May be repeated once.

Graduate Courses

201. Literary Research and Composition. 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. (Formerly numbered 203A.) Lecture, three hours.

203. Contemporary Theories. (Formerly numbered 203B.) 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. (Formerly numbered 202.) Lecture, three hours. Practice in close analysis of literary texts, including *explication de texte*.

210A. Phonology and Morphology from Vulgar Latin to French Classicism. (Formerly numbered 204A.) Lecture, three hours. Evolution of the French language. Required of candidates for Ph.D. in Romance Linguistics and Literature who specialize in philology.

210B. Syntax and Semantics from Vulgar Latin to French Classicism. (Formerly numbered 204B.) Lecture, three hours. Evolution of the French language. Required of candidates for Ph.D. in Romance Linguistics and Literature who specialize in philology.

214. Problematics of Medieval Language and Literature. Lecture, three hours. Prerequisite to courses 215A through 215D and 250A through 250C. Introduction to Old French and the problematics of medieval literature.

215A-215D. Medieval Literature. Lecture, three hours. Prerequisite: course 214:

215A. Lyric Types.

215B. Narrative Types.

215C. Theater — Comic and Religious.

215D. Discursive Texts.

216A-216B-216C. Renaissance. (Formerly numbered 216A-216E.) Lecture, three hours:

216A. Early Renaissance French Literature. Selected readings of works from first half of the 16th century, including those by Marot, Rabelais, Marguerite de Navarre, and Scève.

216B. Poetic "Revolution" of 1549. Readings of works by Ronsard and Du Bellay, with selections from other writers of the 1550s.

216C. Late Renaissance Literature. Selected readings of works by major writers of the period from 1560 to 1600, including d'Aubigné, Sponde, Chassignet, and Montaigne.

217A-217D. 17th Century. Lecture, three hours:

217A. Theater. Analysis of representative comedies and/or tragedies, including those by Corneille, Molière, and Racine.

217B. Prose. Readings of selected works by philosophers, moralists, and/or novelists, including Pascal, La Rochefoucault, La Bruyère, La Fayette, and La Fontaine.

217C. Poetry. Selected readings of works by major poets, including Racan, Voiture, Saint-Amant, Racine, La Fontaine, and Boileau.

217D. Culture and Society. Study of political, social, religious, and courtly aspects, including libertine and *salons milieux*, la Fronde, and Versailles.

218A-218B-218C. 18th Century. Lecture, three hours:

218A. Topics in the Early Enlightenment. Selected readings from major works of the period from 1680 to 1747.

218B. Topics in the Enlightenment. Selected readings from major works of the period from 1748 to 1765.

218C. Topics in the Late Enlightenment. Selected readings from major works of the period from 1766 to 1791.

219A-219D. 19th Century. Lecture, three hours:

219A. Topics in Romanticism. Readings in literature of the Romantic period.

219B. Topics in Realism and Naturalism. Readings in realist and naturalist novel and theater.

219C. Topics in Symbolism. Readings in symbolist poetry and prose.

219D. Poetry. Study of development of French poetry throughout the 19th century.

220A-220D. 20th Century. Lecture, three hours:

220A. Turn of the Century. Readings of works by post-symbolist writers, as well as Valéry, Gide, and Proust.

220B. Literature from 1918 to 1945. Readings of works by surrealist writers, as well as Céline, Malraux, and Anouilh.

220C. Post-World War II Literature. Readings of works by existentialist writers, as well as Robbe-Grillet, Beckett, and Ponge.

220D. Cinema and Literature. Comparative study of interrelations between cinematic and literary forms.

221A-221B-221C. French-African Literature. 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.

222. Quebec Literature. Lecture, three hours. Study of selected poems, novels, and plays in their cultural context.

241. Introduction to Generative Anthropology. (Formerly numbered 261.) Lecture, three hours. Prerequisite: consent of instructor. Discussion of principles of generative anthropology and their application to study of literary texts and related cultural phenomena.

242. Introduction to Study of Narrative. Lecture, three hours. First survey of modern French methodology for critical analysis and interpretation of narrative, with examples from all periods of French literature.

Seminars 250A through 260B may be repeated for credit.

250A. Major Medieval Texts. Seminar, three hours. Prerequisite: 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*.

250B. Structures of Medieval Literature. Seminar, three hours. Prerequisite: course 214. Advanced study of a variety of texts in terms of textual and historical structures.

250C. Problems in Medieval Literature. Seminar, three hours. Prerequisite: 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.

251A-251B. Studies in the Renaissance.

252A-252B. Studies in the Baroque.

253A-253B. Studies in the 17th Century.

254A-254B. Studies in the 18th Century.

255A-255B. Studies in the 19th Century.

256A-256B. Studies in Contemporary Literature.

257A-257B. Studies in French-African Literature.

258A-258B. Studies in Literary Criticism.

259A-259B. Studies in Philosophy and Literature.

260A-260B. Studies in History of Ideas. Particular problems in French literature and ideas.

370. Teaching French in Secondary School. Lecture, three hours; discussion, one hour. Required of all candidates for general secondary instructional credential in French.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisite: graduate standing. Theory and practice of language teaching. S/U grading.

596. Directed Individual Studies or Research (2 to 4 units).

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units). May be repeated for a maximum of 16 units. S/U grading.

598. Research for and Preparation of M.A. Thesis (2 to 4 units). Prerequisite: consent of instructor. A 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 units). S/U grading.

GEOGRAPHY

College of Letters and Science

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Professors

Charles F. Bennett, Ph.D.
C. Rainer Berger, Ph.D.
William A. V. Clark, Ph.D.
J. Nicholas Entrikin, Ph.D., *Chair*
Tom L. McKnight, Ph.D.
Antony R. Orme, Ph.D.
Allen J. Scott, Ph.D.
Stanley W. Trimble, Ph.D.
Hartmut Walter, Ph.D.

Professors Emeriti

Henry J. Bruman, Ph.D.
Gary S. Dunbar, Ph.D.
Huey L. Kostanick, Ph.D.
Clifford H. MacFadden, Ph.D.
Howard J. Nelson, Ph.D.
Jonathan D. Sauer, 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.
Gerry A. Hale, Ph.D.
David L. Rigby, Ph.D.

Assistant Professors

Michael R. Curry, Ph.D.
J. Mark Ellis, Ph.D.
Chi-Fun Cindy Fan, Ph.D.
Johannes J. Feddema, Ph.D.
Joshua S.S. Muldavin, Ph.D.
Marilyn N. Raphael, Ph.D.
Melissa Savage, 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, ranked sixth 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.

Bachelor of Arts in Geography

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, 40. 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 regional course, and (4) one procedures course.

Concentrations for the Major

By the end of your junior year and no later than the beginning of your senior year, you are required to declare your specific concentration by filing a statement with the undergraduate adviser. The purpose of the concentration requirement is to expose you to systematic in-depth work within a specific area of geography. Completion of a concentration requires five upper division geography courses. You must take a concentration's required course(s), if any, before declaring that concentration. You must

select one of the following concentrations and meet its course requirements:

(1) *Urban and Regional Development Studies*

Five of the following: 135, 148, 150, 155, 157, 159A

(2) *Spatial Demography and Social Processes in the City*

Required: 142

Four of the following: 143, 144, 150, 156, 159B

(3) *Culture and Environment in the Modern World*

Five of the following: 130, 133, 134, 135, 136, 140, 151, 159C

(4) *Physical Geography*

Required: 100/100A, 104, 105/105A

Two of the following: 101, 103, 106, 107, 113, 159D

(5) *Biogeography*

Five of the following: 108, 111, 112, 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 department accepts UCLA foreign language departmental proficiency examination scores as evidence of foreign language competency. In mathematics, only Mathematics 2, 3A, 3B, 3C, 5, 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

You 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.

Bachelor of Arts in Geography/Environmental Studies

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, 40. All courses must be taken for a letter grade. **Recommended:** Biology 21, Chemistry and Biochemistry 2 or 11A, Life Sciences 1, Mathematics 3A, 3B, Philosophy 6, Physics 3A or 10. Students considering graduate work are strongly advised to include Chemistry and Biochemistry 11A, 11B, Mathematics 31A, 31B, and 32A in their program.

You 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, 106, 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, 114, 116, 120, 121, 123, 124, 125, 126, M128, 129, 131, 135, 136; (4) *procedures*—two courses (eight units) from 100A, 101A (two units), 105A (two units), 106A (two units), 160, 163, 167 (six units), 168, 169, 170, 171, M178; and (5) *regions*—one course from 122, 135, 136, 156, 180, 181, 182A, 182B, 183, 185, 186, 187, 188, 189, or 190.

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 you 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, 5, 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.

Specialization in Computing

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. You graduate with a bachelor's degree in your major and a specialization in computing.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Application to the Master of Arts program in Geography 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, 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.

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, and urban geography. At the M.A. level students emphasize at least one of these specialized areas. The written qualifying examinations for the Ph.D. include one examination each 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, 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, they should be completed in the first year. Four courses (16 units) of the six noncore courses must be 200-level graduate courses; the remaining two noncore courses may be 500-level courses or 100-level courses. 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) Only two 500-series courses can apply to the minimum course requirement for the M.A. degree.
- (3) All 500-series courses can be taken on an S/U basis only.
- (4) Students may take Geography 199 or 596 only if at least one formal course is also taken that term.
- (5) In any given term, students may enroll in up to eight units of Geography 199 or 596, 597, 598, 599.
- (6) Students may enroll in Geography 597, 598, or 599 as often as required.

Teaching Courses. Geography 375 and Geography 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 proceed initially under the supervision of the student's 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 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, 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 knowl-

edge: environmental studies, geomorphology, climatology, biogeography, cartography, and economic, social, cultural/historical, and urban geography. The written qualifying examinations for the Ph.D. include one examination each 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 can be taken on an S/U basis only.
- (3) Students may take Geography 199 or 596 only if at least one formal course is also taken that term.
- (4) In any given term, students may enroll in up to eight units of Geography 199 or 596, 597, 598, 599.
- (5) Students may enroll in Geography 597, 598, or 599 as often as required.

Teaching Courses. Geography 375 and Geography 495 cannot be applied to the minimum of three courses for the Ph.D.

Written and Oral Qualifying Examinations

The written qualifying examination, consisting of five written examinations 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, the student 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.

Lower Division Courses

Contact the department office to learn of additional offerings, seminar topics, and specific instructors for the term you wish to enroll in courses in geography.

1. Physical Environment. 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. 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. 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. Introduction to Economic Geography. Lecture, three hours; laboratory, one hour. Introduction to basic concepts used in modern urban and economic geography. Emphasis on giving better understanding of effects of location on human behavior. Discussion and practical exercises on analysis of problems in the Los Angeles urban environment.

5. People and the Earth's Ecosystems. 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.

40. Geographical Statistics. 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. (Formerly numbered 88.) 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. Lecture, three hours; reading period, one hour. Prerequisite: course 1 or consent of instructor. 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 units). 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. Lecture, three hours; reading period, one hour. Prerequisite: course 1 or consent of instructor. 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 units). 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. Lecture, three hours; discussion, one hour. Prerequisite: course 1 or consent of instructor. 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. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. Corequisite: course 105A. Recommended: courses 40, 104, or equivalent. 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 units). 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 lab and make hydrologic measurements in the field.

106. Soils. Lecture, three hours; reading period, one hour. Prerequisites: course 1 or equivalent and Chemistry 11A, or consent of instructor. Corequisite: course 106A. Study of origins, evolution, properties, and utilization of soils, with special emphasis on world's major soil groups.

106A. Soils: Laboratory (2 units). Laboratory/fieldwork, six hours. Corequisite: course 106. Study of natural development of soils, physical and chemical properties of soil, and uses of soil. Analysis of pH, moisture, texture, nutrients, and organics. Includes one-day field trip.

107. Soil and Water Conservation. Lecture, three hours; discussion, one hour. Prerequisite: course 1. Recommended: course 105 or 106 or Civil Engineering 150 or equivalent. Limited to 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. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Characteristics, distribution, environmental and cultural relationships of world's principal vegetation patterns. P/NP or letter grading.

110. Population and Natural Resources. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. 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. Lecture, three hours; reading period, one hour; field trips. Prerequisites: course 2, Life Sciences 1 or equivalent. Limited to 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. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2 or Life Sciences 1, 40. Limited to 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.

113. Clastic Sedimentation Processes in Geomorphology. Lecture, three hours. Prerequisites: courses 1, 100, and 105, or equivalent, or consent of instructor. Recommended: courses 101, 103, 107, or equivalent. Study of clastic sedimentation transport and deposition processes in geomorphology. Topics include basic fluid mechanics and sediment transport; tectonic framework of sedimentation; general overview of depositional environments; and more detailed discussion of selected environments.

114. Ideas of Nature and Environmental Values. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. History of ideas of nature and the environment. Relationship of those ideas to contemporary ethical and political concerns about the environment and the place of humans within it. P/NP or letter grading.

M115. Environmentalism: Past, Present, and Future (4 to 6 units). (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. Origins and Histories of Crop Plants. Lecture, three hours; reading period, one hour. Prerequisite: course 2 or equivalent. Limited to juniors/seniors. Geographic patterns of domestication and diffusion of useful plants from antiquity to the present, based on detailed case histories of selected species. P/NP or letter grading.

118. Medical Geography. Lecture, three hours; reading period, one hour. Prerequisite: course 5 or consent of instructor. 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. Prerequisites: courses 1 and 2, or equivalent, or upper division standing. Analysis of basic principles and problems associated with conservation of natural resources in the U.S. and Canada.

121. Conservation of Resources: Underdeveloped World. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Prerequisite: course 5. Limited to 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. Lecture, three hours; discussion, one hour. Prerequisites: courses 2, 5. Recommended: course 40. Limited to 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. Lecture, three hours; discussion, one hour. Prerequisites: course 40, two environmental studies cluster courses. 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. 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. Lecture, three hours; reading period, one hour. Prerequisites: course 5, upper division standing. 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, Plants, and Society. (Same as Biology M127.) Lecture, three hours; field trip. Prerequisites: Chemistry 11A, 11B/11BL, and 11CL, or equivalent, or consent of instructor. General treatment of soil development and morphology and physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation, and cultural aspects. Use of soil profiles examined on field trip to explain developmental phenomena.

M128. Global Environment: Problems and Issues. (Formerly numbered 128.) (Same as Urban Planning CM128.) Lecture, three hours. Prerequisite: course 5. Limited to juniors/seniors. Analysis of selected environmental problems and issues associated with human-induced ecological disturbances. In-depth evaluation of key problem factors and processes using a multidisciplinary approach. P/NP or letter grading.

129. Seminar: Environmental Studies. Seminar, three hours; reading period, two hours. Prerequisites: one course each from natural and human systems cores, three environmental studies cluster courses, senior standing. 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. Lecture, three hours; reading period, one hour. Prerequisites: courses 1 and 3, or equivalent, or upper division standing. Survey of history of exploration, from earliest times to modern, with emphasis on period from Marco Polo to the present.

131. Geography of Deforestation. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Primarily examination of landscape change but also introduction of forces tending to exploit and conserve forests. P/NP or letter grading.

133. Cultural Geography of the Modern World. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours. Limited to 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. Lecture, three hours. Limited to 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. Lecture, three hours; reading period, one hour. Limited to 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.

140. Political Geography. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. 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. 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. Lecture, three hours; reading period, two hours. Recommended (but not prerequisite): course 142. Limited to juniors/seniors. Designed to encourage and facilitate critical thinking about geographical aspects of ethnicity in contemporary America, with focus specifically on non-white 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.

148. Economic Geography. Lecture, three hours; reading period, one hour. Prerequisite: course 4 or upper division standing. 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. (Formerly numbered 149.) (Same as Urban Planning M149.) Prerequisite: course 3 or 4 or upper division standing. 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. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. Analysis of development, functions, spatial patterns, and geographic problems of American cities. P/NP or letter grading.

151. Historical Geography of Cities. Prerequisites: courses 3 and 4, or equivalent, or upper division standing. Survey of diffusion and growth of cities in Western civilization. Development of city systems and evolution of urban internal spatial structure.

155. Industrial Location and Regional Development. Lecture, three hours. Prerequisite: course 4 or Economics 1 or 2 or 5 or 11 or upper division standing. 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. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. 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. Lecture, three hours; reading period, one hour. Prerequisite: 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. Discussion, three hours; reading period, one hour. Prerequisites: completion of three courses in a concentration, senior standing. Seminar course in which students carry out intensive research projects developed from courses within a concentration. P/NP or letter grading.

Procedures

160. Field and Laboratory Analysis in Geomorphology. Laboratory/fieldwork, eight hours. Prerequisite: one course from 100, 101, 103, or 105, or consent of instructor. Limited to geography and environmental studies majors, with enrollment priority to seniors, then to juniors. Students must pre-enroll in department during prior term. Examination of field and laboratory procedures and intellectual concepts used in observation, measurement, analysis, and interpretation of landforms, constituent materials, and relevant processes. P/NP or letter grading.

463. Field Analysis in Biogeography. Fieldwork, eight hours. Prerequisites: courses 2, 5, 108, and 112, or consent of instructor. 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.

167. Cartography (6 units). Lecture, two hours; laboratory, six hours; outside study, three hours. Prerequisites: three courses from 1 through 5. Limited to 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. Computer Cartography. Lecture, two hours; laboratory, two hours; outside study, two hours. Prerequisites: course 40, basic knowledge of computers. Recommended: course 167, Program in Computing 10A. Theory and methods of mapping quantitative information with a computer. Problems of acquiring and processing machine-readable map data and representing them as point symbols and surfaces. P/NP or letter grading.

169. The Earth from Above. Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 3, and 4, or consent of instructor or upper division standing. Interface between cartography and remote sensing. By means of a wide variety of imagery from maps and satellite photos, different landscapes analyzed and explained. P/NP or letter grading.

170. Geographical Information Systems and Spatial Analysis. Lecture, two hours; laboratory, two hours. Prerequisites: courses 40 and 168, or consent of instructor. Limited to juniors/seniors. Geographic information systems (GIS) have grown out of a number of technologies and application fields concerned with geographic location of their objects of study. Review of development and present applications of GIS technology, detailing collection, input, manipulation, and analysis of data in GIS. P/NP or letter grading.

171. Quantitative Analysis. Lecture, three hours; laboratory, one hour. Prerequisite: course 40 or equivalent. 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. (Same as Anthropology M116Q.) Lecture, three hours; reading period, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Prerequisite: upper division standing. 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. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Study of geographic conditions and their relation to economic, social, and political problems in Europe. P/NP or letter grading.

184. Russia. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Limited to 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.

188. Northern Africa. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Analysis of economic, social, and political geography of the area including Mediterranean Africa, Sahara, Sudanic belt, and eastern Horn. Emphasis on geographical themes and problems during historical and modern times. P/NP or letter grading.

189. Middle and Southern Africa. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Regions of Africa south of the Sahara (middle and southern Africa) in terms of physical features, human settlement, economic production, and political patterns. P/NP or letter grading.

190. Australasia. Lecture, three hours; discussion, one hour. Limited to 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. Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Systematic and regional treatment of geography of California, including physical, cultural, and economic aspects and detailed studies of the various regions. P/NP or letter grading.

Special Studies

199. Special Studies (2 to 8 units). Hours to be arranged. Prerequisites: junior standing with a B average in the major or senior standing, consent of instructor.

199HA-199HB. Honors in Geography I, II. Hours to be arranged. Prerequisites: 3.25 GPA overall, at least five upper division geography courses with a 3.5 GPA. **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 units). Prerequisite: consent of instructor. 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. Lecture, two hours; discussion, one hour; reading period, eight hours. Prerequisites: course 100, two courses from 101, 103, 105, 106, 107. 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. Discussion, three hours; reading period, five hours; fieldwork. Prerequisites: 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. Discussion, three hours; reading period, five hours; fieldwork. Prerequisites: 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. Discussion, three hours; reading period, five hours; fieldwork. Prerequisites: 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. Lecture, three hours; laboratory, one hour. Prerequisites: course 104, first year of calculus, and acquaintance with FORTRAN IV, or consent of instructor. 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. Discussion, three hours; reading period, one hour. Prerequisites: courses 204A-204B-204C or equivalent, consent of instructor. Selected topics. May be repeated for credit.

208. Advanced Biogeography: Plants. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: courses 108 and 110 or 116, or equivalent, or consent of instructor. Intensive review and analysis of physical and cultural factors influencing plant distributions.

212. Advanced Biogeography: Animals. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 112 or 117 or equivalent or consent of instructor. Intensive review and analysis of biophysical and cultural factors influencing animal distributions.

213. Seminar: Biogeography. Discussion, three hours; reading period, two hours. Prerequisites: course 208 or 212 or equivalent, consent of instructor. Related research projects growing out of course 208 or 212. May be repeated for credit.

215. Quaternary Studies: Physical Aspects. Discussion, three hours; reading period, two hours; fieldwork, three hours. Prerequisite: 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. Discussion, three hours; reading period, two hours. Prerequisites: courses 202 or 204A-204B-204C or 208 or 212 or an appropriate graduate course in anthropology, botany, Earth and space sciences, or zoology, or consent of instructor. Analysis of ecological aspects of environmental change during the Quaternary period. May be repeated for credit.

218. Advanced Medical Geography. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 118 or consent of instructor. In-depth study of selected topics in medical geography and intense review of recent research.

223. Seminar: Humid Tropics. Lecture, three hours; reading period, two hours. Prerequisite: graduate standing. 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.

227. Water Quality Management. Discussion, three hours; reading period, one hour. Prerequisites: graduate standing, consent of instructor. Discussion of basic technical, regional planning, and public policy issues in water quality management.

229. Seminar: People and Environment. Discussion, three hours; reading period, two hours. Prerequisite: course M128 or equivalent. Analysis of man's perception of the environment throughout history and in different parts of the world and its impact on past, present, and future ecosystems.

Human Geography

230. Political Ecology. Seminar, three hours; reading period, three hours. Prerequisite: graduate standing or consent of instructor. 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. Discussion, three hours; reading period, three hours. Prerequisite: graduate standing or consent of instructor. 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. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 133 or equivalent or consent of instructor. Lectures and discussions around specific aspects of development of cultural landscape in different geographic environments.

233. Seminar: Cultural Geography. Discussion, three hours; reading period, two hours. Prerequisites: course 232 or 236 or equivalent, consent of instructor. 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. Seminar, three hours. Discussion on resource management strategies and environmental issues in indigenous cultures. Topics vary from year to year.

236. Advanced Historical Geography of the U.S. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 136, consent of instructor. Some major themes in American historical geography.

237. Seminar: Historical Geography. Discussion, three hours; reading period, two hours. Prerequisites: course 236, consent of instructor. Theory and practice of historical geography in North America and Europe. May be repeated for credit.

240. Advanced Political Geography. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 140 or equivalent or consent of instructor. Intensive study of theories and principles of political geography and German geopolitics. Selected regions used as specific examples of differing techniques of study in geopolitics.

241. Seminar: Political Geography. Discussion, three hours; reading period, two hours. Prerequisites: course 240 or equivalent, consent of instructor. Related research projects growing out of course 240. May be repeated for credit.

242. Advanced Population Geography. Lecture, three hours; reading period, one hour. Prerequisite: course 142 or equivalent or consent of instructor. Study of population dynamics and migration, spatial variation in population composition, and population resource problems, diffusion, and epidemiology.

248. Location and Space Economy. 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. Discussion, three hours; reading period, two hours. Prerequisites: course 248 or equivalent, consent of instructor. Related research projects growing out of course 248. May be repeated for credit.

250. Urban Systems. 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. Discussion, three hours; reading period, two hours. Prerequisites: course 250 or equivalent, consent of instructor. Related research projects growing out of course 250. May be repeated for credit.

252. Location and Social Structure within the City. Lecture, two hours; discussion, one hour; reading period, one hour. Study of links between urban social and urban spatial structure, emphasizing urban residential land use, social areas of the city, and accessibility and urban form. S/U or letter grading.

254. Migration and Residential Mobility. Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: consent of instructor. Description and modeling of national, regional, and intra-urban migration.

Procedures

260. Advanced Field and Laboratory Analysis in Geomorphology. Laboratory/fieldwork, 10 hours. Prerequisites: graduate standing, two courses from 200, 201, 202, 203, 215. Examination of advanced field and laboratory procedures used in contemporary geomorphic research, with emphasis on scientific design, instrumentation, and data evaluation.

261. Advanced Field Analysis: Cultural Geography (8 units). Fieldwork, once a week from 8 to 5. Prerequisites: one or more courses from 232, 233, 250, 251. Field methods and analysis applied to the cultural landscape, especially in Southern California, with particular reference to settlement, agriculture, and environmental modification.

262. Advanced Field Analysis: Biogeography (8 units). Fieldwork, 10 hours. Prerequisite: consent of instructor. 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.

265. Geographical Bibliography. Lecture, one hour; discussion, two hours; reading period, one hour. Prerequisite: consent of instructor. Survey of the literature of geography, with special reference to periodicals. Intended for beginning graduate students.

267. Advanced Cartography. Laboratory, three hours; independent study, two hours. Prerequisite: course 167 or equivalent or consent of instructor. Advanced work in theory and practical application of modern cartographic principles. Special emphasis on terrain representation, quantitative and computer mapping, scribing, color separation, and reproduction of maps.

268. Geographic Information Systems. Lecture, two hours; laboratory, two hours. Prerequisites: courses 167, 168, and 171, or consent of instructor. Recommended: Earth and Space Sciences 150. Encoding, storage, analysis, and display of spatial data in digital format using geographic information systems. Emphasis on geographic data (including remote sensing imagery and digital terrain models), raster and vector data structures, and spatial analysis/spatial modeling using GIS.

269. Remote Sensing of Environment. Laboratory, three hours; independent study, two hours. Prerequisite: course 167 or equivalent or consent of instructor. 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 units each). (Same as Atmospheric Sciences M272A-M272B-M272C and Earth and Space Sciences M270A-M270B-M270C.) Lecture, two hours. Prerequisite: consent of instructor. 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. (Same as Urban Planning M215.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisite: consent of instructor. Specific techniques useful in analysis of spatial data and modeling of spatial distributions.

273. Seminar: Model Building for Spatial Analysis. Discussion, three hours. Prerequisite: consent of instructor. Discussions of philosophy and methodology of model building, with emphasis on problems unique to models of spatial structure. Individual research topics. May be repeated for credit.

M278. Dating Techniques in Environmental Sciences and Archaeology. (Same as Anthropology M216.) Lecture, three hours. Prerequisite: consent of instructor. Colloquium devoted to topics in dating techniques in environmental sciences, archaeology, and biological anthropology, as well as laboratory instruction and experimental work. May be repeated for credit.

Regions

Courses 280 through 291 may be repeated for credit (lecture, two hours; discussion, two hours).

280. North America. Prerequisite: course 180 or consent of instructor.

281. Middle America. Prerequisites: course 181, consent of instructor.

282. South America. Prerequisites: course 182A or 182B, consent of instructor.

283. Europe. Prerequisites: course 183, consent of instructor.

284. Soviet Union. Prerequisites: course 184, consent of instructor.

285. South and Southeast Asia. Prerequisites: course 185, consent of instructor.

286. Geography of Contemporary China. Seminar, three hours; reading period, two hours. Prerequisite: graduate standing or consent of instructor. S/U or letter grading.

287. Middle East. Prerequisites: course 187, consent of instructor.

288. Northern Africa. Prerequisites: course 188, consent of instructor.

289. Middle and Southern Africa. Prerequisites: course 189, consent of instructor.

290. Australasia. Prerequisites: course 190, consent of instructor.

291. Arid Lands. Prerequisites: courses 104, 106, 108, 116, 120, 148, or equivalent, consent of instructor. Investigation of physical and cultural complexes of the world's arid regions. Salient factors include climate, landforms, water, soils, natural vegetation, and various aspects of human occupation, including future possibilities for human utilization.

292. Advanced Regional Geography: Selected Regions. Lecture, three hours; discussion, one hour. Prerequisite: 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. Discussion, three hours; reading period, two hours. Prerequisites: graduate standing, consent of instructor. Discussion and study of topics significant to growth of modern philosophy of geography.

Core Courses

298A. Philosophical Issues in Geographical Inquiry. Lecture, three hours. Prerequisite: consent of instructor. Discussion of geographical research within context of philosophical debates concerning the nature of scientific inquiry.

298B. History of Modern Geography. Lecture, three hours; reading period, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, two hours. Prerequisite: course 171 or equivalent. Use of linear models, discriminant functions, and factor analysis to analyze problems in geography.

Special Studies

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Discussion, one hour; laboratory, three hours. Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. May be repeated for credit. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations (2 to 8 units). Prerequisite: consent of instructor. Independent study. May be repeated for credit. S/U grading.

598. Research for and Preparation of M.A. Thesis (2 to 8 units). Prerequisite: consent of instructor. Independent study. May be repeated for credit. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation (2 to 8 units). Prerequisite: consent of instructor. Independent study.

GERMANIC LANGUAGES

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Professors

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Marianna D. Birnbaum, Ph.D., *in Residence*
(*Hungarian*)

Jesse L. Byock, Ph.D. (*Old Norse*)
Janet R. Hadda, Ph.D. (*Yiddish*)
Robert S. Kirsner, Ph.D. (*Dutch, Afrikaans*)
Kathleen L. Komar, Ph.D. (*German*)
Wolfgang Nehring, Ph.D. (*German*)
Hans Wagener, Ph.D. (*German*)
Franz H. Bäuml, Ph.D., *Emeritus*
Carl W. Hagge, Ph.D., *Emeritus*
Victor A. Oswald, Jr., Ph.D., *Emeritus*
Donald J. Ward, Ph.D., *Emeritus*
Terence H. Wilbur, Ph.D., *Emeritus*

Associate Professor

Jill Anne Kowalik, Ph.D. (*German*)

Assistant Professor

Christopher M. Stevens, Ph.D. (*Germanic
Linguistics and Philology*)

Lecturers

Jutta Landa, Ph.D. (*German*)
Wilfried M. Voge, Ph.D. (*German*), *TA Coordinator*

Scope and Objectives

The Department of Germanic Languages offers an extraordinary scope of Germanic languages and literatures, including philology, linguistics, and folklore. This broad range of studies offers training in specialized fields, in addition to providing strong background in the literary and cultural traditions. The courses of instruction are designed to enable students to become effective teachers and productive scholars in either German or Germanic languages and literatures, including Germanic folklore, Hungarian, and Finnish.

Undergraduate majors in both German and Scandinavian languages lead to Bachelor of Arts degrees. The graduate program offers Master of Arts degrees in Germanic Languages and in Scandinavian and a Ph.D. in Germanic Languages, with a variety of specialized fields available. The department also offers courses in Afrikaans, Dutch, Hungarian, Old Norse studies, and Yiddish.

Bachelor of Arts in German

Three plans are offered by the department:

Plan A (Language and Literature)

Plan A is comprised of lower division courses in the German language and upper division courses in German language, linguistics, literature, civilization, and folklore. While the nucleus of the undergraduate program consists of training in language and literature, students majoring in German will be prepared for a wide range of graduate studies and activities in related fields.

Preparation for the Major: German 1, 2, 3, 4, 5, 6, or equivalent. Students who have completed two semesters of college-level German language courses should enroll in course 4. Placement examinations may be given in instances where the proper level is difficult to determine. Native speakers of German must consult the undergraduate adviser. For additional information, all students are encouraged to contact the undergraduate adviser.

The Major: Thirteen upper division German courses as follows: German 108A, 108B; one course from 100A, 100B, or 100C; one course from 129, 137, or C138; five courses from 101A, 101B, 101C, 104, 105, 106, 107, 121A, 121E, 122, 123, 124, 126, 127, 132; two departmental electives (any of the above German upper division courses not taken to satisfy another requirement); two additional electives from any upper division courses in the department other than German (i.e., Afrikaans, Dutch, Old Norse studies, Yiddish). Native speakers of German should consult the undergraduate adviser before enrolling in course 108A, 108B, or 128. German majors, especially those who wish to pursue graduate studies in German, are encouraged to enroll in courses in German history and philosophy in those respective departments and are strongly urged to acquire reading knowledge of French.

Plan B (German Studies/German Studies with European Studies Emphasis)

Plan B is comprised of lower division courses in the German language and upper division courses in German language, linguistics, literature, folklore, and one allied field such as history, musicology, or philosophy. If your allied field is in art history or political science, where not enough courses with a German focus are offered, the emphasis will be on European studies. While the majority of courses are in language and literature, students majoring in Plan B will be prepared for a wide range of graduate studies, including the allied field, with emphasis on interdisciplinary studies.

Preparation for the Major: German 1, 2, 3, 4, 5, 6, or equivalent. Students who have completed two semesters of college-level German language courses should enroll in German 4. Placement examinations may be given in instances where the proper level is difficult to determine. Native speakers of German must consult the undergraduate adviser. For additional information, all students are encouraged to contact the undergraduate adviser. All German

studies allied fields and those with a European studies emphasis should be identified and confirmed by the undergraduate adviser in writing *before* the major is declared.

The Major: Nine upper division German courses (Group I — two courses from German 102, 128, 129, 137; Group II — two courses from 103, 105, 106, 107, 130; Group III — two courses from 121A, 121B, 121C, 121E, 134; Group IV — two courses from 122, 123, 124, 126, 127, 132); one course from 100A, 100B, or 100C; and four upper division allied field courses selected from History 125B through 125F, 126A through 126E, 129A through 129D, 135A, 135B, 191E through 191G **OR** Musicology 122, 126A, 126B, 126C, C127A through C127F, 133, 134, 135A, 135B, 135C, 188A through 188F, 189 **OR** Philosophy 100C, C110, C111, 115, 116, 117, 177A, 177B, 178, 189. For the European studies emphasis, the five upper division allied field courses should be selected from Art History 105A through 105F, 109B, 109C, 110A through 110D **OR** Geography 183, Political Science 116, 123A, 123B, 127A, 127B, 129, 153, 153A, 154, 155, 158A, 158B **OR** from allied fields such as Dutch, English, French, Hungarian, Spanish, Yiddish, etc. Plan B majors who wish to pursue graduate studies are strongly urged to acquire reading knowledge of French. A term or more of study/work-study/internship experience in a German-speaking country or the country of your European studies emphasis is highly recommended.

Plan C (Germanic Languages)

Plan C is intended for students primarily interested in Germanic languages and linguistics and is designed for those who wish to pursue graduate work in Germanic, general, applied, historical, or Indo-European linguistics. Students who wish to pursue graduate work in German literature should select Plan A rather than this plan.

Preparation for the Major: German 1, 2, 3, 4, 5, 6, Linguistics 20, and five terms of a second Germanic language **OR** three terms of a second Germanic language and two or three terms of a third. Relevant languages include any Germanic language (two terms of Hungarian may be applied by petition to the undergraduate adviser). Students who have completed two semesters of college-level German language courses should enroll in course 4. Placement examinations may be given in instances where the proper level is difficult to determine. Native speakers of German must consult the undergraduate adviser. For additional information, all students are encouraged to contact the undergraduate adviser.

The Major: Thirteen upper division courses, including German 108A-108B, 129, 137, C138, four German literature or linguistics elective courses, and four linguistics elective courses from another department (e.g., Linguistics 103, 110, 120A, 120B, 127, 170; courses in departments other than Linguistics may be applied by petition to the undergraduate adviser).

Honors Program

To qualify for graduation with departmental honors, you 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 Graduate School of Education and Information Studies, 1009 Moore Hall (310-825-8328), and the Department of Germanic Languages.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

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 Master of Art degree in Germanic Languages. 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 five courses must be graduate level (200 or 500 series). In addition, German 128, 129 (or equivalent), and 370 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 an allied field such as history, musicology, philosophy, or political science. All allied field courses must be in the 200 series. One major field and one allied 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 twice; course 597 may be taken once before the M.A. degree; course 598 may be taken three times. However, only one 500-series course may be applied toward the M.A. course requirements and only three courses 199 or 596 may be taken during graduate studies (M.A. and Ph.D. programs). 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.

There are three examinations for Plans A and B, with the following structure:

One take-home examination (10-day project). Students choose an area of study from those listed below, and the M.A. committee offers three questions, one of which the student chooses for the examination.

One four-hour written examination. Three areas of study are required. The first area of study is from the area chosen for the take-home examination. A two-hour examination is required for the first area. Two additional areas of study are chosen from those listed below. A one-hour examination is required for each of the two areas.

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

A one-hour oral examination. A one-hour oral examination follows successful completion of the written examinations.

The comprehensive examination plan is not offered for Plan C.

For Plan D, the M.A. examination consists of three written examinations of two hours each, followed by a one-hour oral examination. To continue toward the Ph.D., the student must receive a pass with the recommendation to continue.

After the written examinations have been taken, the M.A. committee decides whether the student may proceed to the oral examination. If the student fails 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 the student applies for the M.A. under Plan B (to proceed toward the Ph.D.) and is awarded a terminal M.A., the examinations may be repeated if the student chooses not to have the M.A. degree officially awarded before the reexamination.

Thesis Plan

Under the thesis plan, a thesis committee is established no later than the end of the fourth quarter of graduate study to evaluate the proposal for the thesis. After acceptance of the thesis, the student must pass a two-hour oral examination in the field of the thesis, as well as in the fields listed under the comprehensive examination plan.

Doctoral Degree

Admission

An M.A. degree in German from an accredited U.S. institution or equivalent (e.g., *Staatsexamen* in German) is required. In case of significant deficiencies in prior training, the graduate advisers make appropriate study or course recommendations. All deficiencies must be removed prior to application for admission to candidacy for the qualifying examinations. Applicants with an M.A. in fields other than Ger-

man (e.g., in Comparative Literature or in Linguistics) are required to pass the written part of the M.A. comprehensive examination before beginning doctoral work in the department. Three letters of recommendation are also required. Applicants who wish to enter the Ph.D. program in Germanic Languages with a major in Scandinavian literature and philology who present an M.A. in Scandinavian as a prerequisite must take a formal minor in German.

Major Fields or Subdisciplines

The department offers two Ph.D. programs. The first program requires a major and a minor field in order to give students the broadest possible education and preparation for professional flexibility in research and teaching. The second program does not require a minor and is designed to enable students to complete their studies toward the Ph.D. more expeditiously.

Under the first program, the student must, as soon as possible after admission to the program, declare major and minor fields. The field in which the student plans to present a dissertation is the major field and is selected from the four fields in which the degree is offered: German literature; Germanic philology and linguistics; Scandinavian literature and philology; and Germanic folklore. If German literature is chosen as the major field, one of the following must be chosen: German literature before 1700 or German literature from 1700 to the present.

The minor field may be chosen from the following options: (1) German literature before 1600; (2) German literature from 1600 through Romanticism; (3) German literature from Romanticism to the present; (4) German philology and linguistics; (5) modern Scandinavian literature; (6) Germanic folklore; (7) Yiddish; (8) Dutch-Flemish and Afrikaans; (9) Old Norse studies.

If the major field is German literature, the student may not choose options 1 through 3.

As a special option, students may choose an extra-departmental minor. This minor must be individually endorsed by a majority of the faculty members of the department on the basis of the student's dissertation plans.

The second Ph.D. program allows specialization in either of the following two areas:

- (1) Modern German literature: 1600 to the present
- (2) Germanics: older German literature to 1600; Germanic philology and linguistics (including Old Norse and Dutch linguistics); Germanic folklore.

Students who choose Germanics are expected to prepare two of the three listed fields, with special emphasis on one.

Course Requirements

There are no course requirements per se for the Ph.D. in Germanic Languages. However, the following rules apply: (1) students must

have successfully completed at least three seminars in residence before taking the qualifying examinations for the Ph.D.; (2) specific course requirements may be assigned to new students by the graduate adviser.

Written and Oral Qualifying Examinations

The written examinations consist of three parts for the first Ph.D. program and two parts for the second Ph.D. program: first half of major field (three hours); second half of major field (three hours); minor field (three hours).

The written examinations in the major and minor field may be taken any time after admission to the doctoral program and fulfillment of all prerequisite requirements. The major field examinations are given within a period of seven school days and completed no later than four weeks before instruction ends in a given quarter.

German

Lower Division Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition. Students with demonstrated preparation may be permitted to transfer to a more advanced course with consent of the instructor.

1. Elementary German (6 units). Lecture, five hours; laboratory, one hour; outside study, five hours minimum. P/NP or letter grading.

1G. Elementary German for graduate students. Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

2. Elementary German (6 units). Lecture, five hours; laboratory, one hour; outside study, five hours minimum. Enforced prerequisite: course 1. P/NP or letter grade.

2G. Elementary German for Graduate Students. Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

3. Elementary German (6 units). Lecture, five hours; laboratory, one hour; outside study, five hours minimum. Enforced prerequisite: course 2. P/NP or letter grading.

4. Intermediate German (6 units). Lecture, five hours; laboratory, one hour; outside study, five hours minimum. Enforced prerequisite: course 3. P/NP or letter grading.

5. Intermediate German (6 units). Lecture, four hours; laboratory, one hour; outside study, four hours. Enforced prerequisite: course 4. P/NP or letter grading.

6. Intermediate German (6 units). Lecture, four hours; laboratory, one hour; outside study, four hours minimum. Enforced prerequisite: course 5. P/NP or letter grading.

8. Elementary German: Intensive (12 units). 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 units). Lecture, 20 hours; laboratory, four hours. Enforced prerequisite: course 3. Intensive intermediate course in German equivalent to courses 4, 5, and 6. P/NP or letter grading.

12. German Conversation (2 units). Enforced requisite: course 1. Use of German language teaching films; students have opportunity to practice spoken German in small groups.

14. Intermediate Conversation (2 units). Enforced requisite: course 3. Students have opportunity to practice spoken German in small groups.

50A-50B. Masterworks of German Literature in Translation. 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 Grimmelshausen, 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.

51. Masterworks of Germanic or East Central European Literatures in English Translation. Lecture, three hours. Study and analysis of masterworks of Germanic or East Central European literatures (Dutch and Afrikaans, Hungarian, Old Norse, or Yiddish). Examination of one particular literature per term.

88. Lower Division Seminar. Discussion, three hours. Course of variable content limited to topics of current interest and offered whenever a staff member is available.

Upper Division Courses

Prerequisite for all upper division courses (except 100A, 100B, 100C, 119A through M119H, 121A, 121B, 121C) is course 6 or equivalent or consent of instructor.

Courses in the German 119 literature series may not be applied toward completion of the major in German.

Courses Open to Majors and Nonmajors; No Credit to Graduate Students in German

100A. German Civilization and Culture before 1700 (6 units). 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 (6 units). 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 (6 units). 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.

101A. Introduction to German Poetry. Close analysis of representative examples of German lyric poetry from early as well as modern literary periods, including systematic consideration of poetic conventions and forms, diction, tone, imagery, symbolism, and metrics. Course should be taken at beginning of literary studies.

101B. Introduction to German Drama. Analysis of selected examples of drama (e.g., tragedy, comedy, one-act play, lyric drama, lyric theater, etc.), including systematic introduction to dramatic forms, techniques, and theories. Texts selected from modern literature as well as from other periods. Course should be taken at beginning of literary studies.

101C. Introduction to German Narrative Prose. Analysis of significant examples of narrative prose (e.g., short story, novella, novel, fairy tale, etc.), including systematic introduction to narrative forms, techniques, styles. Texts selected from modern literature as well as from older periods. Course should be taken at beginning of literary studies.

102. Business German. Lecture, three hours. Prerequisite: course 6 or equivalent. Introduction to business terminology and correspondence. Topics include economic and political developments and principles of business in German-speaking countries.

103. German Translation. Prerequisite: course 108B with a grade of B or better or consent of instructors. German/English and English/German translation of literary texts, newspaper and magazine articles, business documents, and letters.

104. Introduction to German Enlightenment, *Sturm und Drang*, and Classicism. (Formerly numbered 103.) Lecture, three hours. Reading and discussion of representative works by Lessing, Goethe, and Schiller; their historical and social background, their relationship to music (Bach, Mozart) and philosophy (Leibniz, Kant), as well as their place in the history of ideas.

105. Introduction to German Literature from Romanticism to Realism. Lecture, three hours. Reading and analysis of selected works from Romanticism to realism.

106. Introduction to Modern Literature. Analysis of selected works of the period from 1890 to 1945.

107. Introduction to Contemporary Literature. Analysis of selected works of the period from 1945 to the present time.

108A-108B. Conversation and Composition on Contemporary German Culture and Society I, II. Lecture, three hours. Prerequisite: course 6 or equivalent. Course 108A or equivalent is prerequisite to 108B. Advanced language courses, with focus on speaking and writing proficiency through themes connected with contemporary German culture and society.

Courses Not Open for Credit to Majors or Graduate Students in German

119A. German Literature in the Age of Chivalry, in English Translation. Lecture, three hours. Study and analysis of literary monuments in English translation in their social and cultural settings, including courtly love lyrics, Arthurian epics, and heroic epics. May not be applied toward completion of the major in German.

119B. Weimar Classicism and Its Influence, in English Translation. Lecture, three hours. Study and analysis of works in English translation from the classic age of German literature and concentrating on major works of Lessing, Goethe, and Schiller and their reflection in the modern period. May not be applied toward completion of the major in German.

119C. The Faust Tradition from the Renaissance to the Modern Age, in English Translation. Lecture, three hours. Readings and discussions in English of the Faust theme and tradition in European literature and intellectual history, including chapbook of *Doktor Faustus*, Christopher Marlowe's and Goethe's Faust dramas, and Bulgakow, as well as Thomas Mann's novel, *Doktor Faustus: The Life of the German Composer Adrian Leverkühn*. May not be applied toward completion of the major in German.

119D. Romantic Heritage in German Literature, in English Translation. Lecture, three hours. Study and analysis of literary works in English translation that reflect German Romantic imagination from end of the 18th century into the 20th century. May not be applied toward completion of the major in German.

119E. Pattern and Chaos: Modern German Literature and Thought, in English Translation. Lecture, three hours. Selected works in English translation of German authors, poets, and thinkers from the late 19th through the 20th century, such as Nietzsche, Thomas Mann, Kafka, Brecht, Grass, and Christa Wolf. Topics vary from term to term. May not be applied toward completion of the major in German. May be repeated for credit.

119F. From Dream to Nightmare: The German-Jewish Experience, in English Translation. Lecture, three hours. Study and analysis of works in English translation reflecting the process of German-Jewish assimilation and disenfranchisement, including authors such as Mendelssohn, Heine, Schnitzler, Kafka, Feuchtwanger, Anne Frank, Sachs, Celan, and Becker.

M119G. Interwar Central European Prose. (Same as Humanities M162 and Slavic 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.

M119H. Postwar Central European Prose. (Same as Humanities M166 and Slavic 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.

M119I. Fairy Tales in Literature and Society (5 units). (Same as Folklore M119.) Lecture, four hours. History and reception of folklore collections in Europe, with particular attention to ideology and influence of Grimms' tales. Study and interpretation of selected tales in English and their transformations and appropriation in literature, film, advertising, and pedagogy.

Courses Open for Credit to Majors, Nonmajors, and Graduate Students in German

121A. Special Problems in Literature. Lecture or seminar, three hours. Prerequisite: upper division standing. Varying topics of current importance and immediate relevance to literary study. Designed to introduce students to contemporary trends in literary study and predominantly concerned with topics related to German literature and criticism.

121B. German Film in Cultural Context: Early German Film. Lecture, one hour; discussion, one hour; screenings, two to two and one-half hours. Survey of German film from the Weimar to Adenauer eras. Viewing and discussion of films by Lang, Murnau, Sternberg, Wiene, Staudte, etc., with respect to their cultural, sociopolitical, and cinematographic codes.

121C. German Film in Cultural Context: New German Film. Lecture, one hour; discussion, one hour; screenings, two to two and one-half hours. Survey of new German film as it evolved in the late 1960s. Viewing and discussion of films by Fassbinder, Herzog, Schlöndorff, Sanders-Brahms, Wenders, and other German-speaking filmmakers, with respect to their cultural, sociopolitical, and cinematographic codes.

121D. Selected Topics in German Culture and Civilization. Lecture, three hours. Required of all German majors who are candidates for standard instructional credential in secondary teaching.

121E. Women in German Literature. Lecture, three hours. Prerequisite: upper division standing or consent of instructor. Role of women writers and image of women in German literature of various periods (e.g., Romanticism, 19th century, early 20th century, contemporary). Readings to be selected to represent the period of literature being taught in any given term.

122. Studies in German Literature before 1750. Prerequisites: three upper division courses (including course 100A) or consent of instructor. Readings and analysis of major works from the Middle Ages to the baroque.

123. Goethe. Lecture, three hours. Prerequisites: courses 100A or 100B and 104, or consent of instructor. Reading and discussion of representative works (except *Faust*) from Goethe's early period to his maturity and old age.

124. Romanticism. Prerequisites: courses 100A or 100B and 105, or consent of instructor. Reading and analysis of major works of the Romantic period. Authors include Tieck, Novalis, E.T.A. Hoffman, and Eichendorff.

126. Advanced Study in Modern Literature. Prerequisites: courses 100A or 100B or 100C and 106, or consent of instructor. Reading and analysis of a wide range of literature from 1890 to 1945.

127. Advanced Study in Contemporary Literature. Prerequisites: courses 100A or 100B or 100C and 107, or consent of instructor. Analysis of a wide range of German literature from 1945 to the present.

128. Advanced Conversation and Composition on Current and Historical Topics. Lecture, three hours. Prerequisites: courses 108A-108B or equivalent. Advanced language course that establishes continuity between current affairs and cultural heritage of German-speaking countries and builds on courses 108A-108B to teach complex speaking and writing skills of analysis and criticism.

129. Language and Linguistics. (Formerly numbered 137.) Lecture, three hours. Prerequisite or corequisite: course 108A. 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 sociolinguistics).

130. Methodology of Literary Criticism. Prerequisite: senior standing or consent of instructor. Introduction to methodology of literary criticism, including systematic study of motif, topos, plot, space and time, semantics, stylistics, rhetoric, metrics, imagery (emblem, metaphor, allegory, symbol), structural elements (act, stanza, book, flashback, anticipation, interior monologue), narrator and reader response, humor and irony, hermeneutics.

132. Goethe's *Faust*. Prerequisites: courses 100A or 100B and 123, or consent of instructor. Detailed interpretation of Goethe's *Faust*, Parts I and II, together with general consideration of other treatments of the *Faust* theme in European literature.

134. German Folklore. Survey of various genres of German folklore.

137. Current Topics in Germanic Linguistics. (Formerly numbered 129.) Lecture, three hours. Prerequisite or corequisite: course 108A. Recommended: course 129. In-depth look at one topic within the field of Germanic linguistics. Topics include phonetics and phonology, morphology and syntax, semantics and pragmatics, social and spatial variation (i.e., sociolinguistics and dialectology of German), and history of German.

C138. Linguistic Theory and Grammatical Description. Lecture, three hours. Prerequisites: course 129 and Linguistics 20, or consent of instructor. Crucial problems in structure of Dutch and German, considered from such theoretical frameworks as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C238.

195. Senior Thesis Course. Extensive reading, research, and writing of senior thesis. May be used for writing honors thesis.

199A-199Z. Special Studies (2 to 4 units each). Prerequisite: consent of instructor. To be arranged with faculty member who will direct the study (course section to be identified by two-letter code using initials of sponsoring instructor — see department for I.D. number). Independent studies for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Graduate Courses

201A. Bibliography, Research Methods, and Scholarly Writing. 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. 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. Introduction to grammar, syntax, and vocabulary of the Middle High German language. Exercises in reading Middle High German literary works, combined with study of socio-cultural contexts in which works of the medieval period were produced and performed.

202B. Readings in Middle High German Literature. Extensive reading of literary monuments of the medieval period in Germany. Introduction to cultural and literary history of the Middle Ages.

203A. The Courtly Epic. Analysis of major epics of the medieval period in Germany, such as Hartmann's *Erec* and *Iwein*, Wolfram's *Parzival*, and Gottfried's *Tristan*. Study of courtly society, as well as introduction to methods of interpretation and analysis.

203B. The Courtly Lyric. Analysis of medieval songs of courtly performers, beginning with Der von Kurenberg and ending with Johannes von Hadlaub. Study of sociocultural context in which the songs were produced and performed, and introduction to methods of interpretation and analysis.

203C. The Heroic Epic. Survey of German heroic literature, beginning with *Hildebrandslied* and including such works as *Nibelungenlied*, *Kudrun*, and the Dietrich epics. Methods of analysis and interpretation, as well as analysis of thematic and formal characteristics of the different epics.

204. Renaissance and Reformation Literature. Literature of the 15th and 16th centuries, including introduction to and study of the early New High German language. Selected readings from works of authors such as Sebastian Brant, Martin Luther, Hans Sachs, and Johann Fischart.

205. Baroque Literature. 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. 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. Study of representative authors of the *Sturm und Drang* period, such as Herder, Forster, Gerstenberg, Leisewitz, Klinger, Wagner, R.M. Lenz, Moritz, Heinse, Schubart, and the young Goethe and Schiller.

207A. Classicism: Goethe. 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. 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. 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 Lyric. 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. 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. 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. 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. 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. 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. 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 Lyric and Drama. 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. 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. 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. 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. 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. Introduction to study of earliest documents in Old Low German. Readings in the *Heliland* and study of the *Old Saxon Genesis*.

C238. Linguistic Theory and Grammatical Description. (Formerly numbered Dutch 234.) Lecture, three hours. Prerequisites: course 129 and Linguistics 20, or consent of instructor. Crucial problems in structure of Dutch and German, considered from such theoretical frameworks as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C138. Graduate students meet as a group one additional hour each week and write research papers of greater length and depth.

240A. Theories, Methods, and History of Germanic Folklore. History of Germanic folklore studied in context of European cultural history. Evolution of theories and methods of the discipline as developed by Herder, the Grimms, Bolte, Meier, Naumann, Bausinger, and others.

240B. Folk Song and Ballad. Analysis of poetic and musical aspects of German folk songs and ballads. Study of thematic and formalistic evolution of text and music, combined with introduction to theories and methods of analysis of folk music and function of folk song in its social context.

240C. Oral Prose Genres. Study of thematic and formal characteristics of legends, folktales, jests, proverbs, and riddles. Role of popular narrative in its sociocultural context in German history and survey of methods of analysis of narratives, texts, and contexts.

245B. Germanic Antiquities. Survey of prehistory and early history of Germanic civilization from the Bronze Age to the end of the migrations on basis of archaeological, historic, and philological evidence. Uses of methods of comparative ethnography, religion, and myth to interpret evidence.

251. Seminar: Syntax and Phonology of German. 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, *Valenztheorie*, *Texttheorie*).

252. Seminar: Historical and Comparative Germanic Linguistics. 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. Selected topics in medieval literature, with emphasis on problems in literary analysis and applicability of various types of analysis to medieval texts.

254. Seminar: Renaissance and Reformation. Seminar on selected literary or philological problems, such as a particular genre, author, or theme. Studies on textual analysis or pertinent research to apply methods of literary history to literature of the 15th and 16th centuries.

255. Seminar: Baroque Literature. Seminar on 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. 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. 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 I* and Hegel's *Phänomenologie des Geistes*, the French Revolution and German classicism. Textual analysis and review of current research.

258. Seminar: Romanticism. 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. 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. Seminar on a selected genre, author, or theme of 20th-century German literature prior to 1945.

261. Seminar: Contemporary Literature. 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. 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. Specialization in literary theories, such as *Rezeptionsästhetik*, Neo-Marxist Criticism, New Criticism, psychoanalytic criticism or sociology of literature, structuralism, semiology, and hermeneutics.

370. Teaching German in Secondary Schools. Lecture, three hours; discussion periods. Prerequisite: graduate standing or consent of instructor. Required of all candidates for general secondary instructional credential in German.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). 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 units). Prerequisite: course 495A or consent of instructor. 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. To be arranged with faculty member who will direct 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. To be arranged with faculty member who will direct 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 units). To be arranged with faculty member who will direct 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 units). To be arranged with faculty member who will direct 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. 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. Lecture/language laboratory. Prerequisite: course 105A or equivalent. Grammatical exercises; reading and linguistic analysis of texts from both literary and nonliterary sources.

114. Afrikaans Literature in Translation. 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. Discussion, three hours. Prerequisite: course 105B or equivalent. 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 units). Prerequisite: consent of instructor. Independent studies for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Graduate Courses

596. Directed Individual Study or Research in Afrikaans. To be arranged with faculty member who will direct 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. To be arranged with instructor (see department for I.D. number). S/U grading.

Dutch

Upper Division Courses

100. Modern Dutch Culture and Society. 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. Lecture/language laboratory. Course 103A or equivalent is prerequisite 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. Lecture/language laboratory. Prerequisite: course 103B or equivalent. Grammatical exercises, conversation, reading and analysis of simple texts.

104A-104B. Accelerated Dutch (6 units each). 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. 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 Ostaïjen, and Vroman.

120. Introduction to Dutch Studies. Prerequisite: consent of instructor. 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. Discussion, three hours. Prerequisite: course 103B or 120 or equivalent. 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 units). Prerequisite: consent of instructor. Independent studies for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Graduate Courses

596. Directed Individual Study or Research in Dutch. To be arranged with faculty member who will direct 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. To be arranged with faculty member who will direct the study (see department for I.D. number). S/U grading.

Hungarian

Upper Division Courses

101A. Elementary Hungarian. Introduction to grammar and reading exercises, with emphasis on the spoken language.

101B. Elementary Hungarian. Prerequisite: course 101A or equivalent. Grammatical exercises, conversation, and reading of texts.

101C. Elementary Hungarian. Prerequisite: course 101B or equivalent. Conversation and readings in literary texts.

101D. Advanced Hungarian. Prerequisites: courses 101A, 101B, 101C, or equivalent. Grammar, conversation, vocabulary building.

101E. Advanced Hungarian. Prerequisites: courses 101A through 101D or equivalent. Conversation, reading, and discussion of literary texts.

101F. Advanced Hungarian. Prerequisites: courses 101A through 101E or equivalent. Conversation and review of Hungarian grammar from a typological point of view.

120A-120B. Readings in Hungarian. Prerequisite: course 101C or equivalent. Selections of Hungarian prose and poetry read in the original.

120C. Readings in Hungarian Literature. Prerequisites: reading knowledge of Hungarian, course 101C or equivalent. Selections of Hungarian prose and poetry read in the original. Discussion conducted in Hungarian.

121A-121B. Survey of Hungarian Literature in Translation. Intended for students in general and comparative literature, as well as students interested in Finno-Ugric studies. Survey of main trends and contacts with other literatures.

130. Hungarian Civilization and Culture. Study of Hungarian civilization and institutions from earliest times to the present. Study of Hungarian culture as represented in its arts (literature, fine arts, music).

M135. Hungarian Folklore and Mythology. (Same as Folklore M128.) General course for students in folklore and mythology, with emphasis on types of folklore and varieties of folklore research.

M136. Folklore and Mythology of the Ugric Peoples. (Same as Folklore M129.) Survey of traditions of the smaller Ugric nationalities (Voguls, Ostyaks, etc.).

199. Special Studies in Hungarian (2 to 4 units). Prerequisite: consent of instructor. Independent studies for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Old Norse Studies

Lower Division Course

40. The Heroic Journey in Northern Myth, Legend, and Epic. Comparison of the journeys of heroes. Readings in mythology, legend, folktales, 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. (Formerly numbered 139.) 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. (Formerly numbered 140.) 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. Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C272.

151. Elementary Old Norse. Introduction to grammar and pronunciation of Old Norse. Selected readings from the sagas and *Prose Edda*.

152. Intermediate Old Norse. Prerequisite: course 151 or equivalent. Continued grammar, pronunciation, and readings from the *Eddas* and sagas of Icelanders, Norwegian kings, and legendary heroes.

153. Modern Icelandic. Prerequisite: course 152 or equivalent. Grammar, readings, and conversation.

199. Special Studies in Old Norse (2 or 4 units). Prerequisite: consent of instructor. Independent studies for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Graduate Courses

221. Advanced Old Norse Prose. Prerequisite: course 152 or equivalent. 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. Prerequisite: course 152 or equivalent. Readings of mythological and heroic poems from *Poetic Edda*. Secondary sources used where appropriate.

C241. Viking Civilization and Literature. 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. Seminar, three hours. Study of Northern myth and religion through close reading of Eddic texts and secondary sources.

C268. The Saga. 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. (Formerly numbered C223.) 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. To be arranged with faculty member who will direct 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. To be arranged with faculty member who will direct the study (see department for I.D. number). S/U grading.

Yiddish

Upper Division Courses

101A. Elementary Yiddish. Introduction to grammar; instruction in listening, speaking, reading, and writing skills.

101B. Elementary Yiddish. Prerequisite: course 101A or equivalent.

101C. Elementary Yiddish. Prerequisite: course 101B or equivalent.

102A-102B. Accelerated Elementary Yiddish (6 units each). 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. Lecture, three hours. Prerequisite: course 101C or equivalent. Grammatical exercises, reading and linguistic analysis of texts, conversation.

121A. 20th-Century Yiddish Poetry in English Translation. Prerequisite: upper division standing or consent of instructor. Readings in 20th-century Yiddish poetry and drama.

121B. 20th-Century Yiddish Prose and Drama in English Translation. Prerequisite: upper division standing or consent of instructor. Readings in 20th-century Yiddish prose.

121C. Special Topics in Yiddish Literature in English Translation. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of a wide range of 19th- and 20th-century literature.

131A. Modern Yiddish Poetry. Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish poetry.

131B. Modern Yiddish Prose and Drama. Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish prose and drama.

131C. Special Topics in Yiddish Literature. Prerequisite: 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.

199. Special Studies in Yiddish (2 to 4 units). Prerequisite: consent of instructor. Independent studies for students who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Graduate Courses

596. Directed Individual Study or Research in Yiddish. To be arranged with faculty member who will direct 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. To be arranged with faculty member who will direct the study (see department for I.D. number). S/U grading.

HEALTH SERVICES

School of Public Health

UCLA
31-269 Center for the Health Sciences
Box 951772
Los Angeles, CA 90095-1772
(310) 825-2594, 825-7863

Professors

Ronald M. Andersen, Ph.D. (*Fred W. and Pamela K. Wasserman Professor of Health Services*), Chair
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.
Lester Breslow, M.D., M.P.H., *Emeritus*
Carl E. Hopkins, Ph.D., M.P.H., *Emeritus*
Milton I. Roemer, M.D., M.P.H., *Emeritus*
William Shonick, Ph.D., *Emeritus*

Associate Professors

Emily K. Abel, Ph.D.
Glenn A. Melnick, Ph.D.
Robert O. Valdez, Ph.D.

Assistant Professors

Roshan Bastani, Ph.D., *in Residence*
William E. Cunningham, M.D., M.P.H.
Gerald F. Kominski, Ph.D., *Associate Chair*
Mark S. Litwin, M.D., M.P.H.

Lecturers

Bruce W. Bennett, Ph.D.
Geraldine Dallek, M.P.H.
William Gurtner, M.P.H.
Joe Hafey, M.P.A.
Diana W. Hilberman, M.S.P.H.
Hwai-Tai Lam, Ph.D.
Arielen Leibowitz, Ph.D.
Joyce Mann, Ph.D.

Adjunct and Visiting Professors

Ellen Alkon, M.D., M.P.H., *Adjunct*
Michael Bobrow, A.I.A., *Adjunct*
Molly J. Coye, M.D., M.P.H., *Visiting*
Caswell A. Evans, Jr., D.D.S., M.P.H., *Adjunct*
Arlene Fink, Ph.D., *Adjunct*
Jacqueline B. Koseoff, Ph.D., *Adjunct*
Ruth J. Roemer, J.D., *Adjunct, Emerita, Researcher*

Adjunct and Visiting Associate Professors

Raymond D. Goodman, M.D., M.P.H., *Adjunct*
Shoshanna Sofaer, Dr.P.H., *Visiting*

Visiting Assistant Professor

John C. Lammers, Ph.D.

Assistant Field Program Supervisor

Diana W. Hilberman, M.S.P.H.

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees**Admission**

See the Master of Public Health (M.P.H.) Admission section under Public Health Schoolwide Programs. Admission requirements for the Master of Science in Health Services are the same as for the M.P.H.

Master of Science in Preventive Medicine and Public Health

The program is not admitting new students at this time.

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 17 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. Health Services 597 may not be applied toward the degree requirements.

Mandatory core courses include Biostatistics 100A, 100B, and Epidemiology 100. Each core course may be waived if a similar course has been taken elsewhere and the student can pass the waiver examination.

Required department core courses include Health Services 200A-200B-200C, 237A-237B, 237C. Students are strongly encouraged to take the following courses or equivalents: Biostatistics 200A, 200B, and Epidemiology 201A-201B. Elective courses should be selected from the 200 or 500 series in consultation with an adviser.

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. If the examination is failed, the student 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 you file for ad-

vancement to candidacy. The thesis must be acceptable to the thesis committee.

Doctoral Degree**Admission**

In addition to the University minimum requirements, the department requires (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. Screening examinations may be required by the department.

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, 200B, as well as Epidemiology 201A-201B. 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, 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 the student is 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. Two of the four must hold appointments in Public Health; one must be an outside member who holds no appointment in Public Health; one of the four must be from the minor field.

The doctoral committee administers the oral qualifying examination after the student has successfully completed the written examination.

After passing the University Oral Qualifying Examination, the student 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.

Lower Division Course

88. Lower Division Seminar: Special Topics in Health Services. 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.

Upper Division Courses

100. Health Services Organization. Lecture, four hours; discussion, one hour. Prerequisite: four units of social sciences. Structure and function of American health care system; issues and forces shaping its future.

110. Ethnic, Cultural, and Gender Issues in America's Health Care Systems. Lecture, three hours. Prerequisite: satisfaction of Subject A requirement. Introduction to study of gender, ethnicity, and cultural diversity related to health status and health care delivery in the U.S.

131. Structure and Function of Health Care Facilities. Lecture, two hours; discussion, two hours. Prerequisites or corequisites: course 100, consent of instructor. Introduction to structure, organization, and function of health care facilities.

132. Financial and Managerial Accounting for Health Services Organizations. Prerequisites: course 100 or equivalent, consent of instructor. Introduction to financial and managerial accounting and its application to the health services industry.

133. Introduction to Health Economics. Prerequisite: consent of instructor. 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.

134. Introduction to Comprehensive Health Planning. Lecture, four hours; fieldwork, four hours. Prerequisite: one upper division microeconomics, statistics, calculus, or political science course. Concepts underlying health planning, state of the art, and some relevant literature.

136. Introduction to Health Services Research. Prerequisites: Biostatistics 100A or equivalent, consent of instructor. 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.

199. Special Studies (2 to 4 units). Prerequisites: senior standing, consent of instructor and department chair (based on written proposal outlining course of study). 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.

Graduate Courses

200A-200B-200C. Health Systems Organization and Financing. (Formerly numbered 230A-230B.) Lecture, four hours; discussion, two hours. In-depth analysis of health services systems in the U.S., using relevant theories, concepts, and models. **200A-200B.** Prerequisite: health services major. **200C.** Prerequisites: courses 200A-200B, and health services major or consent of instructor.

M204A-M204B-M204C. Seminars: Pharmaceutical Economics and Policy (1 unit, 1 unit, 2 units). (Formerly numbered M204.) (Same as Economics M204L-M204M-M204N.) Seminar, three hours every other week for three terms. Prerequisites: course 236 or equivalent. Economics 201A-201B-201C or equivalent, or consent of instructor, graduate standing in public health or economics. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress grading.

214. Measurements of Effectiveness and Outcomes of Health Care. Lecture, three hours. Prerequisites: courses 200A-200B-200C, 422, and Biostatistics 100A or equivalent, or consent of instructor. 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.

220. Seminar: Cost Containment. (Formerly numbered 298.) Lecture, 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.

231. History of Public Health. Discussion, three hours. Prerequisite: doctoral standing or consent of instructor. 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.

232. Governmental Health Services and Trends. Prerequisites: course 100, two additional upper division social or behavioral sciences courses, consent of instructor. 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.

M233. Health Policy Analysis. (Formerly numbered 233.) (Same as Community Health Sciences M252.) Lecture, three hours. Prerequisite: course 100 or equivalent. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of the life cycle of public policy.

234. Health Services Organization and Management Theory. Prerequisites: courses 100 or equivalent, 131, two upper division social sciences courses or equivalent, consent of instructor. 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.

235. Law, Social Change, and Health Service Policy. Prerequisites: course 100, two upper division political science or sociology courses or equivalent, consent of instructor. Legal issues affecting policy formulation for environmental, preventive, and curative health service programs.

236. Microeconomic Theory of the Health Sector. Lecture, four hours; discussion, two hours. Prerequisites or corequisites: Biostatistics 100A or equivalent and intermediate microeconomics. Microeconomic aspects of the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition.

237A-237B. Special Topics in Health Services Research Methodology. Lecture, one hour; discussion, three hours. Prerequisites: Biostatistics 100A, 100B, consent of instructor. 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.

237C. Issues in Health Services Methodologies. Prerequisites: courses 237A-237B, doctoral student standing. 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.

238. Politics of Health Care. Prerequisite: course 100 or equivalent. Concepts and procedures for political analysis; national, state, and local politics in health care; examination of selected case studies.

239. Aging and Long-Term Care. Prerequisites: courses 100, 238, Community Health Sciences 270, or equivalent, consent of instructor. 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.

240. Health Care Issues in International Perspective. Prerequisites: two health administration courses, two upper division social sciences courses, or equivalent, consent of instructor. 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.

M241. Women, Health, and Aging: Policy Issues (2 or 4 units). (Same as Social Welfare M290D.) Lecture, three hours; discussion, one hour. Prerequisites: two upper division social sciences courses, two upper division biological sciences courses, or equivalent, consent of instructor. 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.

244. Seminar: Health Services and Policy Evaluation. Prerequisites: Biostatistics 100A, 100B, basic courses in program evaluation and health services organization, or equivalent, doctoral standing, consent of instructor. 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. Prerequisites: two health services courses, two upper division social sciences courses, or equivalent, consent of instructor. 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.

246. Seminar: Special Populations — Health Service Policy Issues. Prerequisites: courses 200A-200B-200C, 232, 238, or equivalent, consent of instructor. 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.

247. Research Topics in Health Economics. Prerequisites: courses 100, 236, 446 or equivalent, consent of instructor. 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.

248. Small Area Planning for Resources for Personal Health Service. Lecture, three hours; laboratory, two hours. Prerequisites: courses 100, 134, or equivalent, consent of instructor. General planning theory and health planning theory, methods, and experience with planning for personal health care resources for small geographic areas. Determining needs and estimating required utilization levels and health care resources. Survey of elements of different disciplines used in areawide health planning. Laboratory projects and exercises designed to implement studies of health planning theory and methods.

249A-249Z. Special Topics in Health Services (2 to 4 units each). Prerequisites: consent of instructor, additional prerequisites for each offering as 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. Lecture, three hours; discussion, three hours. Prerequisite: M.P.H. or M.S. degree or equivalent or consent of instructor. 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.

249E. Health Policy Seminar. Prerequisites: courses 200A-200B-200C (may be taken concurrently), 236, Biostatistics 100A, 100B, or equivalent, consent of instructor. Limited to doctoral students and M.S. or M.P.H. students with advanced degrees. 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.

249F. Quality Assessment and Assurance. Prerequisites: course 100, Biostatistics 100A, Epidemiology 100, one additional health services or epidemiology course, or equivalent, consent of instructor. Fundamental issues in quality assessment, quality assurance, and measurement of health status.

249G. Medical Technology — Development, Diffusion, Assessment, and Health Services. Prerequisites: courses 200A-200B-200C, 238, or equivalent, one upper division policy analysis course. 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.

249H. Current Research Issues. Discussion, two hours. Prerequisite: doctoral student standing. 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. Lecture, one hour; discussion, three hours. Prerequisites: courses 237A-237B, doctoral student standing. 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.

249J. Mental Health Services. Lecture, three hours. Prerequisites: courses 200A-200B-200C or doctoral standing or consent of instructor. 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.

249K. Health Care Practice Guidelines, Variations in Care, and Patient Outcomes. Lecture, three hours. Prerequisites: courses 200A-200B-200C, 422, Biostatistics 100A, 100B, graduate student standing. 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. S/U or letter grading.

249L. Ethical Issues in Public Health (2 units). Prerequisites: 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. S/U or letter grading.

M287. Politics of Health Policy. (Same as Community Health Sciences M287.) Lecture, three hours; discussion, one hour. Prerequisites: 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.

400. Field Studies in Health Services (2 or 4 units). Prerequisite: consent of instructor. 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.

422. Practices of Evaluation in Health Services: Theory and Methodology. (Formerly numbered 422A-422B.) Lecture, three hours. Prerequisites: courses 200A-200B-200C or equivalent or consent of instructor. Introduction to health services evaluation. Examination and performance of specific evaluation procedures. Conducting of health services investigations, reporting results and methodologies.

425. Law and Epidemiology. Prerequisite: course 235 or Epidemiology 100 or consent of instructor. Examination, generally, of relationship between law and epidemiology, including use of epidemiology to regulate exposure to risk.

431. Managerial Processes in Health Service Organizations. Lecture, one hour; laboratory, three hours. Prerequisites: course 234, consent of instructor. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, system, and interorganization. Unique features of health service organizations are stressed as applications are presented.

432. Integrative Seminar: Health Services Management. Prerequisite: course 431. Residents and preceptors are responsible for presenting cases of actual administrative problems for solution by teams of students and faculty.

433. Health Service Organization Policy and Strategy. Lecture, three hours; discussion, one hour. Prerequisites: courses 131, 234, 400 (at least six units), or equivalent, consent of instructor. Conceptual, analytical, and technical aspects of policy and strategy formulation in health service organizations. Special attention to structure and dynamics of competitive markets, corporate-level strategic planning and marketing, managerial ethics and values, organizational creativity/innovation.

434. Employer/Employee Health Management. Lecture, two hours; discussion, two hours. Prerequisites: course 100, a combination of three graduate courses in health planning, hospital finance, health policy, health insurance, occupational health, health services research, and health information systems, or equivalent, consent of instructor. Preview and analysis of how employer and employee groups provide, sponsor, and manage health-related services for others.

435. Management Science for Health Planning and Administration. Lecture, three hours; laboratory, two hours. Prerequisites: Biostatistics 100A and either Biostatistics 403 or Management 404, or equivalent, consent of instructor. 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.

436. Financial Management of Health Service Organizations. Prerequisites: courses 131, 132, 234, or equivalent, consent of instructor. 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.

437. Legal Environment of Health Services Management (2 units). Prerequisites: course 131 or equivalent, consent of instructor. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, contracts, negligence, and case law relating to health facility operations.

438. Issues and Problems of Local Health Administration. Lecture, three hours. Prerequisites: course 100 or equivalent, Epidemiology 100, one additional health services course or equivalent, consent of instructor. 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.

439. Dental Care Administration. Lecture, three to four hours. Prerequisites or corequisites: Biostatistics 100A, Epidemiology 100, or equivalent. In-depth examination of several specific dental care policy issues: manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms.

440A. Health Information Systems: Organization and Management. Lecture, two hours; laboratory, three hours. Prerequisites: courses 200A-200B-200C or equivalent, consent of instructor. Principles of and systems related to organization and management of a health facility's health information system.

440B. Health Information Systems: Organization and Management. Lecture, two hours; laboratory, three hours. Prerequisites: course 440A or equivalent, consent of instructor. 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.

441. Ambulatory Care in the U.S. Seminar, three hours. Prerequisites: courses 132, 200A-200B-200C, and Management 403, or equivalent, or consent of instructor. Introduction to organization and management concepts, problems, and issues in ambulatory health services, including financial management and information systems requirements.

442. Managed Health Care: Quality and Cost. Lecture, three hours. Prerequisite: consent of instructor. 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.

443A. Biological and Social Bases of Prevention. Lecture, two hours; discussion, two hours. Prerequisites: courses 100 or 200A-200B-200C, Biostatistics 100A, Epidemiology 100, graduate standing, consent of instructor. 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.

443D. Advanced Hospital Financial Management Simulation. Lecture, one hour; discussion, one hour; laboratory, two hours. Prerequisites: courses 100, 132, 436, consent of instructor. 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.

443E. Advanced Hospital Financial Management Seminar. Prerequisites: courses 100, 131, 132, 436, or equivalent, consent of instructor. Hospital financial management, including reimbursement management, capital financing, and capital investment analysis, discussed and analyzed with respect to students' individual residency sites.

444. Applied Methodology in Health Planning. Lecture, three hours; fieldwork, four hours. Prerequisites: courses 200A-200B-200C, or equivalent, consent of instructor. Demonstration of methodology of health planning by involving students in formulation of actual health plan for existing agency in Los Angeles area.

445. Strategic Planning and Marketing in Health Care. Lecture, three hours; discussion, one hour. Prerequisites: courses 200A-200B-200C, Biostatistics 100A, 100B, or equivalent, consent of instructor. 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.

446. Financing Health Care. Prerequisites: course 100, Economics 1, 2, or equivalent, consent of instructor. 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.

447. State Health Policy Issues. Seminar, three hours. Prerequisite: 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.

447D. Management of Health Maintenance Organizations. Lecture, three hours. Prerequisites: courses 100, 134, or equivalent, consent of instructor. 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.

447E. Health Insurance Principles and Programs. Prerequisites: courses 100, 232, one additional health services course, or equivalent, consent of instructor. 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.

M448. Health Policy Issues for Dental Professionals (2 units). (Same as Dentistry M422.) Prerequisites: course 100 or equivalent, Biostatistics 100A or equivalent, Epidemiology 100, consent of instructor. 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 units). (Same as Dentistry M433A.) Provides students with practice methodology for evaluation of dental care settings. Didactic and field experience, providing foundation for evaluation of programs. S/U grading.

495. Teacher Preparation in Health Services (2 units). Prerequisites: 18 units of cognate courses in area of specialization, consent of department chair. 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 units). Prerequisite: 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.

502. UCLA/Hawaii Western Consortium Exchange (4 to 16 units). Prerequisite: 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 at University of Hawaii, Manoa, as part of UCLA/UH Western Consortium Exchange Program. Only the equivalent of eight quarter units taken at UH may be applied toward degree. Extra units may be applied toward department requirements by petition to Public Health Student Affairs Office. UH letter-graded courses appear on UCLA transcript with letter grades, while UH Cr/Ncr-graded courses appear as S/U grades. Grade points from these courses are not counted in UCLA grade-point average.

596. Directed Individual Study or Research (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations (2 to 8 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

HISTORY

College of Letters and Science

UCLA
6265 Bunche Hall
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Los Angeles, CA 90095-1473
(310) 825-4601
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Professors

Edward A. Alpers, Ph.D.
Perry Anderson, B.A.
Joyce Appleby, Ph.D.
Robert L. Benson, Ph.D.
Ivan T. Berend, Ph.D.
Edward G. Berenson, Ph.D.
Robert P. Brenner, Ph.D.
Giorgio Buccellati, Ph.D.
Mortimer H. Chambers, Jr., Ph.D.
Stanley Coben, Ph.D.
Brian P. Copenhaver, Ph.D.
Robert Dallek, 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-Quiriones, Ph.D.
Thomas S. Hines, Ph.D.
Richard Hovannisian, Ph.D. (Armenian Educational Foundation Professor of Modern Armenian History)

Philip C. Huang, Ph.D.
Norris C. Hundley, Ph.D.
Sanford M. Jacoby, Ph.D.
Michael O. Jones, Ph.D.
Nikki Keddle, Ph.D.
Barlaa Krekić, Ph.D.
John H.M. Laslett, D.Phil.
James Lockhart, Ph.D.
Peter Loewenberg, Ph.D.
Ataf Marsot, D.Phil.
Ronald J. Mellor, Ph.D., Chair
Eric H. Monkkonen, Ph.D.
Regina Morantz-Sanchez, Ph.D.
Gary B. Nash, Ph.D.
Fred G. Notehelfer, Ph.D.
Boniface I. Obichere, D.Phil.
Herman Ooms, Ph.D.
Theodore Porter, Ph.D.
Merrick Posnansky, Ph.D.
Peter H. Reill, Ph.D.
Richard H. Rouse, Ph.D.
David Sabean, Ph.D. (Henry J. Bruman Professor of German History)
Damodar R. SarDesai, Ph.D.
Stanford J. Shaw, Ph.D.
Debra L. Silverman, Ph.D.
Geoffrey W. Symcox, Ph.D.
Richard von Glahn, Ph.D.
Scott L. Waugh, Ph.D.
Richard Weiss, Ph.D.
James W. Wilkie, Ph.D.
Robert Wohl, Ph.D.
Stanley A. Wolpert, Ph.D.

Professors Emeriti

Milton Anastos, Ph.D.
Amin Banani, Ph.D.
Kees W. Bolle, Ph.D.
E. Bradford Burns, Ph.D.
Robert I. Burns, S.J., Ph.D.
Robert N. Burr, Ph.D.
John W. Caughey, Ph.D.
Claus-Peter Clasen, Ph.D.
Frank O. Gatell, Ph.D.
Daniel W. Howe, Ph.D.
Jere C. King, Ph.D.
Andrew Lossky, Ph.D.
Lauro R. Martinez, Ph.D.
Hans J. Rogger, Ph.D.
Alexander P. Saxton, Ph.D.
Eugen Weber, M.Litt. (Professor Emeritus of Modern European History)

Associate Professors

Peter Baldwin, Ph.D.
Kathryn Bernhardt, Ph.D.
Mario Biagioli, Ph.D.
Ruth Bloch, Ph.D.
Robert G. Frank, Ph.D.
Robert A. Hill, M.Sc.
Valerie J. Matsumoto, Ph.D.
Melissa Meyer, Ph.D.
Michael G. Morony, Ph.D.
Kathryn Norberg, Ph.D.
George Sanchez, Ph.D.
Miriam Silverberg, Ph.D.
Sharon Trawick, Ph.D.
Albion M. Urdank, Ph.D.
William H. Worger, Ph.D.
Mary A. Yeager, Ph.D.

Assistant Professors

Stephen Frank, Ph.D.
James L. Gelvin, Ph.D.
John B. Hatch, Ph.D.
Vinay Lal, Ph.D.
Muriel McClendon, Ph.D.
José Moya, Ph.D.
David N. Myers, Ph.D.
Claudia Rapp, D.Phil.

Jan Reiff, Ph.D.
 Michael Salman, Ph.D.
 Brenda Stevenson, Ph.D.
 William Summerhill, Ph.D.
 Henry Yu, Ph.D.

Lecturers Emeriti

Albert Hoxie, M.A.
 Larry Lauerhass, Ph.D.

Adjunct Professor

Robert C. Ritchie, Ph.D.

Adjunct Associate Professors

S. Scott Bartchy, Ph.D.
 Darryl Holter, Ph.D.
 Yuji Ichioka, 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, college, and university teaching. Increasingly, they are also being put to use in government service, international business, museum and archival work, and journalism.

Bachelor of Arts Degree

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, you 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 7A-7B 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 departmental 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 your paper take place over three terms through History 199HA, 199HB, and 199HC. Course 199HA is taken in Spring Quarter of your junior year, followed by courses 199HB and 199HC in Fall and Winter Quarters of your senior year. Contact the undergraduate adviser early in your studies for more information.

Instructional Credential in History

For information on the single subject instructional credential in history, consult the Graduate School of Education and Information Studies, 1009 Moore Hall (310-825-8328).

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

Admission

For admission to the Master of Arts program in History, applicants should normally have completed the undergraduate major or its equivalent, have received a Bachelor of Arts degree or its equivalent from an accredited college or university, and have maintained at least a B + average in upper division work. Three letters of recommendation and the scores of 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 should 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* form distributed by the Graduate Admissions Office. In addition, all applicants must submit the UCLA Department of History Applicant Profile Sheet. All materials submitted to the History Department must be in one envelope. Departmental information may be obtained by writing to the address given at the beginning of this listing.

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.

M.A. History/M.L.I.S.

The history/library and information science master's degree is a concurrent degree program with the Department of History and the Department of Library and Information Science (Graduate School of Education and Information Studies). Applicants wishing to receive the Master of Arts (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 the Department of History and the Department of Library and Information Science. Further information may be obtained by writing to the Department of History or the Department of Library and Information Science, 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, 1550 to present (also includes British history and the British Empire); (4) Africa; (5) Near East (includes Armenia); (6) India and Southeast Asia; (7) East Asia; (8) Latin America; (9) U.S.; (10) history of science; (11) special fields (students in the history of religions, Russian history, and modern Jewish history 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 275.

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 a research paper of 15,000 words, 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 a research paper of approximately 15,000 words, to be submitted at the beginning of the sixth quarter of full-time study. 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, the student is also making progress in learning the larger outlines of medieval history.

Students in medieval history working with Professor Krekic 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

The admission requirements for the Ph.D. program 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 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 a student may continue to the Ph.D. degree.

For students entering the graduate program with only 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 Register. 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.

At the end of each quarter, course evaluations are written by professors of each graduate student. Students are urged to read these evaluations in the Graduate Office and, if there are questions, to discuss them with their professors or the vice chair. An annual review of all graduate students is made each Spring Quar-

ter by the graduate guidance and curriculum committee. Letters are written to those students with program or grade-point deficiencies.

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 862; Southeast Europe (Balkans); England prior to 1485; England 1485 to 1763; England since 1763; 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 to 1600; history of science since 1600; Europe, Renaissance/Reformation; Europe, Renaissance to the French Revolution; 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, 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, urban, 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, the student 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 student's 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 program extending over the full time of study must be approved by the department; (2) a command of good English, spoken and written; (3) the ability to read at least two foreign languages (except in the U.S. field where only one foreign language is required); (4) an acquaintance with general history; and (5) 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) Euro-

pean history — History 225; (3) African history — History 275 (unless exempted by petition); (4) medieval history — Latin 130 or 131, Latin 243, and History 219A-219B (may substitute a graded History 596 in paleography for 219A-219B with permission of faculty).

Faculty serving on doctoral committees may require such courses as they deem necessary for 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. These 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. This allied field must be comparable in size and scope to the history fields listed above. Students should select the fields in consultation with their sponsor and must receive the department's approval of all four fields no less than six months before the written qualifying examination is taken. 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. The oral examination covers all four fields (except for the African field) and is normally held shortly after the written examination but, at the discretion of the doctoral committee, it may be held as late as six months after the written examination. 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. 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.

In the U.S. field students must take the doctoral written qualifying examination after 12 months in residence. Prior to taking the written qualifying 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.

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 the student wishes to continue; if the student fails 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.

Lower Division Courses

1A-1B-1C. Introduction to Western Civilization. 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 Pre-history to ca. A.D. 843; **1B.** Circa A.D. 843 to ca. 1715; **1C.** Circa 1715 to the Present.

1AH-1BH-1CH. Introduction to Western Civilization (Honors). Lecture, two hours; discussion, two hours. Honors sequence parallel to courses 1A-1B-1C.

2. History of Technology from Antiquity to the 20th Century. Lecture, three hours. Designed for students in natural sciences, social sciences, and the arts. Survey of development of man's ability to understand more fully and to utilize more efficiently the natural environment, stressing technology's changing social, economic, scientific, and cultural relationships.

3A-3B-3C. Introduction to History of Science. 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.

3D. Themes in History of Medicine. 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. 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.

5A-5B. Survey of British History. Lecture, three hours; discussion, two hours. Designed for students wanting general orientation to British history and those in English literature and prelaw. Survey of history of England and (after the union between England and Scotland) Great Britain. **5A.** Middle Ages to the Glorious Revolution in 1688; **5B.** 1688 to the 20th Century.

5AH. Survey of British History (Honors). Lecture, three hours; discussion, two hours; outside study, 10 hours. Honors course parallel to course 5A. P/NP or letter grading.

6A-6B-6C. History of the American Peoples. Lecture, two hours; discussion, two hours. Survey of the American peoples from advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change. **6A.** To 1800; **6B.** 1800 to 1900; **6C.** 1900 to the Present.

6BH. History of the American Peoples (Honors). Lecture, two hours; discussion, two hours. Survey of the American peoples from advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change.

7A-7B. Survey of Political History of the U.S. Lecture, two hours; discussion, two hours. This sequence (or two terms of course 6) strongly recommended for history majors planning to take more advanced courses in U.S. history. Designed for students in social sciences and other departments who desire thorough grounding in American political culture. Survey of history of the U.S. from the Revolutionary era to the present. Emphasis on political developments and social, cultural, and economic bases of American politics. **7A.** To 1877; **7B.** 1877 to the Present.

8A. Culture, Ethnicity, and Gender in Early Latin America. Lecture, three hours; discussion, two hours. General introduction to Latin American history from conquest to independence, with emphasis on role of ethnicity and gender in the emerging society and culture.

8B. Latin America: Reform and Revolution. Lecture, three hours; discussion, two hours. General introduction to Latin America, emphasizing those institutions from the past which have shaped the present and the struggle for change in the 20th century.

8C. Latin American Social History. 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). Lecture, three hours; discussion, two hours. Honors course parallel to course 8C.

9A-9D. Introduction to Asian Civilizations. 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 Japanese 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. Lecture, three hours; discussion, two hours. Intended for students with general interest in Africa, but also strongly recommended for those intending to take upper division courses in African history. Exploration of African cultures on a thematic basis within a wider framework of political change over time.

10BH. Introduction to Civilizations of Africa (Honors). Lecture, three hours; discussion, two hours. Honors course parallel to course 10B.

11A-11B. History of China. 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). Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 11A-11B.

20. Government and Society in Ancient Eurasia. 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. 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.

22. Contemporary World History, 1870 to the Present. 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. (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 units 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. 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. (Formerly numbered 101.) 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

Prerequisite for all upper division courses is upper division standing or consent of instructor, unless otherwise stated. Certain graduate courses (200 series) are open to students with upper division standing and consent of instructor.

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.

100A. History and Historians. 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.

100B. History and Contemporary Theory. Survey of main sources and trends of contemporary theory, from Saussure's linguistics to recent feminist theories, in texts that inform much of the most recent historiographical directions and debate.

102. Explorations in Psychoanalysis and History. Art of psychological and historical interpretation; assessment of recent writings in the field of psychohistory.

M103A-M103B. Historical Archaeology. (Formerly numbered M103.) (Same as Anthropology M115A-M115B.) Lecture, three hours. 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. (Same as Ancient Near East M104A-M104B.) Lecture, three hours. Course M104A is not prerequisite to M104B. 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. (Same as Ancient Near East M105.) Lecture, three hours. Political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period.

106A-106B-106C. Survey of the Middle East from 500 to the Present. 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. **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. Course 108A is prerequisite to 108B. 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. **109A.** To 1578; **109B.** 1578 to the Present.

109C. History of Islamic Iberia. 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. 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. 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. 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. **112A.** Armenia in Ancient and Medieval Times, 2nd Millennium B.C. to A.D. 11th Century; **112B.** Armenia from the Cilician Kingdom through the Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries; **112C.** Armenia in Modern and Contemporary Times, 19th and 20th Centuries. The Armenian question and genocide, national republic, Soviet Armenia, and the dispersion.

C112D. Introduction to Armenian Oral History. Lecture/discussion, three hours. 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. 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.

115A-115B-115C. History of Ancient Mediterranean World. **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. **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. (Formerly numbered 117A-117B.) 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. Introduction to Roman Law. Survey of public (constitutional), criminal, and private law of the Romans. Topics include social context of Roman law, historical evolution of Roman law, mechanisms and procedures by which the law was administered, and content of private law.

119. The Christian Church, 100 to 1517. 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.

120. The Christian Religion, 100 to 1350. 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.

121A-121B. Medieval Europe. 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. Survey of Western Mediterranean Europe, social/economic/cultural within a political framework, including its relation with other cultures.

121D. Medieval People: The 13th Century. 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. (Same as Classics M170.) Lecture, three hours. Prerequisites: courses M70 or 123A-123B. 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. Political, socio-economic, 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. 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.

125A-125F. History of Modern Europe. 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. (Formerly numbered 126A-126E.) 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. (Formerly numbered 126A.) **126C.** 17th Century. (Formerly numbered 126B.) **126D.** 18th Century. (Formerly numbered 126C.) **126E.** 19th Century. (Formerly numbered 126D.) **126F.** 20th Century. (Formerly numbered 126E.)

127A-127B. War and Diplomacy in Europe. 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.

128A-128B-128C. History of France. 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. (Formerly numbered 129A-129B.) 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. (Formerly numbered 129C.) 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. (Formerly numbered 129D.) 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.

130A-130B-130C. Europe in the Age of Revolution, 1750 to 1850:

130A. End of the Old Regime. Economic development from ca. 1750. The agrarian revolution. The Enlightenment: social criticism and political economy. Intellectual origins of the French Revolution. New sensibility: rococo, neoclassicism, proto-Romanticism. First signs of discontent: Geneva, Corsica, Poland. American war of independence and its effect on the European state-system; its intellectual effects.

130B. Crisis of the Old Regime and the Revolution. The revolution in France, 1787 to 1799. Spread of revolution to other parts of Europe and varying responses. Impact of war on revolutionary France after 1792 and spread of the revolution by military force. Jacobinism in France and outside. Parallel movements abroad (e.g., Ireland, Haiti, Poland). Satellite regimes set up in Europe.

130C. Napoleonic Europe and the Restoration. Napoleon's ascendancy in France from 1799: internal effects. Restructuring of Europe under Napoleon and nationalist reactions. Industrial and political change in Britain: Anglo-French world rivalry to 1815. The restoration: what could be restored and what could not. Rising national consciousness against Metternich's system. Continuing revolutionary tradition: 1821, 1830, 1848. Romanticism at its apogee. Conclusion: how world of 1850 differed from that of 1750.

131A-131D. History of Russia. 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 (but not prerequisite): 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. History of Italy. 132A. 1559 to 1848. Counter-Reformation and absolutism, Enlightenment reforms, revolutionary era, and first phase of the Risorgimento. **132B.** 1848 to the Present. Political, economic, social, diplomatic, and ideological developments.

133A-133B. Social History of Spain and Portugal. 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. Political, economic, and cultural survey of the independent Balkan states in the Middle Ages.

134B. Southeastern Europe, 1500 to 1918. The Balkans under Ottoman rule, movements of national liberation, and formation of nation states.

135A-135B. Marxist Theory and History. Course 135A is generally prerequisite to 135B. 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. (Formerly numbered 136A-136Z.) 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.

136J. History of Prostitution in Europe. Use of prostitution as an instrument to explore the position of women in European history from ancient Greece to the present. Examination of changes in government policy, shifts in organization of the sex trade, differing representations of prostitutes in art and literature, and role of venereal disease in shaping attitudes toward mercenary sex. P/NP or letter grading.

137A-137B-137C. History of Women in Europe. 137A. Prehistory to 1348. History of women in ancient Greece, Rome, and the Middle Ages. Topics include women in Greek mythology and life, Roman Empire, Christianity, convents, courtly love. **137B.** 1348 to 1814. History of women from the Renaissance to the end of the French Revolution. Topics include women of Renaissance Italy, women in the Protestant and Catholic Reformations, witchcraft, and the Enlightenment and French Revolution. **137C.** 1814 to the Present. Topics include Victorian women; purity movements; suffrage; role of women in World War I, Russian Revolution, and the Nazi State; "second" feminism.

138A-138B. Topics in Medieval English History. Topics include the village community and economy, family and landholding, Church and society, war, politics, and feudal relations.

139. Renaissance England. Culture and society. Emphasis on literary culture (Elizabethans, Jacobians, Carolines), with readings and lectures on different aspects of political and economic life as required for serious understanding of the culture.

141A-141B-141C. History of Britain. 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. 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. Survey of growth of Canada into a modern state from its beginnings under the French and British colonial empires.

144. History of Australasia. 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. 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. 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.

146A-146B. U.S., 1800 to 1850. **146A.** Jeffersonian America. Jeffersonian Republican ascendancy and Era of Good Feelings, 1800 to 1828; disintegration of Federalist opposition; testing of American nationality in the second war with Britain; beginnings of transportation and industrial revolutions; restructuring of politics in an increasingly egalitarian age. **146B.** Jacksonian America and Beyond. "Jacksonian Revolution" and its aftermath, 1829 to 1850; problem of national power versus state sovereignty; problems of rapid social change through industrialization and urbanization; reform impulse; antislavery movements; territorial expansion as focus for sectional rivalry.

147A. U.S., Civil War and Reconstruction. Rise of sectionalism, antislavery crusade; formation of the Confederate States; war years; political and social reconstruction.

147B. U.S., 1875 to 1900. 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. 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. Political, economic, intellectual, and cultural aspects of American democracy. **148A.** 1900 to 1928; **148B.** 1929 to 1945.

148C. U.S. since 1945. History of political, social, and diplomatic developments that have shaped the U.S. since 1945.

149A-149B. American Economic History. **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. 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. 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. **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. **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). Lecture, three hours; discussion, one hour. Role of the U.S. in the 20th-century world.

M153. The U.S. and the Philippines. (Formerly numbered 153.) (Same as Asian American Studies M153.) Lecture, three hours. Recommended (but not prerequisite): courses 190A-190B, 190C. 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. **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. Prerequisite: 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. 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. 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. 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. 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. 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. 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. 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. (Same as Afro-American Studies M158A.) 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. (Same as Afro-American Studies M158B-M158C.) 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 milieu.

158D. Afro-American Urban History. 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. (Formerly numbered 158E.) (Same as Afro-American Studies M158E.) 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. (Same as Chicana and Chicano Studies M159A.) 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. (Same as Chicana and Chicano Studies M159B.) 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. (Formerly numbered 160.) 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. 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. 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. Economic, social, intellectual, and political development of California from earliest times to the present. P/NP or letter grading.

164. History of Los Angeles. 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. Advanced survey of Latin American history from conquest to independence, with emphasis on society, culture, and ethnic aspects.

165C. Indians of Colonial Mexico. 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. 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. 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. 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 Elitlore. Prerequisite: course 167A, 167B, 167C, or 171. Elitlore (defined as oral or noninstitutionalized knowledge involving leaders' conceptual and perceptual life history views) in contrast to folklore (followers' traditional or popular views). Elitlore genres include oral history, literature, and cinema.

170A. Latin American Cultural History. 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. 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. Examination of major issues in history of Latin America. P/NP or letter grading.

171. Mexican Revolution since 1910. 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. 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. 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. 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. (Formerly numbered 175A-175Z.) Prerequisite: one prior course in African history at UCLA or consent of instructor. 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. (Formerly numbered 175A.) (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. **176A.** West Africa from Earliest Times to 1800; **176B.** West Africa since 1800.

176C. Social and Economic History of West Africa since 1600. 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. Ethiopia and the Horn of Africa. Survey of history of Ethiopia, Somalia, and Sudan.

178A-178B. History of Eastern Africa. **178A.** Cultural diversity of Eastern African societies, growth of more complex political systems, and impact of international trade to the later 19th century. **178B.** Economic, social, and political history of Eastern Africa since imposition of colonial rule, with emphasis on underdevelopment and protest.

179A-179B. History of Southern Africa. 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. **182A.** To 1000. Recommended (but not prerequisite): course 11A or equivalent. 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 (but not prerequisite): course 11B or equivalent. 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. (Not the same as course 183A prior to Fall Quarter 1994.) Recommended (but not prerequisite): courses 11A, 11B, or equivalent. 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. Recommended (but not prerequisite): course 11B or equivalent. 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.

184. 20th-Century China. Recommended (but not prerequisite): course 11B or equivalent. 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. 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. 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. Political, economic, and cultural development of Japan from pre-history 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. 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. 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-189B. Cultural and Political History of Contemporary South Asia I, II. P/NP or letter grading.

189A. Problem of modernity; emergence of nation-state in postpartition India and Pakistan; political, social, and ecological movements; struggle for rights and creation of identities; women and feminism. **189B.** Religious communalism; contestation of rights and identities among Hindus, Sikhs, Muslims, and others; Indian culture in popular films, street life, and public culture; modernity and middle-class anxieties.

189C. Special Topics in Contemporary Indian History. Treatment of major issues in history of contemporary India. P/NP or letter grading.

190A-190B. History of Southeast Asia. 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. 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.

M191A-M191B. Survey of Jewish History. (Same as Jewish Studies M191A-M191B.) 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. (Same as Jewish Studies M191C-M191D.) 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. 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. 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. (Same as Jewish Studies M192A-M192B.) **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. 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. Prerequisite: course 4 or 193A. 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. Prerequisite: course 4 or 193A. 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. 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. 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. Christian movement from its origins to ca. 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. 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. Recommended (but not prerequisite): course 194A. 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-195B-195C. History of Science. Prerequisite: course 3A or consent of instructor. **195A.** Medieval and Renaissance Science. Continuity and discontinuity in scientific traditions from the 12th to the 17th century; interrelationships between theology, scientific thought, and social conditions. Theories of force, motion, and space; some attention to occult sciences.

195B. Perspectives on Early Modern Physical Science. Detailed view of selected topics in development of physical sciences from 1650 to 1800. Typical subjects include chemistry, social and political aspects of scientific change, and science in the Enlightenment.

195C. Perspectives on Modern Physical Science. Selected aspects of 19th- and 20th-century physical science, typically including science and industrialization, thermodynamics, electromagnetism, relativity, quantum mechanics, and the atom bomb.

M195F-M195G. History of Biological Sciences. (Same as Neurobiology/Medical History M108A-M108B.) Lecture, three hours. **M195F.** Biological Sciences from Ancient Times to the Early 19th Century; **M195G.** Biological Sciences from the Early 19th Century to the Mid-20th Century.

197. Undergraduate Seminars. Seminar, three hours. 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. Intensive directed research program. Eight units may be applied toward major requirements.

199HA. Directed Study for Honors. Discussion, three hours. Limited to history honors program majors. 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. Prerequisite: 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 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. Discussion, three hours. Prerequisite: 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. Prerequisite: maintenance of 3.0 grade-point average in the 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

Admission to all graduate courses is subject to consent of instructor and to appropriate language qualifications. For multiterm courses, credit and grades are given only on completion of the full seminar sequence, with In Progress grading until the last term unless otherwise noted. Topics courses and seminars may be repeated.

200A-200U. Advanced Historiography. Seminar, three hours. May be repeated for credit. **200A.** Ancient Greece; **200B.** Ancient Rome; **200C.** Medieval; **200D.** Europe. (Formerly numbered 200D-200G.); **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. (Same as Afro-American Studies M200A.) Seminar, three hours. May be repeated for credit.

M200W. Advanced Historiography: American Indian Peoples. (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.** Seminar, three hours. Introduction to practice, method, and theory of oral history.
- 200Y. Advanced Historiography: Application of Economics to History.** Discussion, three hours.
- 200Z. Advanced Historiography: Chicano.** 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.** 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.** Discussion, three hours. Prerequisite: graduate standing. Study of problems of modern economics in the 19th and 20th centuries, including such topics as industrialization, growth, demography, development, and economic change. In Progress grading.
- M203A-M203B. Social Theory and Comparative History.** (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.** (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.** Seminar, three hours. Methodology, socio-economic and political change in the Arab world.
- 205A-205B. Seminars: Medieval Middle Eastern History.** Seminar, three hours.
- 206A-206B. Seminars: Social History of the Middle East.** 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.
- M207. Seminar: Ancient Mesopotamia.** (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.** Seminar, three hours.
- 211A-211B. Seminars: Armenian History.** Seminar, three hours.
- C212. Methods in Armenian Oral History.** Seminar, three hours. Prerequisite: 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.
- 215A-215B. Seminars: Ancient History.** Seminar, three hours.
- 216A-216B. Seminars: Byzantine History.** Seminar, three hours.
- 217. Sources and Handbooks of Medieval History.** Seminar, three hours. Prerequisite: 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.** Seminar, three hours. Recommended (but not prerequisite): 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.** Seminar, three hours. Prerequisite: reading knowledge of Latin and German or French. **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.
- 220A-220B. Seminars: Church and Monarchy in the Middle Ages.** Seminar, three hours. Textual studies and interpretative problems in constitutional, legal, and intellectual history of the Latin church and of Western European monarchies, with special attention to the German monarchy, from the 11th to 14th century.
- 221A-221B. Seminars: Medieval History.** Seminar, three hours.
- 222A-222B. Seminars: Medieval Intellectual History and History of Science.** Seminar, three hours. Selected problems from medieval and early modern philosophy, science, political theory, theology.
- 225. Colloquium for Entering Graduate Students in Modern European History.** 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.** Seminar, three hours.
- 227A-227B. Seminars: Reformation.** Seminar, three hours.
- 229A-229B. Seminars: Early Modern European History.** Seminar, three hours.
- M230A-M230B. Seminars: Modern European History.** (Formerly numbered 230A-230B.) (Same as Art History M241A-M241B.) Seminar, three hours. In Progress and S/U or letter grading.
- 231A-231B. Seminars: Modern European Intellectual and Cultural History.** Seminar, three hours.
- 232A-232B. Seminars: French History of the 19th and 20th Centuries.** Seminar, three hours.
- 233A-233B. Seminars: Russian/Soviet History.** Seminar, three hours.
- 234A-234B. Seminars: Modern History of Spain, Portugal, and Italy.** Seminar, three hours.
- 235A-235B. Economic History of Europe, 1780 to 1939.** 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.
- M236A. Proseminar: Political Psychology.** (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.** Seminar, three hours. Exploration of individual and group psychological processes and their uses in historical research]
- 239A-239B. Seminars: English History — Middle Ages.** Seminar, three hours.
- 240A-240B. Seminars: English History — Modern History.** Seminar, three hours.
- 241A-241B. Seminars: German History.** Seminar, three to four hours. Prerequisite: graduate standing. In Progress grading.
- 244A-244B. Seminars: British Empire History.** Seminar, three hours.
- 245. Colloquium: U.S. History.** 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.** 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.** Seminar, three hours.
- 249A-249B. Seminars: Jacksonian America.** Seminar, three hours.
- 250A-250B. Seminars: U.S. History of the Middle 19th Century.** Seminar, three hours.
- 252A-252B. Seminars: Recent U.S. History to 1930.** Seminar, three hours.
- 253A-253B. Seminars: Recent U.S. History since 1930.** Seminar, three hours.
- 254A-254B. Seminars: U.S. Social and/or Intellectual History.** Seminar, three hours.
- 255A-255B. Seminars: History of Business and Government in the American Economy.** Seminar, three hours.
- 256A-256B. Seminars: American Diplomatic History.** Seminar, three hours.
- 257A-257B. Seminars: U.S. Urban History.** Seminar, three hours.
- 258A-258B. Seminars: Working Class History.** Seminar, three hours.
- 259A-259B. Seminars: Social History of Women in the U.S.** Seminar, three hours.
- 260A-260B. Seminars: Native American History.** Seminar, three hours.
- 261A-261B. Seminars: Afro-American History.** 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.
- 262A-262B. Seminars: Chicano History.** Seminar, three hours.
- 263A-263B. Seminars: History of the American West.** Seminar, three hours.
- M264. History of American Education.** (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.** (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.** Seminar, three hours.
- 267A-267B. Seminars: Latin American History, 19th and 20th Centuries.** Seminar, three hours.
- M268A-M268B. Seminars: Recent Latin American History.** (Same as Latin American Studies M268A-M268B.) Seminar, three hours. Prerequisite: consent of instructor. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature. In Progress grading.
- 275. Introduction to Professional Study of African History.** Seminar, three hours. Required of all entering graduate students in African history. Strongly recommended for students with a history concentration in African Area Studies M.A. program. Source identification, research methodologies, historiographical traditions, historical interpretation, and approaches to teaching.

276. African Archaeology: Field Techniques (2 to 8 units). Seminar, three hours. Prerequisites: any introductory course in archaeology and preferably an African history course. Field course on an African excavation to provide basic skills-reconnaissance, surveying, excavation techniques, conservation, and scientific sampling required by an archaeologist in Africa, together with introduction to ethnographic survey and oral data collection.

277. African Archaeology: Data Analysis (2 to 8 units). Seminar, three hours. Prerequisite or corequisite: course 276. Field course to equip students to handle finds from excavations. Analysis, description, illustration, and interpretation of actual archaeological and/or ethnographic collection.

278A-278B. Seminars: African History. Seminar, three hours.

M281. China — Seminar: Classical Historiography and Readings in Classical Studies. (Formerly numbered M201L.) (Same as Chinese M201.) Discussion, three hours. Prerequisite: 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. Seminar, three hours.

285A-285B. Seminars: Japanese History. Seminar, three hours.

288A-288B. Seminars: South Asia. Seminar, three hours.

289A-289B. Seminars: Southeast Asia. Seminar, three hours.

291A-291B. Seminars: Jewish History. Seminar, three hours. Studies in intellectual and social history of Jewish people from ancient times to the modern period.

293A-293B. Seminars: History of Religions. Seminar, three hours.

295. Theories of Scientific Change. 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, Feyera-bend, and others.

297A-297B. Seminars: History of Science. Seminar, three hours.

M298. Interdisciplinary Studies in the 17th and 18th Centuries. (Same as English M298.) Topics vary according to participating faculty.

M299. Interdisciplinary American Studies (6 units). (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 units). Prerequisite: 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 units). Prerequisite: consent of instructor. 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. Prerequisite: graduate standing. 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 units). Prerequisite: 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 units). Prerequisites: graduate standing, consent of instructor. 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 units). Preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. S/U grading.

599. Ph.D. Research and Writing (1 to 8 units). Prerequisite: advancement to Ph.D. candidacy.

HISTORY/ ART HISTORY

*Interdepartmental Program
College of Letters and Science*

UCLA
3209 Dickson Art Center
Box 951417
Los Angeles, CA 90095-1417
(310) 825-3480

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.

Bachelor of Arts Degree

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.

If you wish to confer with a counselor regarding program planning and major requirements, 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, 157A, 157B, 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, 146A, 146B, 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, 130A, 130B, 130C, 131A through 131D, 132A, 132B, 133A, 133B, 134A, 134B, 135A, 135B, 136, 137A, 137B, 137C, 138A, 138B, 139, 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 through 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. You may also take Art History 127, 197, 199 to meet this requirement.

HONORS COLLEGIUM

College of Letters and Science

UCLA
A311 Murphy Hall
Box 951414
Los Angeles, CA 90095-1414
(310) 825-1553

The Honors Collegium is an unusual educational alternative designed primarily for students in their freshman and sophomore years. Entering freshmen with at least a 580 SAT verbal score who have satisfied the Subject A/English 2 requirement and continuing students with a UCLA grade-point average of 3.0 who have satisfied the Subject A/English 2 requirement may enroll in specially devised Honors Collegium courses with an interdisciplinary emphasis. The collegium offers small classes and individual attention. It encourages animated discussion among students, as well as between students and professors. And it seeks

to promote scholarly exchange across the major disciplines in the University.

Each course is staffed by a director who is distinguished in teaching and scholarship, by a variable number of guest lecturers, and by 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 you plan an integrated academic program.

In 1995-96 the Honors Collegium will offer the following one-term courses, most of which carry four units of credit each; the six-unit courses are so indicated.

Lower Division Courses

1. Transformations of the West in the 20th Century. 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. 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.

5. Geometry of Relativity. Lecture, three hours; discussion, one hour. No special mathematical knowledge required. Systematic examination of relationship between physics and geometry in Einstein's relativity theories. P/NP or letter grading.

7A. Urban Poverty and Public Policy in the U.S. 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. Optional fieldwork and tutorial. Enforced corequisite: course 7A. Field studies in social policy. P/NP or letter grading.

9. Greeks and Barbarians: Multiculturalism in the Ancient World. 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. Unreal City: Representation and the Urban Experience. Seminar, three hours; outside study, nine hours. Through study of a variety of artistic forms and across several historical periods, examination of history of urban representations and various politico-aesthetic dimensions of urban life as portrayed in novels, poems, and films. P/NP or letter grading.

11. Galileo and the Scientific Revolution from the 17th to 21st Century. Seminar, four hours; outside study, eight 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. 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.

14. Culture and Society in Renaissance Florence. Seminar, three hours; outside study, nine hours. Exploration of social foundations of Renaissance Florence, placing its culture, literature, and art in specific context of Florentine social, economic, and political life. P/NP or letter grading.

15. America, 1963 to 1973: Culture and Counter-culture. 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. 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.

18. Culture, Conquest, and Communication: Fatal Attractions. 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.

20. Human Dimensions of Global Environmental Change. Seminar, three hours. Examination of changes in natural environment wrought by human action and, in turn, effects of these changes on human beings and their societies. P/NP or letter grading.

21. Rise and Fall of Modernism (6 units). 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.

27. Time in Society and History. Seminar, three hours. Examination of concept of time from sociological, historical, philosophical, anthropological, and physical perspectives, looking specifically at how cultures have perceived time, how societies have organized themselves within it, and how various disciplines have theorized it in terms of concepts like causality. P/NP or letter grading.

28. Misleading Mirror: Self-Portraits in Word and Image. 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. 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. 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.

32. Creativity and Culture: Making Things New in the Arts, Humanities, Social Sciences, and Sciences (6 units). 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 units). 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.

35. Scientific Method and Search for Intelligent Life in the Universe. 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. 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.

39. Nuclear Revelations about the Earth and Cosmos: We Are Stardust. Lecture, two and one-half hours; discussion, one hour. Exploration of evolution of universe, solar system, and Earth through unifying theme of synthesis and destruction of nuclides — isotopic variations which are responsible for virtually all cosmological and geological phenomena. P/NP or letter grading.

46. Masculinity, Sexuality, and Patriarchy. 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.

56. Structure and Development of Language. Lecture, four hours; discussion, one hour. Study of nature of human language, including its formal character (phonetics, syntax), differences and similarities between sign languages and spoken languages, language acquisition, relationship between language and other mental abilities, and autonomous nature of language as a system of knowledge. P/NP or letter grading.

62. Community and Self-Interest in History of American Culture. 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.

64. Encounters with the Other: European Colonialism and Representation. 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.

68. History of Social Thought. 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.

73. Elementary Particles in the Universe. 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.

79. Rhetoric of Rule: Spectacle and Image Making in Reign of the Sun King and Presidents Reagan and Clinton. 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.

83. Politics and the Rhetoric of Literature (6 units). 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.

89. Freud, Fairy Tales, and Feminism. 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.

93. Stress and Coping. 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.

94. American Presidency: Psychocultural Perspectives. Seminar, three hours. Focus on six American presidents, all of whom have been influenced by a combination of liberal and conservative ideas. Exploration of their political actions through study of their personalities and the national and political culture in which they functioned. P/NP or letter grading.

97. Issues in American Foreign Policy: Methodology of Assessment. 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.

Upper Division Courses

M102. Culture, Media, and Los Angeles (6 units). (Formerly numbered 102.) (Same as Afro-American Studies M102 and Asian American Studies M197H.) Lecture, four hours; screenings, two hours. Prerequisite: upper division standing. 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. Seminar, three hours. Prerequisite: upper division standing. 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.

M106. Imaginary Women. (Formerly numbered 106.) (Same as Women's Studies M106.) Prerequisite: upper division standing. 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. 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. 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.

199. Directed Honors Studies. Prerequisites: minimum of four units completed in Honors Collegium with a grade of B or better, overall UCLA GPA of 3.0 or better, consent of instructor and dean of Division of Honors and Undergraduate Programs. 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.

HUMANITIES

College of Letters and Science

UCLA
2326 Murphy Hall
Box 951536
Los Angeles, CA 90095-1536
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fax: (310) 825-9754
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<http://www.humnet.ucla.edu/humnet/complit/comphome.htm>

Professors

Emily Apter, Ph.D. (*French, Comparative Literature*)
Kathleen L. Komar, Ph.D. (*German, Comparative Literature*)
Ross P. Shideler, Ph.D. (*Scandinavian, Comparative Literature*), Chair
Samuel Weber, Ph.D. (*English, Comparative Literature*)
Arnold J. Band, Ph.D., Emeritus (*Hebrew, Comparative Literature*)
Pier-Maria Pasinetti, Ph.D., Emeritus (*Italian, Comparative Literature*)

Associate Professors

Katherine C. King, Ph.D. (*Classics, Comparative Literature*)
Lucia Re, Ph.D. (*Italian, Comparative Literature*)
C.P. Haun Saussy, Ph.D. (*Chinese, Comparative Literature*)

Assistant Professors

Ali Behdad, Ph.D. (*English, Comparative Literature*)
Shu-mei Shih, Ph.D. (*Chinese, Comparative Literature*)

Lower Division Courses

The following courses are made up of selected masterpieces of world literature. Humanities 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D satisfy the humanities general education requirement in the College of Letters and Science.

1A. World Literature: Antiquity to Early Middle Ages. 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*.

1B. World Literature: Late Middle Ages to the 17th Century. 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.

1C. World Literature: Age of Enlightenment to the 20th Century. 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.

1D. Great Books from the World at Large. 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.

2A. Survey of Literature: Antiquity to Early Middle Ages (5 units). 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 units). 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 units). 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. 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

M101. Hebrew Literature in English — Literary Traditions of Ancient Israel: Bible and Apocrypha. (Formerly numbered M106.) (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. (Formerly numbered C107.) Seminar, three hours. Prerequisites: upper division standing, literature major, consent of instructor. 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. (Formerly numbered C111.) Seminar, three hours. Prerequisite: upper division standing or consent of instructor. 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. (Formerly numbered C112.) Lecture, three hours. Prerequisite: upper division standing or consent of instructor. 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 Comparative Literature C204. Undergraduates read all texts in translation. P/NP or letter grading.

C105. Comic Vision. Lecture, three hours. Prerequisites: upper division standing, literature major. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with Comparative Literature C205. Undergraduates read all works in translation. P/NP or letter grading.

106. Archetypal Heroes in Literature. (Formerly numbered C129.) Seminar, three hours. Prerequisite: upper division standing. 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.

120. The Individual and Society in the Renaissance. (Formerly numbered 116.) Lecture, three hours; discussion, one hour. Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. 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. (Formerly numbered C145.) Lecture, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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 Comparative Literature C222. Undergraduates read all works in translation. P/NP or letter grading.

C140. Dramatic Theory and Criticism in German and English Romanticism. (Formerly numbered C171.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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 Comparative Literature C240. Undergraduates read all works in translation. P/NP or letter grading.

C150. The 19th-Century Novel. (Formerly numbered C175.) Seminar, three hours. Prerequisites: upper division standing, literature major. 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 Comparative Literature C250. Undergraduates read all works in translation. P/NP or letter grading.

C151. Crisis of Authority. (Formerly numbered C178.) Seminar, three hours. Prerequisite: upper division standing or consent of instructor. 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 Comparative Literature C251. P/NP or letter grading.

C152. Symbolist Tradition in Poetry. (Formerly numbered C180.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. Study of symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with Comparative Literature C252. Undergraduates read all works in translation. P/NP or letter grading.

C153. Poetry and Poetics of Post-Symbolist Period. Lecture, three hours. Prerequisite: upper division standing or consent of instructor. 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 Comparative Literature C253. Undergraduates read all works in translation. P/NP or letter grading.

158. Colonial Encounters. 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. (Formerly numbered 115.) 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. Literature and the Visual Arts, 1700 to the Present. Lecture, three hours. Prerequisite: upper division standing or consent of instructor. Knowledge of art history valuable but not required. Assuming that literature and the visual arts are in some degree expressions of cultural and philosophical patterns of eras, course studies relationships between primarily English writers from 1700 to the present and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between the plastic and verbal arts in comparative study. May be concurrently scheduled with Comparative Literature C260. Undergraduates read all works in translation.

C161. Fiction and History. (Formerly numbered C176.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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 Comparative Literature C261. P/NP or letter grading.

M162. Interwar Central European Prose. (Formerly numbered M125.) (Same as German M119G and Slavic 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.

C163. Crisis of Consciousness in Modern Literature. (Formerly numbered C109.) Seminar, three hours. Prerequisites: upper division standing, literature major. 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 Comparative Literature C263. Undergraduates read all works in translation. P/NP or letter grading.

C164. The Modern Continental Novel. (Formerly numbered C185.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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 Comparative Literature C264. Undergraduates read all works in translation. P/NP or letter grading.

M165. The Holocaust in Literature. (Formerly numbered M187.) (Same as Jewish Studies M187.) Lecture, three hours. Prerequisite: History 191E, 191F, or 191G or equivalent. 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.

M166. Postwar Central European Prose. (Formerly numbered M126.) (Same as German M119H and Slavic 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.

C167. Theory and Texts of the Fantastic. (Formerly numbered C173.) Seminar, three hours. Prerequisites: upper division standing, literature major. 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, Cortázar, Landolfi, and Calvino. May be concurrently scheduled with Comparative Literature C267. Undergraduates read all works in translation. P/NP or letter grading.

M168. Korean American Literature. (Formerly numbered 168.) (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. (Formerly numbered 118.) Lecture, three hours. Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. Introduction to new set of African authors and attempt to discern similarities or differences they may have with major authors such as Achebe, Ngugi, Armah, Soyinka, etc. P/NP or letter grading.

C170. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (Formerly numbered C184.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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 Comparative Literature C270. Undergraduates read all works in translation. P/NP or letter grading.

M171. Chinese Immigrant Literature and Film. (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.

C172. The Postmodern Novel. (Formerly numbered C186.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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 Comparative Literature C272. Undergraduates read all works in translation. P/NP or letter grading.

C173. Postmodernism and the Third World. (Formerly numbered C190.) 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 Comparative Literature C273. P/NP or letter grading.

M174. Film and Literature of the Spanish-Speaking World. (Formerly numbered M161.) (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. (Formerly numbered 182.) Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. 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. (Formerly numbered 183.) Seminar, three hours. Prerequisite: upper division standing. 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.

C195. Heidegger, Language, and Literature. (Formerly numbered C188.) Seminar, three 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 Comparative Literature C295. P/NP or letter grading.

C196. Derrida as a Reader of Heidegger. (Formerly numbered C189.) Seminar, three 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 Comparative Literature C296. P/NP or letter grading.

197. Variable Topics: Literary Theory. Seminar, three hours. Prerequisite: upper division standing or consent of instructor. 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.

INDO-EUROPEAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
7349 Bunche Hall
Box 951475
Los Angeles, CA 90095-1475
(310) 825-4171

Professors

Henning Andersen, Ph.D. (*Slavic Languages and Literatures*)

Raimo A. Anttila, Ph.D. (*Linguistics*)

Henrik Birnbaum, Ph.D. (*Slavic Languages and Literatures*)

Jesse L. Byock, Ph.D. (*Germanic Languages*)

Vyacheslav Vs. Ivanov, Ph.D. (*Slavic Languages and Literatures*)

Joseph F. Nagy, Ph.D. (*Celtic Languages and Literatures*)

Bengt T.M. Löfstedt, Ph.D., *Emeritus (Classics)*

Jaán Puhvel, Ph.D., *Emeritus (Classics, Indo-European Studies)*

Hartmut E.F. Scharfe, Ph.D., *Emeritus (East Asian Languages and Cultures)*

Hanns-Peter Schmidt, Ph.D., *Emeritus (Near Eastern Languages and Cultures)*

Terence H. Wilbur, Ph.D., *Emeritus (Germanic Languages)*

Assistant Professor

Christopher M. Stevens, Ph.D. (*Germanic Languages*)

Scope and Objectives

The prime aim of this graduate 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 three alternative major emphases: Indo-European linguistics, Indo-Iranian or other specialized language area studies, and European and related archaeology.

Graduate Study

The following constitutes introductory information regarding the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

None.

Doctoral Degree

Admission

In order to be admitted to graduate status, applicants must have a B.A. degree with a major in an Indo-European language field (e.g., 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. Potential applicants may request a brochure by writing to the Indo-European Studies Program at the address given at the beginning of this listing.

Admission to the program itself constitutes admission to the doctoral program; there is no master's degree offered. Should deficiencies exist in prerequisites 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.

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 the introductory courses Indo-European Studies M150 and 210), mythology (e.g., Classics 168), and archaeology (including 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 (e.g., 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 the student fail either the written or oral examinations, the interdepartmental degree committee may allow reexamination.

Upper Division Courses

131. European Archaeology: Proto-Civilizations of Europe. 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. Prerequisite: course 131 or consent of instructor. 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. (Same as Linguistics M150.) Prerequisites: 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 units).

Graduate Courses

210. Indo-European Linguistics: Advanced Course. Prerequisite: course M150 or equivalent. Comparative study of phonology, morphology, syntax, and lexicon. Problems in analysis and reconstruction.

250A-250B. European Archaeology. Prerequisite: consent of instructor. 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. Prerequisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. In Progress grading.

596. Directed Individual Studies (2 to 8 units).

597. Preparation for Ph.D. Qualifying Examinations (2 to 8 units).

599. Research for Ph.D. Dissertation (2 to 8 units).

Related Courses in Other Departments

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) 130A-130B. Elementary Classical Armenian

131A-131B. Intermediate Classical Armenian

132A-132B. Advanced Classical Armenian

Classics 161. Introduction to Classical Mythology

166A. Greek Religion

166B. Roman Religion

168. Introduction to 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

245B. Germanic Antiquities

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) 177. Baltic Languages and Cultures

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

INTERNATIONAL RELATIONS

College of Letters and Science

UCLA

4256 Bunche Hall

Box 951472

Los Angeles, CA 90095-1472

(310) 825-3862

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 emphasis 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.

Special Undergraduate Program

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 5A, 5B, 8A, 8B, 8C, 9A, 9C, 9D, 10A, 10B, 11A, 11B; Sociology 1 or 31.

Upper Division

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, M162P, 165, 167, 171, 173Q, 174P, 174Q, 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, 188, 189, 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*

UCLA
10286 Bunche Hall
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Los Angeles, CA 90095-1480
(310) 825-1181

Professors

Leonard Binder, Ph.D. (*Political Science*)
Andras Bodrogligeti, Ph.D. (*Near Eastern Languages and Cultures*)
Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)
Richard Hovannisian, Ph.D. (*History*)
Nazir A. Jairazbhoy, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Nikki Keddie, Ph.D. (*History*)
Afaf Marsot, D.Phil. (*History*)
Ismail Poonawala, Ph.D. (*Near Eastern Languages and Cultures*)

A. Jihad Racy, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Damodar R. SarDesai, Ph.D. (*History*)
Stanford J. Shaw, Ph.D. (*History*)
Stanley A. Wolpert, Ph.D. (*History*)

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*)
John G. Kennedy, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)
Thomas Penchoen, Ph.D. (*Near Eastern Languages and Cultures*)
Georges Sabagh, Ph.D. (*Sociology*)

Associate Professors

Irene A. Bierman, Ph.D. (*Art History*)
Gerry A. Hale, Ph.D. (*Geography*)
Michael G. Morony, Ph.D. (*History*), *Chair*
Hossein Ziai, Ph.D. (*Near Eastern Languages and Cultures*)

Assistant Professor

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 chapter.

The designation of this interdepartmental degree program 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to the general University requirements, a Bachelor of Arts degree in Near Eastern Studies or in a related field with an emphasis on the Near East is required. 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 prerequisites, 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* form.

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 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. 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, history, 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* form.

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
M154. Women in Culture and Society
156. Comparative Religion
161. Development Anthropology
167. Urban Anthropology
215. Field Training in Archaeology
230P. Ethnology
230Q. Theories of Culture
232Q. Myth and Ritual
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
150A-150B. Survey of Arabic Literature in English
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) 130A-130B. Elementary Classical Armenian
131A-131B. Intermediate Classical Armenian
132A-132B. Advanced Classical Armenian
210. History of the Armenian Language
220. Armenian Literature of the Golden Age (A.D. 5th Century)
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 and Systematic Musicology 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: Berber-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
188. Northern Africa
287. Middle East
288. Northern Africa
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
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. Contemporary Persian Belles Lettres
141. Contemporary 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
164. Government and Politics in the Middle East
C245. Middle Eastern Studies
- 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. Cultural History of the Turks
180. Modern Turkic Languages and Peoples
199. Special Studies in Turkic Languages
210A-210B-210C. Introduction to Ottoman
211. Ottoman Diplomats
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

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Marga Cottino-Jones, Ph.D., Dottore in Lettere, *Chair*
Edward F. Tuttle, Ph.D.
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Emeritus

Associate Professor

Lucia Re, Ph.D., Dottore in Lettere

Lecturers

Maria Grazia Pellegrini, Dottore in Lettere
Mirella Cheeseman, Dottore in Legge, *Emerita*
Althea Reynolds, B.A., *Emerita*

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 specialization). In addition, the department participates extensively in the interdepartmental graduate programs in Romance Linguistics and Literature, Comparative Literature, and Folklore and Mythology.

Bachelor of Arts in Italian

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 prerequisite 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, 50A, 50B.

The Major

Required: Twelve upper division Italian courses, including one course from 102A, 102B, 102C; one course from 113A through 116B; one course from 118 through 122; 190; and eight courses (at least 32 units) from 103A through 197H selected in consultation with the undergraduate adviser. One course from another humanities or social sciences department, selected in consultation with the undergraduate adviser, is also required. Recommended courses include Art History 106A, 106B, 106C, History 125A, 125E, 125F, 132A, 132B, Humanities 1A through 1D, C161, C167.

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

You 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. You 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. Prerequisites: Italian 102A-102B-102C.

Candidates select three upper division literature courses in which additional readings are required. In the last term of your senior year, you 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 your junior year.

Bachelor of Arts in Italian and Special Fields

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.

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: 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, 60, 60P.

The Major: Italian 102A or 102B or 102C, 195, and five courses from 103A through 197H 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, 139L, M140, 141, 143, 150 through M154, 161, 182, 183 selected in consultation with the undergraduate adviser.

Art History Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Art History 50 or 51, 54, 57.

The Major: Italian 102A or 102B or 102C, 195, and five courses from 103A through 197H 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, 110D, 110F, 127 selected in consultation with the undergraduate adviser.

Classics Field

Preparation for the Major: 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 and/or Latin 1, 2, 3, or equivalent.

The Major: Italian 102A or 102B or 102C, 195, and four courses from 103A through 197H 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.

English Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; English 3, 4, 10A, 10B, 10C.

The Major: Italian 102A or 102B or 102C, 195, and four courses from 103A through 197H selected in consultation with the undergraduate adviser; four courses from English 100, 101 through 119, 121, 140A through M197 selected in consultation with the undergraduate adviser.

Film and Television Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, 46.

The Major: Italian 102A or 102B or 102C, 195, and six courses from 103A through 197H selected in consultation with the undergraduate adviser; six courses from Film and Television 106A, 106B, 106C, 107, 108, 110A, 110B, 110C, 112 through 116, 193A selected in consultation with the undergraduate adviser.

French Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, French 1, 2, 3, 4, 5, 6, 12 or 14.

The Major: Italian 102A or 102B or 102C, 195, and three courses from 103A through 197H 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: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; one course from History 1A, 1B, 1C, 88B through 88E, 88Q, 88U.

The Major: Italian 102A or 102B or 102C, 195, and five courses from 103A through 197H selected in consultation with the undergraduate adviser; six courses from History 100A through 102, 119 through 121D, 125A through 127B, 132A, 132B, 135A through 137C selected in consultation with the undergraduate adviser.

Linguistics Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, Linguistics 20, and six terms of a second Romance language or Latin or equivalent.

The Major: Italian 102A or 102B or 102C, 190 or 222A, 195, 222B, and one course from 103A through 197H 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.

Musicology Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, Musicology 1A-1B or 2A-2B, 26A-26B-26C. *Recommended:* Music 20A, 20B, 20C.

The Major: Italian 102A or 102B or 102C, 195, and four courses from 103A through 197H selected in consultation with the undergraduate adviser; five courses from Musicology 122, 126A through C127F, 135A, 135B, 135C, 156 selected in consultation with the undergraduate adviser.

Philosophy Field

Preparation for the Major: 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: Italian 102A or 102B or 102C, 195, and five courses from 103A through 197H 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: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Political Science 10, 20.

The Major: Italian 102A or 102B or 102C, 195, and four courses from 113A through 122, M158, 190 selected in consultation with the undergraduate adviser; six courses from Political Science 111A through 113, 115 through 119Z, 137A, 137B, 139A through 139Z, 153, 155, 158A, 167A selected in consultation with the undergraduate adviser.

Portuguese Field

Preparation for the Major: 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: Italian 102A or 102B or 102C, 195, and four courses from 113A through 122, M158, 190 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: 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: Italian 102A or 102B or 102C, 195, and three courses from 103A through 197H selected in consultation with the undergraduate adviser; one course from Spanish 120A, 120B, 136A, 136B and three courses from 122 through 133, 137 through M161 selected in consultation with the undergraduate adviser.

Theater Field

Preparation for the Major: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B.

The Major: Italian 102A or 102B or 102C, 195, and five courses from 103A through 197H (122 is recommended) 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: Italian 1, 2, 3, 4, 5, 25, and one course from 42A, 42B, 46, 50A, 50B; Women's Studies 10.

The Major: Italian 102A or 102B or 102C, 195, and five courses from 103A through 197H (M158 is recommended) 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Three letters of recommendation should be sent to the Graduate Adviser, Department of Italian, at the address given at the beginning of this listing.

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 Master of Arts degree is available with specializations in Italian literature and Italian language.

Course Requirements

Italian Literature Specialization. (1) For the comprehensive examination 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. (2) For the thesis plan, 12 courses are required, including Italian 205A, 205B, and 222A. At least nine courses must be in the 200 series.

Italian Language Specialization. Prerequisites: a general grasp of linguistics equivalent to Linguistics 20 and 110, and a broad familiarity with Italian literary and cultural history. (1) For the comprehensive examination 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. (2) For 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, a student 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, the student 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 the student must have completed Italian 205A, 205B and at least two other graduate courses in Italian. On acceptance, the guidance committee helps the student 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

Three letters of recommendation from professionals in the field of Italian studies should be sent to the Graduate Adviser, Department of Italian, at the address given at the beginning of this listing.

Prerequisite 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 courses 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, the student may be reexamined on unanimous approval of the guidance committee, after at least one academic quarter of additional residence.

Lower Division Courses

Enrollment in the Italian open language laboratory is required of all students in Italian 1, 1A, 2, 2A, and 3.

1. Elementary Italian — Beginning. Lecture, five hours; live laboratory, one hour.

1A. Elementary Italian — Accelerated (8 units). 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. 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. Lecture, five hours; live laboratory, one hour. Enforced requisite: course 1.

2A. Elementary Italian — Accelerated (Continued) (8 units). 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. Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement.

3. Elementary Italian — Continued. Lecture, five hours; live laboratory, one hour. Enforced requisite: course 2.

3A. Intermediate Italian — Accelerated (8 units). 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. Lecture, five hours; laboratory, one hour. Enforced requisite: course 3.

5. Intermediate Italian. Lecture, five hours; laboratory, one hour. Enforced requisite: course 4.

7. Elementary Italian Conversation. 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 (3 units each). Discussion, three hours; outside study, six hours. Intended for students who have taken three to six terms of language instruction and have developed considerable skill in Italian. Designed to further improve students' spoken proficiency through constant exposure and practice of the language. Each course may be repeated once for credit.

25. Advanced Italian. Lecture, five hours. Enforced requisite: course 5. Advanced grammar and composition course with readings from select literary works.

42A-42B. Italian Civilization or Italy through the Ages. Lecture, three hours. General survey of history, literature, art, music, and architecture audiovisually illustrated, with emphasis on Italy's cultural contributions to Western civilization. **42A.** From Origins through the Renaissance; **42B.** From the Enlightenment to Modern Italy.

46. Italian Cinema and Culture. 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. Lecture, three hours. **50A.** From Its Origins to End of the Renaissance. Study of selected works by major writers of the period, including Dante, Petrarch, Boccaccio, Poliziano, Ariosto, Machiavelli, Castiglione. **50B.** From the Baroque Period to the Present. Study of selected works by major writers of the period, including Tasso, Bruno, Vico, Parini, Alfieri, Foscolo, Leopardi, Manzoni, Verga, Pirandello, Svevo, Moravia, Ungaretti, Montale.

Upper Division Courses

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.

102A-102B-102C. Italian Cultural Experience. Lecture, three hours. Study of cultural development of Italy conducted especially with a view to contemporary situations. **102A.** From Disruption of Roman Unity to Feudal and Communal Society and Culture; **102B.** From Renaissance Civilization to the Baroque Age; **102C.** Historical and Cultural Issues from the Age of Enlightenment to Our Day.

103A. Readings in Italian Literature. (Formerly numbered 200A.) Lecture, three hours; outside study, nine hours. Literature of the generation dominated by the Franciscan movement, proceeding through culture of Frederick II's court to the three classics of the 14th century — Dante, Petrarch, and Boccaccio. Early humanists, postclassical generation, and cultural blooming under Lorenzo il Magnifico. P/NP or letter grading.

103B. Readings in Italian Literature. (Formerly numbered 200B.) Lecture, three hours; outside study, nine hours. Prerequisite: course 103A. Literature of the High Renaissance of central Italy in its three most popular genres (lyric poetry, chivalric poem, and theater), proceeding through Counter-Reformist culture, especially of northern and southern Italy. Main Enlightenment figures and cultural evolution stemming from them. P/NP or letter grading.

103C. Readings in Italian Literature. (Formerly numbered 200C.) Lecture, three hours; outside study, nine hours. Prerequisite: course 103B. Literature of the Romantic era, proceeding through study of literary figures of the Italian "Risorgimento." Various "novacentisti" movements, literature between the two wars, and contemporary generation. P/NP or letter grading.

105. Tradition and Innovation in Italian Culture. Lecture, three hours. Italy's basic social structures and cultural institutions delineated through their historical development and as they are manifest in stresses to which the industrializing state currently is subject.

110A-110B. Divine Comedy in English. Lecture, three hours.

113A-113B. Dante's Divina Commedia. Lecture, three hours. Focus on *Divine Comedy*. Selected readings from the text integrated with relevant information on scholasticism, classical tradition, medieval literature and poetics, and sociopolitical structure of Dante's world. **113A.** General Introduction and Readings from *Inferno*; **113B.** Readings from *Purgatorio* and *Paradiso*.

114A-114B. Italian Literature of the Middle Ages. Lecture, three hours. Emphasis on Stil Novo, Dante's minor works, Petrarch, and Boccaccio.

116A-116B. Italian Literature of the Renaissance. Lecture, three hours. Emphasis on Lorenzo de' Medici, Poliziano, Castiglione, Machiavelli, Ariosto, Tasso.

118. Italian Literature of the 18th Century. Lecture, three hours. Emphasis on Goldoni, Parini, Alfieri.

119. Italian Literature of the 19th Century. Lecture, three hours. Survey of the Romantic age as it expresses values and national aspirations of 19th-century Italy. Emphasis on the innovative approach to poetry as seen in works of Foscolo and Leopardi and to sociohistorical novels of Foscolo, Manzoni, and Verga.

120. Italian Literature of the 20th Century. Lecture, three hours. Brief introduction to Italian literature after unification of the country, followed by concentration on selected writers seen in their political, social, and artistic contexts.

121. Italian Cinema. Lecture, three hours. Comparative study of specific literary works and their translations into films and of different techniques in the two forms of expression. Texts include literary works, screenplays, and works on literary and film theory.

122. Italian Theater. Lecture, three hours. Emphasis on what is alive today (read and performed) in Italian theater. Texts range from the Renaissance to the present.

130. Advanced Grammar and Composition within a Literary Context. Lecture, three hours. Prerequisite: course 25. Study in depth of idiomatic phenomena of the language from both grammatical and syntactical points of view within a literary context.

131. Reading and Reciting. Lecture, three hours. Prerequisite: consent of instructor based on 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. From Boccaccio to Basile (in English). (Same as Folklore M140.) Lecture, three hours. Study of origins and development of the Italian novella in its themes, structure, historical context, and European ramifications. Designed for students in other departments who wish to become acquainted with either the premises or growth of similar literary genres. Also intended for students majoring in folklore and mythology, who are given insight into Italian popular tales when these (as in the case of Boccaccio) were translated into highly sophisticated literary forms, as well as when (as in the case of Basile) they become embedded into the folk tradition of the Western world.

150. Italian Fiction in Translation. Lecture, three hours; outside study, nine hours.

M158. Women in Italian Culture. (Same as Women's Studies M158.) Lecture, three hours. Designed with intent of examining role that women have played in Italian society. Concentration alternatively on the world of medieval and Renaissance "matriarch" and on "liberated" women of our times. Historical and political documents and social and religious taboos presented and discussed, together with other data derived from literature and art. Italian majors required to read texts in Italian and to prepare papers written in Italian.

190. History of the Italian Language. 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. 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.

197A-197H. Variable Topics in Italian Studies. Discussion, three hours; outside study, nine hours. Seminars focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental undergraduate courses.

199. Special Studies (2 to 4 units). Prerequisite: consent of instructor. 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. Lecture, three hours.

205A-205B. Studies in Criticism. (Formerly numbered 205A-205B-205C.) Lecture, three hours; outside study, 18 hours. History, theory, and practice of criticism. S/U or letter grading. **205A.** Presentation, discussion, and application of basic currents of criticism from stylistics to structuralism. **205B.** Presentation, discussion, and application of contemporary approaches from structuralism to deconstruction, new historicism, and feminist criticism.

210. Studies in Early Italian Literature. (Formerly numbered 210A-210B-210C.) 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. (Formerly numbered 214A-214G.) 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. (Formerly numbered 215A-215B-215C.) 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. 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. (Formerly numbered 217A-217B-217C.) 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. (Formerly numbered 218A-218E.) 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. (Formerly numbered 219A-219F.) 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. (Formerly numbered 220A-220B-220C.) 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. 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. (Formerly numbered 259A-259B-259C.) Lecture, three hours; outside study, 18 hours. Prerequisite: graduate standing. 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. (Same as Folklore M230A-M230B.) Lecture, two hours.

250A-250D. Seminars: Dante. Seminar, three hours.

251. Seminar: Petrarch. Seminar, three hours.

252. Seminar: Boccaccio. Seminar, three hours.

253A-253B-253C. Seminars: Chivalric Poetry in Italy. 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. Seminar, three hours.

255A-255B. Seminars: Baroque. Seminar, three hours.

256A-256B. Seminars: 18th Century. Seminar, three hours.

257A-257B. Seminars: Romanticism. Seminar, three hours.

258A-258B. Seminars: Contemporary Italian Literature. Seminar, three hours.

M260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (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. Lecture, three hours; outside study, 18 hours. Prerequisite: graduate standing. 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. Lecture, three hours; outside study, 18 hours. Prerequisite: graduate standing. 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. Lecture, three hours; discussion, one hour. Prerequisite: graduate standing or consent of instructor. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental graduate courses.

370. Problems and Methods in Teaching Italian. Lecture, two hours.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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). Prerequisite: consent of instructor.

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 units). Prerequisite: 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 units). May be repeated twice for credit. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 12 units). S/U grading.

599. Ph.D. Research and Writing (2 to 12 units). May be repeated. S/U grading.

LABOR AND WORKPLACE STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
1001 Gayley Avenue
Los Angeles, CA 90095
(310) 825-9603

Professors

Samuel A. Culbert, Ph.D. (*Management*)
William E. Forbath, M.Phil., J.D., Ph.D. (*Law*)
Miriam A. Golden, Ph.D. (*Political Science*)
Nancy M. Henley, Ph.D. (*Psychology*)
Sanford M. Jacoby, Ph.D. (*Management*)
Archie Kleingartner, Ph.D. (*Management*)
David Lewin, Ph.D. (*Management*)
John H.M. Laslett, D.Phil. (*History*)
Christine A. Littleton, J.D. (*Law*)
Ruth M. Milkman, Ph.D. (*Sociology*)
Daniel J.B. Mitchell, Ph.D. (*Management*)
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

Janet Currie, Ph.D. (*Economics*)

Assistant Professors

Christopher Erickson, Ph.D. (*Management*)
Kathleen McGarry, Ph.D. (*Economics*)

Scope and Objectives

This special undergraduate program 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.

Special Undergraduate Program

The 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

Required: Management 150; Political Science 142C or History 155B; three other courses selected from Chicana and Chicano Studies 120, Economics 103C, 150, 151, 152, 181B, 183, Geography 155, History 155A, 155B, Political Science 142C, 169A, Psychology

M137E, Sociology M163, 171, 173, Women's Studies M164, 170. 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 (310-794-0385) or Professor Sanford M. Jacoby (310-825-2505).

LATIN AMERICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
10347 Bunche Hall
Box 951447
Los Angeles, CA 90095-1447
(310) 206-6571

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*)
Rubén A. Benítez, Ph.D. (*Spanish*)
Charles F. Bennett, Ph.D. (*Geography*)
Carole H. Browner, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
Leland S. Burns, Ph.D. (*Urban Planning*)
Donald G. Buth, Ph.D. (*Biology*)
Alfonso F. Cardenas, Ph.D. (*Computer Science*)
Martin L. Cody, Ph.D. (*Biology*)
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. French, D.V.M., Dr.P.H. (*Epidemiology*)
Jeffrey A. Frieden, Ph.D. (*Political Science*)
Mano Gería, Ph.D. (*Computer Science*)
Juan Gómez-Quiriones, Ph.D. (*History*)
Patricia M. Greenfield, Ph.D. (*Psychology*)
Peter B. Hammond, Ph.D. (*Anthropology*)
Dominique M. Hanssens, Ph.D. (*Management*)
Arnold C. Harberger, Ph.D. (*Economics*)
John N. Hawkins, Ph.D. (*Education*)
Norris C. Hundley, Ph.D. (*History*)
Allen W. Johnson, Ph.D. (*Anthropology*)
J. Randal Johnson, Ph.D. (*Portuguese*)
Marvin Kamo, M.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
Cecelia F. Klein, Ph.D. (*Art History*)
David M. Kunzle, Ph.D. (*Art History*)
Axel Leijonhufvud, Ph.D. (*Economics*)
James Lockhart, Ph.D. (*History*)
Gerardo Luzuriaga, Ph.D. (*Spanish*)
Pamela L. Munro, Ph.D. (*Linguistics*)
Park S. Nobel, Ph.D. (*Biology*)
Antony R. Orme, Ph.D. (*Geography*)
C.P. Otero, Ph.D. (*Spanish, Romance Linguistics*)
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*)
Robert M. Stevenson, Ph.D. (*Musicology*)
Michael Storper, Ph.D. (*Urban Planning*)
Carlos A. Torres, Ph.D. (*Education*)
Fernando M. Torres-Gil, Ph.D. (*Social Welfare*)
Hartmut Walter, Ph.D. (*Geography*)
L. Jolyon West, M.D. (*Psychiatry and Biobehavioral Sciences*)
James W. Wilkie, Ph.D. (*History*), *Cochair*
Maurice Zeitlin, Ph.D. (*Sociology*)

Professors Emeriti

C. Rainer Berger, Ph.D. (*Anthropology, Geography, Geophysics*)
Lester Breslow, M.D., M.P.H. (*Health Services*)
William O. Bright, Ph.D. (*Linguistics, Anthropology*)
Henry J. Bruman, Ph.D. (*Geography*)
E. Bradford Burns, Ph.D. (*History*)
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*)
Edward Gonzalez, Ph.D. (*Political Science*)
Simon González, Ed.D. (*Education*)
Thomas R. Howell, Ph.D. (*Biology*)
Claude L. Hulet, Ph.D. (*Portuguese*)
Isabelle F. Hunt, Dr.P.H. (*Community Health Sciences*)
John G. Kennedy, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)
Frederick C. Kintzer, Ed.D. (*Education*)
Lewis L. Langness, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)
O. Raynal Lunt, Ph.D. (*Biology*)
Clement W. Meighan, Ph.D. (*Anthropology*)
Alfred K. Neumann, M.D. (*Community Health Sciences*)
Henry B. Nicholson, Ph.D. (*Anthropology*)
Russell R. O'Neill, Ph.D. (*Mechanical, Aerospace, and Nuclear Engineering*)
David O'Shea, Ph.D. (*Education*)
José Pascual-Buxó, Ph.D. (*Spanish*)
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. (*Biology*)
Carol Scothorn, M.A. (*World Arts and Cultures*)
Allegra Fuller Snyder, M.A. (*World Arts and Cultures*)
Norman J.W. Thrower, Ph.D. (*Geography*)
Johannes Wilbert, Ph.D. (*Anthropology*)
Robert M. Williams, Ph.D. (*Management*)

Associate Professors

Theodore A. Andersen, Ph.D. (*Management*)
Judith A. Carney, Ph.D. (*Geography*)
Leobardo Estrada, Ph.D. (*Urban Planning*)
Teshome H. Gabriel, Ph.D. (*Film and Television*)
Barbara Geddes, Ph.D. (*Political Science*)
Susanna B. Hecht, Ph.D. (*Urban Planning*)
Guillermo Hernández, Ph.D. (*Spanish*)
Henry A. Hespeneheide, Ph.D. (*Biology*)
Robert A. Hill, M.Sc. (*History*)
Efrain Kristal, Ph.D. (*Spanish*)
Richard Leventhal, Ph.D. (*Anthropology*)
David E. López, Ph.D. (*Sociology*), *Head and Cochair*
Steven J. Loza, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Alfred E. Osborne, Jr., Ph.D. (*Management*)
Susan Plann, Ph.D. (*Spanish*)
John V. Richardson, Ph.D. (*Library and Information Science*)
A. John Skirius, Ph.D. (*Spanish*)
Edward E. Telles, Ph.D. (*Sociology*)
Concepción Valadez, Ph.D. (*Education*)

Assistant Professors

Adriana Bergero, Ph.D. (*Spanish*)
Verónica Cortínez, Ph.D. (*Spanish*)
Raul Hinojosa-Ojeda, Ph.D. (*Urban Planning*)
José Moya, Ph.D. (*History*)
Claudia Parodi, Ph.D. (*Spanish*)

Lecturers

José M. Cruz-Salvadores, M.A. (*Spanish*)
Linda Rodríguez, Ph.D. (*History*)
Larry Lauerhass, Ph.D., *Emeritus (History)*

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 course 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.

Bachelor of Arts Degree

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.

You 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, you may take Portuguese 102A-102B which are designed for students with a background in Spanish. An indigenous language of Latin America (i.e., Quechua) may be substituted for the minor language.

Course Limitations

You 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, you must have advanced junior standing and an overall GPA of 3.0, or senior standing.

Double Majors

Through judicious use of electives, you 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

You 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, 28 Haines Hall, (310) 825-4995.

Core Areas

You select one of three core areas as the focus of your major: arts and humanities, social sciences, or ecology and environment. Requirements for each core area are listed below.

Core I: Arts and Humanities

Preparation — 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 and Systematic Musicology 91K and World Arts and Cultures 73B.

Core Area — 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 — From the approved list, six upper division courses outside the arts and humanities core area distributed as follows: two courses in each of two core concentrations such that at least one core concentration is selected from the social sciences core (e.g., history) and at least one is developed within the ecology and environment core (e.g., geography). No more than three external breadth courses may be electives.

Approved Undergraduate Course List

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 Elite

Portuguese (Spanish and Portuguese) 130A-130B. Brazilian Literature and Identity: Introduction

C131. Colonial Brazilian Literature and Culture

C132. 19th-Century Brazilian Literature and Culture

C134. Brazilian Modernism

C135. 20th-Century Brazilian Literature

Spanish (Spanish and Portuguese) 136A-136B. Survey of Spanish-American Literature

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

170B. Senior Honors Seminar: Topics in Spanish-American Literature

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

119C. Introduction to Study of Literature: Drama

199. Special Studies

(2) Fine Arts

Art History *110G. Art and Politics in the Contemporary Americas: Latin America

C117A. Pre-Columbian Art of Mexico

C117B. Pre-Columbian Art of the Maya

C117C. Pre-Columbian Art of the Andes

118A. Arts of Oceania

Ethnomusicology and Systematic Musicology M108A-108B. Music of Latin America

M110A-M110B. The African American Musical Heritage

113. Music of Brazil

M115. Musical Aesthetics in Los Angeles

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

183. Dance in Latino American Cultures

Theory and Methods

Anthropology *118A, 118B. Museum Studies

*133R. Aesthetic Systems

Art History *199. Special Studies in Art

Ethnomusicology and Systematic Musicology *M180. Analysis of Traditional Music

*C190A-C190B. Proseminars: 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

*119C. Introduction to Study of Literature: Drama

*170C. Senior Honors Seminar: Topics in Hispanic Linguistics

Theory and Methods

Anthropology *143. Field Methods in Linguistic Anthropology

Linguistics *103. Introduction to General Phonetics

*110. Introduction to Historical Linguistics

*120A. Phonology I

*120B. Syntax I

*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 and Systematic Musicology

*M110A-M110B. The 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

*Core II: Social Sciences

Preparation — Two courses from History 8A, 8B, 8C; Latin American Studies 99 (or 197 with department consent); Economics 1 and 2, or 100; Economics 40 or Sociology 18 or Statistics 50.

Core Area — 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 — From the approved list, six upper division courses outside the social sciences core area distributed as follows: two courses in each of two core concentrations such that at least one core concentration is selected from the arts and humanities core (e.g., fine arts) and at least one is developed within the ecology and environment core (e.g., geography). No more than three external breadth courses may be electives.

Approved Undergraduate Course List

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

M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest

173Q. Latin American Communities

174P. Ethnography of South American Indians

*174Q. Ethnology of South American Indians

Sociology 186. Latin American Societies

Theory and Methods

Anthropology *115P. Archaeological Field Training

*C115R. Strategy of Archaeology

*M116Q. Dating Techniques in Environmental Sciences and Archaeology

*118A, 118B. Museum Studies

*M136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques

*138. Methods and Techniques of Ethnohistory

*139. Field Methods in Cultural Anthropology

*180. Quantitative Methods in Anthropology

*186. Models and Modeling in Anthropology

*199. Special Studies in Anthropology

Sociology *104. Introduction to Sociological Research Methods

*112. 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

*M136. Economic Models of Political Conflict and Conflict Resolution

*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 Elitology

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

197. Undergraduate Seminar: Latin America

Theory and Methods

History *199. Special Studies in History

Library and Information Science 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

163A-163B. Government and Politics in Latin America

*169A-169Z. 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

*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

*M128. Global Environment: Problems and Issues

*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 *132. Technology and Environment

*153. Evolution of Human Societies

*M154. Women in Culture and Society

*161. Development Anthropology

*167. Urban Anthropology

*M168. Health in Culture and Society

Economics *120. Introduction to Urban and Regional Economics

*121. Urban Economic Analysis

*180. Comparative Systems: Transformation of Socialist Economies

Geography *108. World Vegetation

*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

Sociology *116. Social Demography

*157. Social Stratification

*182. Political Sociology

Core III: Ecology and Environment

Preparation — Two courses from History 8A, 8B, 8C; Latin American Studies 99; Geography 5; Statistics 50.

Core Area — 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 — From the approved list, six upper division courses outside the ecology and environment core area distributed as follows: two courses in each of two core concentrations such that at least one core concentration is selected from the arts and humanities core (e.g., fine arts) and at least one is developed within the social sciences core (e.g., history). No more than three external breadth courses may be electives.

Approved Undergraduate Course List

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: Problems and Issues

*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

Biostatistics 100A, 100B, 100C. Introduction to Biostatistics

Geography *171. Quantitative Analysis

Electives

Anthropology *132. Technology and Environment

*153. Evolution of Human Societies

*167. Urban Anthropology

M168. Health in Culture and Society

Community Health Sciences *130. Nutrition and Health

Economics *120. Introduction to Urban and Regional Economics

Geography *108. World Vegetation

*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

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree**Admission**

In addition to University minimum requirements, the B.A. degree in Latin American Studies constitutes the normal basis for admission to the Master of Arts program. Applicants with a degree in another field can be admitted but must complete certain undergraduate prerequisites 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).

(5) 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 — Graduate School of Education and Information Studies (Master of Education in Curriculum); (2) Department of Library and Information Science — 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 — School of Public Policy and Social Research (Master of Arts in Urban Planning); (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 for departmental brochures to the address given at the beginning of this listing.

Areas of Study

Students are expected to develop and integrate three fields in Latin American studies, to be selected from the following: anthropology, 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-level 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 student's 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.

ulty 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

A minimum of 10 courses is required, 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.

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. The student must develop a carefully prepared proposal to be approved by the academic coordinator in consultation with the student's faculty committee chair. To be approved, the proposal must provide sound justification for the thesis plan, including provisions for funding any field research.

Once the thesis plan option has been approved, the student chooses 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 the student 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, the student must file for advancement to candidacy with the Graduate Division.

Lower Division Course

99. Introduction to Latin American Problems. 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. Advanced interdisciplinary course for upper division students. May be repeated for credit with topic change.

199. Special Studies in Latin American Studies (4 or 8 units). Prerequisite: upper division standing. 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. (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.

201. Statistical Resources for Latin American Research. Contemporary statistical materials important for research in Latin American studies. Discussion on qualitative and interpretative aspects of the material, especially as it relates to data developed for publication in Latin American Center's *Statistical Abstract of Latin America* and its Supplement Series.

205. Latin Americanist Scholarship. Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Anthropology M272.) Lecture, three hours. Prerequisite: consent of instructor. Survey of literature and research topics related to Indian cultures of South America. May be repeated for credit.

250B. Interdisciplinary Seminar: Latin American Studies. Lecture, three hours. Prerequisite: consent of instructor. Problem-oriented seminar on critical areas stressed in University's cooperative programs in Latin America.

250C. Interdisciplinary Topics in Latin American Studies. Prerequisite: consent of instructor. Reading knowledge of Spanish or Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature.

M268A-M268B. Seminars: Recent Latin American History. (Same as History M268A-M268B.) Seminar, three hours. Prerequisite: consent of instructor. 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 units). Prerequisite: 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 units). 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. Ordinarily taken only during term in which student is being examined. S/U grading.

598. Research for and Preparation of M.A. Thesis. Only four units may be applied toward the minimum graduate course requirement. S/U grading.

Approved Graduate Course List

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

219B. Pre-Columbian Art

220. Oceanic, Pre-Columbian, African, and Native North American Art

596. Directed Individual Study or Research

Ethnomusicology and Systematic Musicology

208. Seminar: Latin American Music

*290. Seminar: Ethnomusicology

596. Directed Individual Studies

Film and Television *298A-298B. Special Studies in Film and Television

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

*101A. Advanced Reading and Conversation

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
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
*M240. Culture and Human Reproduction
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
*597. Preparation for Master's Comprehensive Examinations or Doctoral Qualifying Examinations
*598. Thesis Research

Engineering *596. Directed Individual or Tutorial Studies (selected from any of the engineering departments)

*597A. Preparation for M.S. Comprehensive Examination (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

282. Rapid Epidemiologic Surveys in Developing Countries

290. Seminar: Epidemiology — Infectious and Tropical Disease

*291. Seminar: Epidemiology — Methodology

Health Services *240. Health Care Issues in International Perspective

Law *270. International Law

*271. International Business Transactions

*290A. International Environmental Law

Library and Information Science *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

Management *205A. International Business Economics

*205B. Comparative Market Structure and Competition

*205C. Business Forecasting for Foreign Economies

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

Public Health *596. Directed Individual Study or Research (selected from any of the public health departments)

Urban Planning *232A. 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

*236A. Urban and Regional Economic Development I

*236B. Urban and Regional Economic Development II

239. Special Topics in Urban and Regional Development Policy

246. Housing in Social and Economic Development Policy

266. City and Countryside in the Third World

267A. Resource-Based Development Planning

267B. Rural Development Issues

596P. Research in Planning

Social Sciences

Anthropology *214. Selected Topics in Prehistoric Civilizations of the New World

*232Q. Myth and Ritual

*M232R. South American Folklore and Mythology Studies

*260. Urban Anthropology

*M262P. Culture and Human Reproduction

M272. Indians of South America

Archaeology *259. Fieldwork in Archaeology

596. Individual Studies for Graduate Students

Economics *281A. International Trade Theory

*286A. Economic Development

*286B. Analysis and Appraisal of Development Projects

287A-287Z. Topics in Development Economics

596. Individual Study

Folklore and Mythology *200B. Folklore Collecting and Field Research

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

281. Middle America

282. South America

*292. Advanced Regional Geography: Selected Regions

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 *C227. Foreign Policy Process

230. Contending Perspectives on International Political Economy

*231. Markets, States, and International Political Economy

*C239. Selected Topics in International Relations

240. Comparative Politics

C244. Latin American Studies

255. Seminar: Political Change

*259. Selected Topics in Comparative Politics

Sociology *235. Theories of Ethnicity

*259. Social Structure and Economic Change: Historical and Comparative Perspectives

*263. Social Stratification

285C. Special Topics in Sociology: Race Relations in Brazil

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Therese Maynard, J.D.

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 which 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

Juris Doctor Degree**Admission**

Students beginning their professional work are admitted only for the Fall Semester. You must have received a bachelor's degree from a university or college of approved standing before beginning work in the school. You are also required to take the Law School Admission Test (LSAT). The admissions committee considers grades and test scores and, in appropriate cases, such additional factors as ability in lan-

guages other than English, work experience or career achievement, previous positions of leadership or other special achievements, ethnic background, prior community or public service, unusual life experiences, overcoming a physical disability or other disadvantage, career goals, economic disadvantages, and any other characteristic which may indicate that you will contribute to the educational and other benefits of a diversified student body.

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 may be obtained from the *Announcement 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. In conjunction with these courses students also receive training in the use of legal bibliography and in effective legal writing and oral advocacy.

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 three concurrent degree programs which allow you to fulfill the requirements of the J.D. and another graduate degree simultaneously.

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.

M.A. Urban Planning/J.D.

The School of Law and the Department of Urban Planning 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.

Students interested in the program must apply and be admitted to the School of Law, the Urban Planning Department, and the Graduate Division.

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 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. Students interested in such a program should apply to both schools simultaneously.

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 Rita Saavedra, LL.M. Program, School of Law, 1242 Law, UCLA, Los Angeles, CA 90095-1476, for further information.

Lower Division Course

88. Lower Division Seminar: Special Topics in Law. 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.

LIBRARY AND INFORMATION SCIENCE

Graduate School of Education and Information Studies

Office of Student Services:
UCLA
1009 Moore Hall
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Professors

Marcia J. Bates, Ph.D., *Chair*
Christine L. Borgman, Ph.D.
Beverly P. Lynch, Ph.D.

Professors Emeriti

Page Ackerman, B.A., B.S.L.S.
Harold Borko, Ph.D.
Robert M. Hayes, Ph.D.
Seymour Lubetzky, M.A., LL.D.
Lawrence Clark Powell, Ph.D., Litt.D., L.H.D., H.H.D.
Russell Shank, D.L.S.
Elaine Svenonius, Ph.D.
Diana M. Thomas, Ph.D.
Raymund F. Wood, Ph.D.

Associate Professors

Mary Niles Maack, D.L.S.
John V. Richardson, Ph.D.

Assistant Professors

Clara Chu, Ph.D.
Michele Cloonan, Ph.D.
Eftimis N. Eftimiadis, Ph.D.
Gregory H. Leazer, D.L.S.
Virginia A. Walter, Ph.D.

Lecturers

Dorothy J. Anderson, Ph.D.
Sidney Berger, Ph.D.
Barbara Booth, M.L.S.
Keri Botello, M.L.S.
David Deckelbaum, M.L.S.
Leon Ferder, Ph.D.
Vivian Hay, Ph.D.
Bethany Johnson, M.L.S.

William Joyce, Ph.D.
Joan Kaplowitz, Ph.D.
Donald Kraft, Ph.D.
Penny Markey, M.S.L.S.
Susan McGlamery, J.D.
Nancy O'Neill, M.L.S.
Mary I. Purucker, M.L.S.
Marcia Reed, M.L.S.
Rita Scherrei, Ph.D.
Martha Yee, M.L.S., Ph.D.
Elizabeth R. Baughman, M.L.S., M.A., *Senior Emerita*
Elizabeth R. Eisenbach, M.L.S., *Senior Emerita*
Larry Lauerhass, Ph.D., *Emeritus*

Adjunct and Visiting Professors

Nicolas Barker, M.A., *Visiting*
Zorana Ercegovic, Ph.D., *Adjunct*

Scope and Objectives

The Department of Library and Information Science 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 will graduate with a broad understanding of both theory and practice.

Applicants may write to the Department of Library and Information Science, 1009 Moore Hall, UCLA, Los Angeles, CA 90095-1521, for the department's announcement and application materials.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

Admission

Students are admitted to the Master of Library and Information Science (M.L.I.S.) program in Fall Quarter only. In addition to Graduate Division requirements and application procedures, the school 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.

Cooperative Degree Programs

To participate in a cooperative program, the student 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.L.I.S./M.A. History

The M.L.I.S./M.A. History is a concurrent degree program of the Department of Library and Information Science and the Department of History. The student 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.L.I.S./M.A. Latin American Studies

The M.L.I.S./M.A. Latin American Studies is an articulated degree program of the Department of Library and Information Science and the Latin American Studies Program. The student can obtain two degrees: the M.L.I.S. and the M.A. in Latin American Studies.

M.L.I.S./M.B.A.

The M.L.I.S./M.B.A. is a concurrent degree program jointly sponsored by the Department of Library and Information Science and the John E. Anderson Graduate School of Management. This specialization is designed to provide an integrated set of courses for students who seek careers which 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 (Library and Information Science 200, 201, 203, 220, 441) and at least one graduate-level research methodology course (such as Library and Information Science 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 specialized competence 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, the student 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; only four units may be applied toward the minimum requirements of the Graduate Division. In order to enroll in any S/U graded course, including 500-series courses, the student must be in good academic standing.

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. The student may sit for the written examination after completion of three quarters of academic residency provided that (1) all outstanding entrance requirements are satisfied, (2) the student has 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) the student is in good academic standing.

Specialization Component. A major paper produced in an elective course, normally in the student's area of specialization, is required. A grade of B or better must be earned in this course. The same course may not be used to satisfy both the paper and the research methods requirement.

Thesis Plan

None.

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.S. or M.L.I.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 but for 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 enroll-

ment 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 a student is 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 Library and Information Science 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 course 596. The specialization paper or project is required even if the student has an advanced academic degree in which a thesis or dissertation was required, and the paper or project must be approved by the faculty adviser.

Doctoral Degree

Admission

Students are admitted in Fall Quarter only. They may enter with the M.L.S. or M.L.I.S. degree, other advanced degree, or directly out of the B.A. degree. If the prior graduate degree does not include coursework equivalent to the core identified for the M.L.I.S. program, the applicant 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: information storage and retrieval systems; information seeking and use; policies and issues in library and information science.

The department strictly limits the specific subfields which are accepted for doctoral work.

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 six required core courses are Library and Information Science 200, 201, 203, 220, 441, and a basic course in research methods (e.g., Library and Information Science 290 or Education 210A). Courses taken in a previously completed American Library Association-accredited M.L.S. or M.L.I.S. program may be applied to this requirement, up to the entire six.

Specialization Courses. Three to six specialization courses are required. At least one course relevant to each of the three broad doctoral examination areas must be completed. The number of courses required is determined after examination of the student's transcripts.

Methods Courses. Three methods courses are required. A minimum of two first tier and one second tier research methods courses offered by the Department of Education is required. If Library and Information Science 290 is taken to satisfy the core, it cannot count toward the fulfillment of this first tier requirement.

Doctoral Seminars. Three doctoral seminars are required. Having completed the core, students are required to take a doctoral seminar in each area of the written qualifying examination (Library and Information Science 273, 274, 275).

Advanced Doctoral Courses. Additional advanced courses are taken related to the student's dissertation interests. These may include advanced methodology courses, independent studies, or cognate courses in other fields.

Written and Oral Qualifying Examinations

The student is required to pass written qualifying examinations in each of the three areas of study listed above, including coverage of the historical as well as technical aspects in at least one of the areas. These are scheduled during one week in a quarter. If the student fails one of the sections of the three-part examination, it may be repeated. If the student fails two sections, the entire examination must be repeated.

After passing the written examinations, the student is required to pass the University Oral Qualifying Examination, which is based on the dissertation proposal.

The student is encouraged to start work on the proposal while taking courses in preparation for the written qualifying examinations. The proposal should, in most cases, 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.

Having passed the oral qualifying examination, the student may proceed to carry out the research and writing of the dissertation.

Upper Division Courses

Courses 110 and 140 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.

100. Perspectives on Literacy. Lecture, two hours; discussion, two hours. Prerequisite: sophomore standing. 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.

110. Information Resources and Libraries. Prerequisite: sophomore standing or consent of instructor. 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).

111A-M111E. Ethnic Groups and Their Bibliographies. Introduction to bibliographical and research tools and methods for students with interests in ethnic groups. **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.) Sections on other ethnic groups may be added. Offered in collaboration with the several centers for ethnic studies. May not be repeated for credit.

Graduate Courses

Upper division undergraduate students must obtain consent of the 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 Department of Library and Information Science also must obtain consent of the instructor prior to enrolling.

The following courses are offered infrequently: 230, 241, 246, 284, 287, 466, 486.

200. Information in Society. 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. S/U grading.

201. Information Structures. 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.

M202. Folklore Archiving. (Same as Folklore M202.) Lecture, two hours; laboratory, two hours. Exploration and analysis of alternative data indexing, storage, and retrieval systems and procedures for folklore archival collections, supplemented by firsthand experience in creating and managing databases, utilizing both manual and computerized techniques.

203. Design of Library and Information Services. 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.

205. Historical Methodology of Library and Information Science. Prerequisite: 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.

207. International Issues and Comparative Research in Library and Information Science. 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.

210. Seminar: Descriptive and Bibliographical Cataloging. Prerequisites: courses 410, 411, or equivalent. Specialized studies in selected areas of descriptive and bibliographical cataloging (e.g., purposes, principles, instructional development, potentialities of automation). May be repeated once.

211. Seminar: Subject Control of Library Materials. Prerequisites: courses 410, 411, or equivalent. Study of selected problems in design and use of verbal subject headings and classification systems. Manual and mechanized systems. May be repeated once.

220. Information Access. Prerequisites: 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.

221. Bibliography of Science and Engineering. Prerequisite: 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.

222. Bibliography of the Health and Life Sciences. Prerequisite: 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.

223. Literature of the Social Sciences. Prerequisite: 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.

224. Literature of the Humanities and Fine Arts. Prerequisite: 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.

M225. Latin American Research Resources. (Same as History M265 and Latin American Studies M200.) 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.

226. General Reference Work. Prerequisite: 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.

M229B. Africana Bibliography and Research Methods. (Same as African Area 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.

M229C. Introduction to Slavic Bibliography (2 units). (Same as Slavic M229.) Prerequisite: consent of instructor. 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. Prerequisite: 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.

240. Principles of Information Systems Analysis and Design. Theories and principles of special systems development, including determination of requirements, technical design and evaluation, and internal organization.

241. Measurement and Evaluation of Information Systems and Services. Prerequisite: 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.

242. Information Retrieval Systems. Prerequisites: courses 201, 220. Survey of methods of file organization, retrieval techniques, and search strategies in control of information in computerized form.

243. Human/Computer Interaction. Prerequisites: one programming course and 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.

245. Database Management Systems. Theories, principles, and practicalities of database systems, including data models, retrieval mechanisms, evaluation methods, and storage, efficiency, and security considerations.

246. Social Aspects of Information-Oriented Society. 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.

247. User-Centered Design of Information Retrieval Systems. Lecture, two hours; discussion, two hours. Prerequisites: courses 201 and 220, or consent of instructor. 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.

249. Seminar: Special Topics in Information Science. Prerequisites: courses 200, 201, and at least one from 242, 243, 247, 280, or 405, or consent of instructor. 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.

253. Contemporary Children's Literature. 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.

260. Historical Bibliography. Prerequisites: courses 200 and 402, or consent of instructor. 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.

261. Analytical Bibliography. The book as a physical object and its relationship to transmission of the text. History and methods of analytical bibliography, with particular emphasis on handpress books.

271. Seminar: Intellectual Freedom and Information Policy Issues. Investigation of concept of intellectual freedom, information policy issues, civil liberties and civil rights, censorship, and other restraints on access to information. S/U grading.

272. Research Seminar: Library and Information Science. Prerequisite: doctoral standing or consent of instructor. 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. Prerequisite: doctoral standing or consent of instructor. 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.

274. Doctoral Seminar: Policies and Issues in Library and Information Science. Prerequisite: doctoral standing or consent of instructor. Examination of social, political, and economic influences in development of library and information science and management of information organizations and resources.

275. Doctoral Seminar: Information Seeking and Use. Prerequisite: doctoral standing or consent of instructor. 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.

280. Information-Seeking Behavior. 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.

281. Information Resources for Business. Prerequisite: course 220 or consent of instructor. 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.

283. Legal Research and Bibliography. (Formerly numbered 228.) 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.

284. Seminar: Legal Informatics. (Formerly numbered 487C.) 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.

285. Scholarly Communication and Bibliometrics. (Formerly numbered 487A.) Prerequisite: 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.

286. Seminar: Information Access. Prerequisites: course 220, one from 221, 223, 224, 226, 281, 283, 425, 473. Discussion of policies and issues related to basic and advanced reference materials, reference process, and psychological aspects of inquirers and expert reference librarians.

287. Seminar: Special Issues in Library and Information Science (2 to 4 units). (Formerly numbered 487D.) 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.

289. Information Services in Culturally Diverse Communities. 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.

290. Research Methodology. Prerequisite: consent of instructor. Role of research in bibliography, librarianship, and information science. Identification and design of research problems. Historical, statistical, analytical, and descriptive techniques.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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.

402. Fundamentals of Bibliography. Prerequisite: 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).

405. Automation of Library Processes. 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.

410. Descriptive Cataloging. Entry and description of library materials. Constitution, structure, and form of the library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application.

411. Introduction to Subject Access: Alphabetic-Subject and Systematic Indexing. Lecture/discussion. Prerequisite: 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.

412. Cataloging and Classification of Nonbook Materials. Prerequisites: 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.

414. Indexing and Thesaurus Construction. (Formerly numbered 413, 414.) 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.

425. Computer-Based Information Resources (On-Line Searching). Prerequisite: course 220 or consent of instructor. 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.

426. User Education/Bibliographic Instruction: Theory and Technique. 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.

429. Printing for Bibliographers. Prerequisites: course 260 or 261, consent of instructor. Printing processes as related to bibliography and librarianship. Discussions, demonstrations, and experiments in design, composition, and presswork, with special emphasis on the 19th-century handpress. S/U grading.

430. Collection Development and Acquisition of Library Materials. 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.

441. Management Theory and Practice for Information Professionals. Lecture, two hours; discussion, two hours. Principles and practice of management in all types of organizations where information professionals work.

442. Library Personnel Administration. 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.

446. Library Services and Literature for Youth. 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.

461. College, University, and Research Libraries. 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.

463. Public Libraries. Government, organization, and administration of municipal, county, and regional public libraries; developments in changing patterns of public library service.

465. Library Services and Programs for Children. 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.

466. Storytelling. Lecture, two hours; demonstration, two hours. Theory and practice of telling stories to children and adults in public and school libraries. S/U grading.

470. Special Libraries and Information Centers. 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.

471. Health and Life Sciences Libraries. Prerequisite 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.

473. Government Information. 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.

485. American Archives and Manuscripts. Prerequisite: consent of instructor. 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.

486. Issues and Problems in Preservation of Library Materials. Introduction to fields of library conservation and preservation, with emphasis on preservation administration.

487A-487Z. Special Studies in Library and Information Science (2 to 4 units each). Examination of specialized topics of professional interest. Topics and units vary according to subject and may include conservation of materials, business information sources, problems in library management, current issues in cataloging, etc.

491. Interpersonal Communication Issues in Library Systems. 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 grading.

497. Fieldwork in Libraries or Information Organizations (4 or 8 units). 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 grading.

498. Internship. Prerequisite: consent of internship coordinator. Supervised professional training in a library or information center approved by internship coordinator. Minimum of 120 hours per term. May be repeated twice. S/U grading.

596. Directed Individual Study or Research (2 to 8 units). Prerequisite: consent of instructor. 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 grading.

597. Directed Studies for Ph.D. Qualifying Examinations (2 to 12 units). S/U grading.

599. Ph.D. Research and Writing (2 to 12 units). S/U grading.

LIFE SCIENCES

College of Letters and Science

UCLA
2103 Life Sciences
Box 951606
Los Angeles, CA 90095-1606
(310) 825-6614

Lower Division Courses

There is no major in life sciences; however, the following courses are part of the life sciences core curriculum.

1. Evolution, Ecology, and Biodiversity. Lecture, three hours; demonstration, two hours; outside study, seven hours. Not open for credit to students with credit for Biology 6 or former Biology 5. 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.

2. Cells, Tissues, and Organs. Lecture, three hours; discussion, 90 minutes; outside study, seven and one-half hours. Introduction to basic principles of cell structure, organization of cells into tissues and organs, and principles of organ systems, providing cellular framework for courses 3, 4, and Chemistry 153A.

3. Introduction to Molecular Biology. Lecture, three hours; discussion, 90 minutes; outside study, seven and one-half hours. Enforced requisites: course 2, Chemistry 11B, 132A (may be taken concurrently). Not open for credit to students with credit for Biology 100A or former Biology 9. Introduction to basic principles of biochemistry and molecular biology.

4. Genetics. Lecture, three hours; discussion, 90 minutes; outside study, seven and one-half hours. Enforced requisite: course 3. Not open for credit to students with credit for former Biology 108. 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.

LINGUISTICS

College of Letters and Science

UCLA
3125 Campbell Hall
Box 951543
Los Angeles, CA 90095-1543
(310) 825-0634
fax: (310) 206-5743
e-mail: linguist@humnet.ucla.edu

Professors

Raimo A. Anttila, Ph.D. (*Indo-European and General Linguistics*)
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.
Pamela L. Munro, Ph.D.
Russell G. Schuh, Ph.D. (*Linguistics, African Languages*)
Donca Steriade, Ph.D.
Robert P. Stockwell, Ph.D.
Anna Szabolcsi, Ph.D.
George D. Bedell, Ph.D., *Emeritus*
William O. Bright, Ph.D., *Emeritus*
Victoria A. Fromkin, Ph.D., *Emerita*
Mazisi R. Kunene, Ph.D., *Emeritus*
Peter N. Ladefoged, Ph.D., *Emeritus*
Paul M. Schachter, Ph.D., *Emeritus*

Associate Professors

Hilda J. Koopman, Ph.D. (*Linguistics, African Languages*)
Dominique L. Sportiche, Ph.D. (*French, General Linguistics*)
Edward P. Stabler, Ph.D.
Timothy A. Stowell, Ph.D., *Chair*

Assistant Professors

Sun-Ah Jun, Ph.D.
Anoop Mahajan, 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.

In a recent survey conducted by the Conference Board of the Associated Research Councils, UCLA's Linguistics Department was judged second best in the nation in the quality of its faculty. 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.

Bachelor of Arts in Linguistics

This major is designed for students with an exceptional interest in and aptitude for the study of languages and linguistics. It enables the undergraduate 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, 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.

If you complete an advanced language course, you are considered to have completed the equivalent of whatever courses are prerequisite to that one (e.g., if you complete French 100, you have automatically satisfied the requirement of the sixth term of work in one language). You 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 (you may substitute courses 200A and 200B for 165A and 165B respectively if you 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 listed below. Electives have generally been selected from the following list (courses not on the list may be used as electives only in consultation with an adviser): Linguistics 104, 114, M115, 125, 127, C130, C135, 140, M146, M150, 160, 165A (or 200A for qualified students), 165B (or 200B for qualified students), 170, 175, M176A, C180, C185A, C185B, 195, 196A, 196B, 199 (if four units), African Languages M190, Anthropology 143, English 121, 122, Philosophy 127A, 127B, 172, Psychology 122, 123, or upper division courses in a foreign language beyond the sixth term. Not all of these elective courses are necessarily given every year; consult an adviser regarding electives to be offered in a given year.

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, you must consult with the department's senior essay and honors counselor.

Specialization in Computing

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. You graduate with a bachelor's degree in your major and a specialization in computing.

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.

Bachelor of Arts in Linguistics and Anthropology

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, 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.

Bachelor of Arts in Linguistics and Computer Science

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.

Bachelor of Arts in Linguistics and East Asian Languages and Cultures

Preparation for the Major

Required: Completion of the sixth term in either Chinese or Japanese; Linguistics 20, Philosophy 31; one cultural anthropology course; either Chinese 50 or Japanese 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, 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, four courses from 101A, 101B, 101C, 130A, 130B.

Bachelor of Arts in Linguistics and English

Preparation for the Major

Required: Linguistics 20, English 3, 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, 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).

Bachelor of Arts in Linguistics and French

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 lin-

guistics, French 100, 101, 102, 103, 105, 107, and two elective upper division French literature courses.

Bachelor of Arts in Linguistics and Italian

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.

Bachelor of Arts in Linguistics and Philosophy

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.

Bachelor of Arts in Linguistics and Psychology

Preparation for the Major

Required: Linguistics 20, Psychology 10, 41, 42, 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: Twelve upper division courses as follows: Linguistics 103, 120A, 120B, 130, two upper division electives in linguistics, Psychology 110, 120, 121, 123, 130, and an elective to be selected from 112A, 112B, 112C, 115, 116, 124B, 135. Linguistics 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) and Psychology 115 are strongly recommended.

Bachelor of Arts in Linguistics and Scandinavian Languages

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, 30, 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, Scandinavian 105 and 106, or 110 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.

Bachelor of Arts in Linguistics and Spanish

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.

Bachelor of Arts in African Languages

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 Folklore M155, French 121A, Film and Television 106C, 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 and Systematic Musicology 136A, 136B, Geography 189, History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, Linguistics 110, 120A, 120B or 127, 140, M146, 170, Political Science

166A, 166B, 166C. 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see Program Requirements for UCLA Graduate Degrees available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Students are normally admitted to begin residence in the Fall Quarter only (exceptions may be made by the chair). The deadline for submission of applications for the Fall Quarter is December 15 of the previous year. This deadline may occasionally be extended for applicants who do not wish to be considered for fellowship support.

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' qualifications. Scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) must be submitted with the application. 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 prerequisite to graduate courses in the corresponding areas. At the time of admission, the applicant is 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.

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. All first-year graduate students must take courses 411A-411B, and all second-year students who have not yet been admitted to the Ph.D. program must take course 444.

The following undergraduate courses or the equivalent are prerequisite 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 prerequisite 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 prerequisite 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, the student 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, the student submits a thesis based on original research to a thesis committee for approval. If the student proceeds 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 the student expects 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 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 the applicant has 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 mas-

ter'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 courses 275, 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, the student is required to prepare two original 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. The student is expected to take the examination and be advanced to candidacy no later than six quarters after being admitted to the doctoral program.

General Linguistics

Lower Division Courses

1. Introduction to Study of Language. 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. 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. 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. (Formerly numbered 100.) 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. 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 units). Supervised research or training. May be repeated for credit. P/NP or letter grading.

Upper Division Courses

103. Introduction to General Phonetics. Lecture, three hours; laboratory, two hours. Prerequisite: 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. Lecture, four hours; discussion, one hour. Prerequisite: course 103. Survey of principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena.

110. Introduction to Historical Linguistics. Prerequisites: 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.

114. American Indian Linguistics. Strongly recommended (but not prerequisite): 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. (Same as African Languages M190.) Prerequisite: 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. Prerequisites: 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. Prerequisite: course 20. Course 120A is not prerequisite 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. Lecture, four hours; discussion, one hour. Prerequisite: course 120B. Survey of most important theoretical and descriptive claims about the nature of meaning.

127. Syntactic Typology and Universals. Prerequisite: 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. (Formerly numbered 130.) Lecture, four hours; discussion, one hour. Prerequisites: courses 20, 120A, and 120B, or consent of instructor. 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.

132. Introduction to Psycholinguistics. Prerequisites: 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.

C135. Neurolinguistics. Prerequisites: courses 1 or 20, and C130, or consent of instructor. 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. Prerequisites: 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. (Same as Anthropology M140.) Prerequisite: upper division standing or consent of instructor. 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.

M150. Introduction to Indo-European Linguistics. (Same as Indo-European Studies M150.) Prerequisites: 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 units). Discussion, four hours; individual or group sessions, one to two hours. Prerequisites: 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. Prerequisite: 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. Prerequisite: 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. Prerequisite: course 20 or consent of instructor. Study of patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies.

175. Linguistic Change in English. Prerequisites: 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. (Same as Japanese CM122.) Lecture, three hours. Prerequisites: Japanese 120 or equivalent or consent of instructor, two years of Japanese. 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. (Same as Japanese CM123.) Lecture, three hours. Prerequisite: two or more years of Japanese language study or consent of instructor. 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. (Same as Korean CM120.) Lecture, three hours. Prerequisites: 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. (Same as Japanese CM127 and Korean CM127.) Lecture, three hours. Prerequisites: 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. Prerequisites: courses 120A, 120B, 165B/200B (may be taken concurrently). Prior mathematics knowledge not assumed. Introduction to selected topics in set theory, logic and formal systems, modern algebra, and automata theory, with elementary applications to linguistics. Topics vary each term. Concurrently scheduled with course C208.

C185A. Natural Language Processing I. Prerequisites: 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. Natural Language Processing II. Prerequisite: course C185A/C209A or consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisites: 3.5 GPA, course 165A/200A or 165B/200B (may be taken concurrently). Recommended (but not required): 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 units). Prerequisite: 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. Prerequisite: course 1 or 20 or consent of instructor. 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 units). Prerequisites: courses 120A, 120B, consent of instructor. May be repeated for credit.

Graduate Courses

200A. Phonological Theory I. Prerequisite: graduate standing in linguistics 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. Prerequisite: graduate standing in linguistics 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. Prerequisite: 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. Prerequisites: courses 110, 200A, 200B. Survey of current theories and research problems in language change.

203. Phonetic Theory. Prerequisite: course 120A. Preliminaries to speech analysis. Functional anatomy of vocal organs; fundamental principles of acoustics and of acoustic theory of speech production; issues in perception of speech; nature and design of feature systems for phonetic and phonological analysis.

204. Experimental Phonetics. Prerequisite: course 103 or equivalent. 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. Prerequisites: 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. Prerequisite: course 200B or consent of instructor. 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. Prerequisite: course C180/C208 or equivalent. 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. Prerequisites: courses 120A, 120B, 165B/200B (may be taken concurrently). Prior mathematics knowledge not assumed. Introduction to selected topics in set theory, logic and formal systems, modern algebra, and automata theory, with elementary applications to linguistics. Topics vary each term. Concurrently scheduled with course C180. Graduate students expected to complete additional problem sets.

C209A. Natural Language Processing I. Prerequisites: courses J20B, 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. Natural Language Processing II. Prerequisite: course C185A/C209A or consent of instructor. 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 units). Prerequisites: courses 200A, 200B, grade of B or better in course 103 or in examination on practical phonetics. 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 units). Prerequisite: 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.

212. Learnability Theory. Prerequisite: course C180/C208 or consent of instructor. 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. (Formerly numbered 213.) Prerequisites: 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. Prerequisites: 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.

214. Survey of Current Syntactic Theories. Prerequisite: 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. Prerequisite: 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 agreement systems, agreement systems, deixis systems, and types of sentence complements.

216. Syntactic Theory III. Prerequisite: course 206 or consent of instructor. 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. Prerequisite: course C180/C208 or consent of instructor. Applications of automata and formal language theory to natural language: Chomsky hierarchy; whether natural languages are finite state, context free, context sensitive; categorial grammar, indexed grammar, ID/LP grammar, tree adjoining grammar, feature systems, languages as models of first-order theories.

220. Linguistic Areas. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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.

C233. Language Development. Lecture, four hours; discussion, one hour. Prerequisites: courses 20, 120A, and 120B, or consent of instructor. 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. Prerequisites: courses 1 or 20, and C130, or consent of instructor. 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.

M246C. Topics in Linguistic Anthropology. (Same as Anthropology M241.) Prerequisite: consent of instructor. Problems in relations of language, culture, and society. May be repeated for credit.

Proseminars numbered 251 through 254 may be taken for either two or four units. If a proseminar is taken for four units, a paper is required. Proseminars and seminars numbered 251 and above may be repeated for credit, having been approved by the Graduate Council as nonrepetitive in content.

251. Topics in Phonetics and Phonology I: Proseminar (2 or 4 units). Lecture, four hours. Prerequisite: 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 when taken for two units. Meets with course 256A. May be repeated for credit. S/U (two-unit course) or letter (four-unit course) grading.

252. Topics in Syntax and Semantics I: Proseminar (2 or 4 units). Lecture, four hours. Prerequisite: 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 when taken for two units. Meets with course 257A. May be repeated for credit. S/U (two-unit course) or letter (four-unit course) grading.

253. Topics in Language Variation I: Proseminar (2 or 4 units). Prerequisite: course 110. Course 202 may be required. Specialized topics in language variation. May not be applied toward M.A. or Ph.D. degree requirements when taken for two units. Meets with course 258A. May be repeated for credit. S/U (two-unit course) or letter (four-unit course) grading.

254. Topics in Linguistics I: Proseminar (2 or 4 units). Lecture, four hours. Prerequisites: courses 200A, 200B, consent of instructor. 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 not be applied toward M.A. or Ph.D. degree requirements when taken for two units. Meets with course 259A. May be repeated for credit. S/U (two-unit course) or letter (four-unit course) grading.

256A. Topics in Phonetics and Phonology II: Proseminar. Prerequisite: 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 units). Prerequisite: course 256A. Specialized topics in phonetics and phonology. May be repeated for credit.

257A. Topics in Syntax and Semantics II: Proseminar. Prerequisite: 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 units). Prerequisite: course 257A. Specialized topics in syntax and semantics. May be repeated for credit.

258A. Topics in Language Variation II: Proseminar. Prerequisite: 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 units). Prerequisite: course 258A. Specialized topics in language variation. May be repeated for credit.

259A. Topics in Linguistics II: Proseminar. Prerequisites: courses 200A, 200B, consent of instructor. 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 units). Prerequisite: 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.

Seminars numbered 260A through 264C may be taken for either two or four units. If a seminar is taken for four units, an oral presentation is required. Seminars may be taken for two units credit only by students who have been formally admitted to the doctoral program. All others must enroll for four units.

260A-260B-260C. Seminars: Phonetics (2 or 4 units each). Discussion, three hours. Prerequisite: consent of instructor. 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 units each). Discussion, three hours. Prerequisite: consent of instructor. 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 units each). Discussion, three hours. Prerequisite: consent of instructor. 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 units each). Discussion, three hours. Prerequisite: consent of instructor. 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 units each). Discussion, three hours. Prerequisite: consent of instructor. 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. Prerequisite: 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). Prerequisite: graduate standing. Same as course 275, but taken without credit by students not presenting a colloquium. S/U grading.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 unit). 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 units each). Prerequisite: graduate standing. Sequence of lectures by department faculty to acquaint new graduate students with research directions and resources of department and elsewhere on campus. May not be applied toward M.A. or Ph.D. degree requirements. S/U grading.

422. Practicum: Phonetic Data Analysis (2 units). Prerequisite: graduate standing. 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. 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 units). Prerequisite: graduate standing. 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 units). Prerequisite: 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 units). Prerequisite: 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 units). Prerequisite: 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 units). Prerequisite: at least six graduate courses in linguistics. 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 units). Prerequisite: consent of guidance committee chair. 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 units). Prerequisite: 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. 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. Enforced requisite: course 1C. Course 2A is enforced requisite to 2B, which is enforced requisite to 2C.

7A-7B-7C. Elementary Zulu. 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. Enforced requisite: course 7C. Course 8A is enforced requisite to 8B, which is enforced requisite to 8C.

11A-11B-11C. Elementary Yoruba. 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. Enforced requisite: course 11C. Course 12A is enforced requisite to 12B, which is enforced requisite to 12C.

31A-31B-31C. Elementary Bambara. 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 (Maliinke), Dyula, and other mutually intelligible dialects.

32A-32B-32C. Intermediate Bambara. Enforced requisite: course 31C. Course 32A is enforced requisite to 32B, which is enforced requisite to 32C.

41A-41B-41C. Elementary Hausa. 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. Enforced requisite: course 41C. Course 42A is enforced requisite to 42B, which is enforced requisite to 42C.

51A-51B-51C. Elementary Amharic. 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. 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.

61A-61B-61C. Elementary Wolof. 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. Enforced requisite: course 61C. Course 62A is enforced requisite to 62B, which is enforced requisite to 62C. P/NP or letter grading.

97. Elementary and Intermediate Studies in African Languages (1 to 6 units). 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. Prerequisite: course 2C. Course 103A is prerequisite to 103B, which is prerequisite to 103C. Readings in Swahili literature and the contemporary press. Discussions mainly in Swahili.

109A-109B-109C. Advanced Zulu. Lecture, five hours; outside study, seven hours. Prerequisite: course 8C. Course 109A is prerequisite to 109B, which is prerequisite to 109C. Readings in Zulu literature and the contemporary press. Discussions mainly in Zulu.

123A-123B-123C. Advanced Yoruba. Prerequisite: course 12C. Course 123A is prerequisite to 123B, which is prerequisite to 123C. Readings in Yoruba literature and the contemporary press. Discussions mainly in Yoruba.

133A-133B-133C. Advanced Bambara. Prerequisite: course 32C. Course 133A is prerequisite to 133B, which is prerequisite to 133C. Readings in Bambara literature and the contemporary press. Discussions mainly in Bambara.

143A-143B-143C. Advanced Hausa. Prerequisite: course 42C. Course 143A is prerequisite to 143B, which is prerequisite to 143C. Readings in Hausa literature and the contemporary press. Discussions mainly in Hausa.

153A-153B-153C. Advanced Amharic. Lecture, five hours (15 hours for intensive course). Prerequisite: course 52C. Course 153A is prerequisite to 153B, which is prerequisite 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. (Formerly numbered 190.) (Same as Linguistics M115.) Prerequisite: 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 units). Prerequisite: consent of instructor. 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. Prerequisites: 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 units). 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

18A-18B-18C. Elementary Quechua. 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. Prerequisite: course 18C. Course 119A is prerequisite to 119B, which is prerequisite to 119C. Readings in Quechua. Dialectal and stylistic variation. Discussions mainly in Quechua.

Graduate Course

596. Directed Studies in Quechua (1 to 8 units). Prerequisites: courses 119A-119B-119C or consent of instructor. 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 in Other Departments (Other than Language Courses)

Anthropology 143. Field Methods in Linguistic Anthropology

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

French 210A. Phonology and Morphology from Vulgar Latin to French Classicism

210B. Syntax and Semantics from Vulgar Latin to French Classicism

German (Germanic Languages) 129. 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 the 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

266. Russian Lexicology

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

262A-262B. West Slavic Linguistics

263A-263B. South Slavic Linguistics

281. Seminar: Slavic Linguistics

282. Seminar: Structural Analysis

Slovak (Slavic Languages) 222. Structure of Slovak

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

Teaching English as a Second Language and Applied Linguistics 241. Interlanguage Analysis

260. Psycholinguistics and Language Teaching

Turkic Languages (Near Eastern Languages) 230A-230B-230C. Historical and Comparative Survey of Turkic Languages

MANAGEMENT

John E. Anderson Graduate School of Management

UCLA
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Los Angeles, CA 90095-1481
(310) 825-6121

Professors

Robert B. Andrews, Ph.D. (*Operations and Technology Management*)

Michael J. Brennan, Ph.D. (*Finance; Goldyne and Irwin Hearsh Professor of Money and Banking*)

John W. Buckley, Ph.D. (*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. Cordner Professor of Money and Financial Markets*)

José de la Torre, D.B.A. (*Policy 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*)

Glenn W. Graves, Ph.D. (*Decision Sciences*)

Martin Greenberger, Ph.D. (*IBM Professor of Computers and Information Systems*)

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*)

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Archie Klingartner, 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*), Associate Dean

Bennet P. Lientz, Ph.D. (*Information Systems*)

Steven A. Lippman, Ph.D. (*Decision Sciences*)

James B. MacQueen, Ph.D. (*Decision Sciences*)

John W. Mamer, Ph.D. (*Decision Sciences*), Associate Dean and Chair

John J. McDonough, D.B.A. (*Human Resources/Organizational Behavior, Accounting*), Vice Chair

Bill McKelvey, Ph.D. (*Policy and Organization*)

Bruce L. Miller, Ph.D. (*Accounting*)

Daniel J.B. Mitchell, Ph.D. (*Human Resources/Organizational Behavior*)

Donald G. Morrison, Ph.D. (*Marketing; William E. Leonhard Professor of Management*), Assistant Dean

William G. Ouchi, D.Litt., Ph.D. (*Policy and Organization*)

William P. Pierskalla, Ph.D. (*John E. Anderson Professor of Management*), Dean

Anthony P. Raia, Ph.D. (*Human Resources/Organizational Behavior*)

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Rakesh K. Sarin, Ph.D. (*Operations and Technology Management; Paine Professor of Management*)

Hans Schöllhammer, D.B.A. (*Policy and Organization*)
 Eduardo S. Schwartz, Ph.D. (*Finance; California
 Professor of Real Estate and Land Economics*)
 Carol A. Scott, Ph.D. (*Marketing*)
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 J. Fred Weston, Ph.D. (*Business Economics, Finance;
 Warren C. Corder Professor Emeritus of Money
 and Financial Markets*)
 Harold M. Williams, J.D.
 James Q. Wilson, Ph.D. (*Policy and Organization;
 James A. Collins Professor of Management*)

Professors Emeriti

William F. Brown, Ph.D.
 Elwood S. Buffa, Ph.D.
 Joseph D. Carrabino, Ph.D., P.E.
 Fred E. Case, D.B.A.
 Louis E. Davis, M.S.
 David K. Eiteman, Ph.D.
 Walter A. Fogel, Ph.D.
 Alfred E. Hofflander, Ph.D.
 James R. Jackson, Ph.D.
 Raymond J. Jessen, Ph.D.
 Harold H. Kassarijan, Ph.D.
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 J. Clayburn La Force, Ph.D., *Dean Emeritus*
 Robert Hal Mason, Ph.D.
 Fred Massarik, Ph.D.
 Frederic Meyers, Ph.D.
 Frank G. Mittelbach, M.A.
 Rosser T. Nelson, Ph.D.
 Alfred Nicols, Ph.D.
 Frank E. Norton, Ph.D.
 John P. Shelton, Ph.D.
 Harry Simons, M.A., C.P.A.
 R. Clay Sprowls, Ph.D.
 George A. Steiner, Ph.D., Litt.D.
 Robert Tannenbaum, Ph.D.
 Robert M. Williams, Ph.D.

Associate Professors

Theodore A. Andersen, Ph.D. (*Finance*)
 Sushil Bikhchandani, Ph.D. (*Decision Sciences*)
 Connie J.G. Gersick, Ph.D. (*Human Resources/
 Organizational Behavior*)
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 Richard A. Goodman, D.B.A. (*Policy and
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 David A. Hirshleifer, Ph.D. (*Finance*)
 Barbara S. Lawrence, Ph.D. (*Human Resources/
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 Francis A. Longstaff, Ph.D. (*Finance*)
 Alfred E. Osborne, Jr., Ph.D. (*Business Economics*)
 I.P.L. P'ng, Ph.D. (*Business Economics*)
 Avanihar Subrahmanyam, Ph.D., *Acting (Finance)*
 Siu S. Tang, Ph.D. (*Decision Sciences, Operations
 and Technology Management*)
 Walter N. Torous, Ph.D. (*Finance*)

Assistant Professors

Jennifer L. Aaker, *Acting (Marketing)*
 Reza H. Ahmadi, Ph.D. (*Operations and Technology
 Management*)
 David R. Bell, Ph.D. (*Marketing*)
 Antonio E. Bernardo, Ph.D. (*Finance*)
 Randolph E. Bucklin, Ph.D. (*Marketing*)
 Margaret C. Campbell, Ph.D. (*Marketing*)
 Bhagwan Chowdhry, Ph.D. (*Finance*)
 Eric D. Darr, Ph.D. (*Policy and Organization*)
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 Gavan J. Fitzsimons, *Acting (Marketing)*
 Ronald C. Goodstein, Ph.D. (*Marketing*)
 Stephen C. Hansen, Ph.D. (*Accounting*)
 Deborah D. Heisley, Ph.D. (*Marketing*)
 Teck Hua Ho, Ph.D. (*Operations and Technology
 Management*)
 Oliver Kim, Ph.D. (*Accounting*)
 Elaine Mosakowski, Ph.D. (*Policy and Organization*)

Atanu R. Sinha, Ph.D. (*Marketing*)
 Karen A. Stephenson, Ph.D. (*Human Resources/
 Organizational Behavior*)
 Ivo I. Welch, Ph.D. (*Finance*)

Lecturers

Gordon L. Klein, J.D.
 Andrea C. McAleenan, Ph.D.
 Eric Mokover, M.B.A.
 Linda F. Newton, M.B.A.
 David S. Ravetch, M.A.
 Richard B. Stern, Ph.D.

Adjunct Professors

William M. Cockrum, M.B.A. (*Finance*)
 John B. Farrell, M.B.A., C.P.A. (*Accounting*)
 George T. Geis, Ph.D. (*Accounting*)
 Sanford C. Sigoloff, B.S. (*Policy and Organization*)
 Victor C. Tabbush, Ph.D. (*Business Economics*)
 S. William Yost, Ph.D. (*Operations and Technology
 Management*)

Adjunct Associate Professors

Ichak Adizes, Ph.D. (*Policy and Organization*)
 Janis S. Forman, Ph.D. (*Communications Program*)
 Marvin M. May, Ph.D. (*Finance*)
 George S. Yip, D.B.A. (*Policy and Organization*)

Adjunct Assistant Professors

Robert F. Foster, M.B.A. (*Operations and Technology
 Management, Field Studies*)
 Jason L. Frand, Ph.D. (*Information Systems*)
 Leonard Weil, B.A. (*Finance*)

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 prerequisites, is limited.

Accounting Minor

Admission

Admission 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. Decisions on admission to the minor are made by the Anderson School. You are admitted typically at the beginning of your junior year. The requisite grade-point average and completion of the preparation courses do not guarantee admission to the program.

Preparation for the Minor

Required: Economics 1, 2, 11, 40 (or Statistics 50 as a substitute for course 40); Management 1A-1B; Mathematics 31A, 31B (higher-level courses and/or Advanced Placement Test credit may be substituted).

The Minor

Required: Management 120A, 120B, 122, 127, and two courses from 108, 123, 124, 128. You may enroll in two additional management courses at the discretion of the director/counselor.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The John E. Anderson Graduate School of Management offers the Master of Science (M.S.) degree and the Master of Business Administration (M.B.A.) degree, as well as cooperative 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 must 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).

The Master of Business Administration 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 AGSM by March 31. Early application is 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 recommenda-

tion. 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 Office, UCLA, B201 Gold Hall, Box 951481, Los Angeles, CA 90095-1481.

Cooperative Degrees

M.B.A./J.D

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.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 requirements for the M.S. in Computer Science and the M.B.A. in three academic years. Application materials should be requested separately from the M.B.A. Program Office, John E. Anderson Graduate School of Management, and the Computer Science Department.

M.B.A./M.L.I.S.

Jointly sponsored by the Department of Library and Information Science (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 which draw on general and specialized skills in the two professional fields. Application materials should be requested separately from the M.B.A. Program Office, John E. Anderson Graduate School of Management, and the Department of Library and Information Science.

M.B.A./M.P.H.

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 chal-

lenges 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 from the M.B.A. Program Office, John E. Anderson Graduate School of Management, and the School of Public Health.

M.B.A./M.A. Latin American Studies

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 the M.B.A. Program Office, John E. Anderson Graduate School of Management, and the Latin American Studies Program.

M.B.A./M.A. Urban Planning

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 the M.B.A. Program Office, John E. Anderson Graduate School of Management, and the Department of Urban Planning, School of Public Policy and Social Research.

M.B.A./M.N.

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 the M.B.A. Program Office, John E. Anderson Graduate School of Management, and the School of Nursing Student Affairs Office.

Areas of Study

Accounting; arts management; business economics; decision sciences; entertainment management; entrepreneurial studies; finance; human resources and organizational behavior; information systems; international business and comparative management; marketing; op-

erations and technology management; policy and organization; public/not-for-profit management; 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 (courses 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

Consult the department.

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

Completion of the intensive 24-month course of study leads to a regular M.B.A. degree. Consult the program regarding course offerings and 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, A101 Collins Center, 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, A307 Collins Center, Box 951481, Los Angeles, CA 90095-1481.

Areas of Study

Consult the department.

Course Requirements

Students in the FEMBA 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. These 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 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 Entrepreneurs Hall, 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

A student entering the M.S. program is assumed to have taken calculus through differentiation and integration of several variables, two courses in probability and statistics, two quarters 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 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 research 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 the student 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, the student is advanced to candidacy. The oral qualifying examination must be passed within four and one-half years of the date of entrance into the program.

Lower Division Courses

1A-1B. Elementary Accounting. Not open to freshmen. Course 1A is prerequisite to 1B. Introduction to accounting theory and practice. Recording, analyzing, and summarizing procedures used in preparing balance sheets and income statements in first term. Payroll and tax accounting, partnership and corporation accounts, manufacturing and cost accounting, and supplementary statements in second term.

88. Lower Division Seminar: Special Topics in Management. 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

108. Business Law. Essentials of contracts. Examination of legal forms of business organizations, especially partnerships and corporations. Introduction to federal securities law and antitrust.

120A. Intermediate Financial Accounting I. Prerequisite: 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. Prerequisite: 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. Cost Accounting. Prerequisites: course 1B, Economics 40, or equivalent. 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. Prerequisite: course 120B. Concepts and problems in verification of financial and related information, including ethical, legal, and other professional issues. Historical developments and current concerns.

124. Advanced Accounting. Prerequisites: courses 120A, 120B. Partnerships and joint ventures; installment sales and consignment sales; home office and branch relationships; corporate combinations; preparation of consolidated statements; foreign branches and subsidiaries; receiverships; estates and trusts; governmental units; actuarial science.

127. Federal Income Taxation. Prerequisite: course 1B. Recommended: course 120A. Basic concepts of federal income taxation pertaining to individuals; income and deductions, areas of special tax procedures pertaining to gains and losses from sales and exchanges. Tax considerations in business and investment decisions.

128. Special Topics in Accounting. Lecture, three hours. Prerequisite: consent of instructor. 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, fund accounting, and filing and accounting of payroll and quarterly tax returns. Discussion of a case study of current interest in the accounting profession.

130A. Basic Managerial Finance. Lecture, three hours. Prerequisites: course 120A or 120B, Economics 40 or equivalent. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Prerequisites: Mathematics 3A, 3B, 3C, 31E, Economics 40, or equivalent. 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. 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. 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. 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. Lecture, three hours. Prerequisite: 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. 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.

Graduate Courses

Graduate courses are ordinarily open to students admitted in graduate standing. As a condition for enrollment, you must submit to the instructor in charge of the course evidence of satisfactory preparation for the work proposed.

200. Advanced Microeconomics. Seminar, three hours. Prerequisite: course 405 or consent of instructor. Economist's approach to organization and competitive interaction. Topics include game theory, threat credibility, incentive contracts, information advantages, and entry deterrence.

201A. Business Forecasting. Seminar, three hours. Prerequisites: 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. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: course 405 or consent of instructor. 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. Discussion, three hours. Prerequisites: courses 402 and 405, or consent of instructor. Development and analysis of strategies to maximize value in competitive and cooperative situations. Problems include competitive bidding, tacit collusion, and strategies in repeated settings.

202C. Empirical Studies in Industrial Organization. Prerequisite: course 202B. Investigation of factors influencing size of industries, their size distribution, and conditions of entry and exit. Implications of such industry characteristics, derived for decisions having to do with firm output, prices, advertising, and research/development.

203A. Economics of Decision. Prerequisites: 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. Discussion, three hours. Prerequisites: rudiments of economic theory of the firm, calculus, probability, and statistics; course 203A or consent of instructor. 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. Prerequisites: courses 405 and 406, or consent of instructor. 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. Prerequisite: course 205A or consent of instructor. Comparative study of public policies toward competition, market structures, and competitive practices in key industries in selected countries.

205C. Business Forecasting for Foreign Economies. Prerequisite: course 201A or consent of instructor. 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. Seminar, three hours. Prerequisite: course 405 or consent of instructor. 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. Prerequisites: courses 405 and 406, or consent of instructor. 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. Prerequisite: consent of instructor. Special topics in business economics. Current developments in theory or practice in business economics. May be repeated for credit.

210A. Mathematical Programming. Discussion, three hours. Prerequisite: linear algebra. Comprehensive development of theory and computational methods of linear programming, with applications to a variety of areas.

210B. Applied Stochastic Processes. Discussion, three hours. Prerequisite: Mathematics M150A 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.

210C. Network Flows and Integer Programming. Prerequisite: 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. Prerequisites: course 210A, Mathematics 32A, or equivalent. 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. Prerequisite: course 210A or equivalent. Theory and computational methods for optimizing large-scale linear and nonlinear programs. Exploitation of special structures with combinatorial, dynamic, multidimensional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variables and/or constraints.

212A. Management Science Models I. Prerequisites: course 407, Mathematics 31B. Broad survey of deterministic models of management science, 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.

212B. Management Science Models II. Prerequisites: course 212A, Mathematics 32A, or equivalent. Broad survey of nonlinear, time-staged, and probabilistic models for managerial decision making. Application areas include finance, marketing, production, facilities design, and energy systems.

212C. Management Science Models III. Prerequisites: courses 212A, 212B. In-depth reviews of actual management science applications. Emphasis on professional skills needed for successful practical applications.

213A. Intermediate Probability and Statistics. Prerequisite: course 402 or equivalent. 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. Prerequisite: course 213A or consent of instructor. 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. Prerequisite: course 213B or consent of instructor. 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. Prerequisite: consent of instructor. 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.

215D. Time-Series Analysis. Prerequisite: course 213B or consent of instructor. 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. Discussion, three hours. Prerequisite: background in FORTRAN, PL/1, PL/C, or other batch computing language available on campus and in basic statistics (course 402 or equivalent) and modeling (course 407 or equivalent). Computer simulation methodology, including design, validation, operating procedures, and analysis of results of simulation experiments. Applications of simulation to management problems.

217A. Decision Analysis. Lecture, three hours. Prerequisite: course 402 or equivalent. 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. Prerequisite: course 213A or equivalent. Nature of models for rational behavior in presence of conflicts of interests, zero-sum and non-zero-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 Management Science (1 to 4 units). Prerequisite: consent of instructor. 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.

218C. Selected Topics in Business Statistics (1 to 4 units). Prerequisite: consent of instructor. 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 Management Science (1 to 4 units each). Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Current issues and research on a variety of topics in general area of management science. May be repeated for credit. S/U grading.

220A. Intermediate Financial Accounting I. Prerequisite: course 403 or consent of instructor. 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. Prerequisite: course 220A or consent of instructor. 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. Prerequisites: courses 220A and 220B, or consent of instructor. 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.

221. Current Issues in Accounting. Prerequisite: consent of instructor. Forum for discussion of contemporary issues in accounting and information systems, in colloquium format. Drawing on prominent speakers in the field, course requires students to formulate a position paper on each topic presented.

222. Cost Accounting. Prerequisite: 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; uses of cost accounting data for management decision making.

223. Auditing. Prerequisite: 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.

226. International Accounting. Prerequisite: 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. Discussion, three hours. Prerequisite: 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. Discussion, three hours. Prerequisite: 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. Evaluating Financial Statement Information. Lecture, three hours. Prerequisites: courses 220A or 220B, 230, 402. 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. Lecture, three hours. Prerequisite: doctoral standing or consent of instructor. Examination in depth of problems or issues of current concern in accounting, such as application of information economics and principal-agent model to accounting.

229B. Empirical Research in Accounting. Lecture, three hours. Prerequisites: training in econometrics and doctoral standing, or consent of instructor. Introduction to empirical accounting literature, focusing on role that accounting information plays in formation of capital market prices.

229X-229Y-229Z. Accounting Workshops (1 unit, 1 unit, 2 units). Discussion, two hours. Prerequisite: doctoral standing. Designed 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. Lecture, three hours. Prerequisite: 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. Profit Sector Financial Policy. Prerequisite: 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.

231B. Nonprofit Sector Financial Policy. Discussion, three hours. Prerequisite: 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.

231C. Working Capital Management. Lecture, three hours. Prerequisite: course 230. More detailed advanced coverage of short-range problems of financial management. Coverage of current assets, current liabilities, and their interrelationships.

231D. Takeovers, Restructuring, and Corporate Governance. Lecture, three hours. Prerequisite: 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. Prerequisites: courses 230, 403, 408, second-year standing. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisites: courses 230, 233A, demonstrable training in statistics. 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. Prerequisite: 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. Prerequisite: 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. Lecture, three hours. Prerequisite: 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.

233C. Speculative Markets. Prerequisite: course 230. Study of theory and evidence of capital market efficiency, including stock market, bond market, commodity future markets, options market, money markets, and foreign exchange markets.

234A. International Financial Markets. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisite: 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.

235A. Problems in Insurance Management. Discussion, three hours. Prerequisite: consent of instructor. Advanced consideration of problems of insurance management. Actuarial, underwriting, investment, marketing, and regulatory problems related to insurance activities.

238. Special Topics in Finance. Prerequisites: course 230, consent of instructor. 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. Prerequisites: course 230, consent of instructor. Foundations of theory of exchange developed as introduction to theoretical literature on pricing of capital assets. Primarily intended for Ph.D. students, but well-prepared master's students may find course useful in their career preparation.

239B. Theory of Investment under Uncertainty. Prerequisites: courses 230 and 239A, or consent of instructor. Foundations of theory of firm capitalization and investment decisions, with special attention to questions of exchange and allocative efficiency. Primarily intended for Ph.D. students, but well-prepared master's students may find course useful in their career preparation.

239C. Empirical Research in Finance. Discussion, three hours. Prerequisites: course 230, training in econometrics, consent of instructor. In-depth study of empirical research in the field of finance, statistical methodologies applied to test market efficiency, and asset pricing theory. Primarily intended for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. S/U or letter grading.

239D. Ph.D. Seminar: Corporate Finance. Prerequisites: course 230, courses in 239 series. Intended 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 unit, 1 unit, 2 units). Discussion, 90 minutes. Prerequisite: doctoral standing. Designed 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. 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. Prerequisite: course 407 or consent of instructor. 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. Prerequisite: 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. 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. (Formerly numbered 245.) Lecture, three hours. Prerequisite: second-year standing or consent of instructor. Exploration of operating issues involved in managing entrepreneurial enterprises. Integrative course, building on methodologies, principles, and concepts provided in prerequisite 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.

241A. Managing Technology for Competitive Advantage. 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. Prerequisite: course 407 or equivalent. 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. Prerequisite: doctoral standing or consent of instructor. 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. Prerequisite: doctoral standing. Survey of research literature on models for design of manufacturing and service systems, including long-range forecasting, operational economies, capacity, location, facilities, processes/technology, work, and work structures.

243A. Planning for Facilities Systems. Prerequisite: course 212A or equivalent. 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. Prerequisite: course 210B or consent of instructor. 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. Prerequisite: 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 unit, 1 unit, 2 units). Discussion, 90 minutes to three hours. Prerequisite: doctoral standing. 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 unit, 1 unit, 2 units). Prerequisite: doctoral standing. Normally taken in first and second years of doctoral 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. 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.

246A. Strategy/Policy Analysis and Formulation in Public and Private Nonprofit Sectors. Prerequisite: completion of management analysis requirement for M.B.A. program. Application of several techniques for strategy/policy analysis and formulation. Specific topics include forecasting/scenario writing, multiple objective decision making, cost analysis, risk/benefit analysis, and social experimentation. Limitations of methodologies examined and concepts illustrated through current applications and case studies.

246B. Budgeting and Resource Allocations in Public Sector. Prerequisites: courses 403 and 408, or consent of instructor. Resource allocation objectives/techniques used in federal, state, and local government. Budget analyzed as a planning device, vehicle for allocational decision making, financial control mechanism, crucible for political choice. Provides some insight into staff functions performed by those responsible for resource allocation.

246C. Management in Public and Private Nonprofit Sectors. Prerequisite: graduate standing. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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.

247C. Legal Environment of Arts Management* Prerequisite: consent of instructor. Exploration of way in which law and the arts relate, role of the lawyer vis-à-vis artist and arts manager, policy underpinnings of the law and effect on the arts, and unsolved problems and issues in areas of interaction.

248A. Strategic Management in the Entertainment Industry. Discussion, three hours. Prerequisites: courses 403, 405, 406, 408, and 420, or consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. Examination of current issues in management of artistic organizations. Relevant combinations of lectures, discussions, case studies, and team research projects.

250A. Labor Relations: Process and Law. Prerequisite: graduate standing. 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.

250B. Human Resource Management: Process and Law. Prerequisite: course 250A. 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. Prerequisite: course 250B or consent of instructor. 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. Management of people in organizations, intended 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. Prerequisite: consent of instructor. 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. Prerequisite: graduate standing. 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.

255. Comparative Industrial Relations. Prerequisite: course 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of industrial relations systems within their political, social, and economic environments. Institutions, philosophies, 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.

256. Seminar: Human Resource Management and Industrial Relations. Discussion, three hours. Prerequisites: courses 250A, 250B, 250C. Capstone seminar for students interested in human resource management and industrial relations. Visiting lecturers emphasize recent developments in the field; students prepare seminar papers.

257. Human Resource Management in Creative and Nonprofit Sectors. Prerequisite: graduate standing. 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 units). Prerequisite: doctoral standing or consent of instructor. 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. Lecture, three hours. Prerequisite: graduate standing. 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. Lecture, three hours. Prerequisite: graduate standing. 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.

259C. Labor Markets and Public Policy. (Formerly numbered 254.) Lecture, three hours. Prerequisite: graduate standing. Doctoral-level survey of research literature on environmental institutions that impinge on work organizations — chiefly labor markets, labor unions, and public policy. Current research in economics, industrial relations, political science, and sociology, with emphasis on international and comparative dimensions of topics covered. S/U or letter grading.

260A. Advanced Marketing Management. Prerequisite: course 411 or consent of instructor. Decision-oriented course concerned with solution of product, price, promotion, and distribution channel problems. Extensive use of case studies.

260B. Marketing Strategy and Planning. Lecture, three hours. Prerequisite: course 411 or consent of instructor. 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. Lecture, three hours. Prerequisite: course 411 or consent of instructor. 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. Lecture, three hours. Prerequisite: course 411 or consent of instructor. 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. Lecture, three hours. Prerequisites: 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. Prerequisite: course 411 or consent of instructor. 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. Lecture, three hours. Prerequisite: course 411 or consent of instructor. Intended 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. Discussion, three hours. Prerequisite: course 264A or consent of instructor. 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.

264C. Seminar: Multidimensional Scaling. Prerequisite: consent of instructor. Seminar providing for study of recent developments in metric and nonmetric multidimensional scaling.

265A. Marketing and the Law. Lecture, three hours. Prerequisite: course 411 or consent of instructor. 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. Lecture, three hours. Prerequisite: course 411 or consent of instructor. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 411 or consent of instructor. 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. Prerequisite: consent of instructor. 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. Discussion, three hours. Prerequisite: consent of instructor. Intended 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. Prerequisite: consent of instructor. Intended 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. Prerequisite: consent of instructor. Empirical research in consumer behavior surveyed and critically evaluated from theoretical as well as practical perspectives. Intended for Ph.D. students who will be conducting research in consumer behavior or related areas.

269E. Special Research Topics in Marketing. Prerequisite: doctoral standing. 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 unit, 1 unit, 2 units). Prerequisite: doctoral standing. 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. Prerequisite: course 404. Basic concepts and uses of information systems in organizations. Use of information technology in support of individual and organizational information processing. Description of types of applications (e.g., functional, strategic). Evaluation of systems. Analysis of their impacts.

270B. Information Systems for Planning and Control. Prerequisite: course 404 or consent of instructor. Decision support systems and model-based planning systems, addressing both user and builder perspectives. Emphasis on managerial and behavioral issues and on technological and design concerns. S/U or letter grading.

270C. Measurement in Information Systems. Prerequisite: course 404. Role of measurement in management information and decision support systems. Logic and technique of measurement. Applications in individual, organizational, and societal performance.

270D. Simulation for Management. Discussion, three hours. Prerequisites: knowledge of computer programming and basic statistics, consent of instructor. Design, implementation, and use of discrete-event simulation models using a general purpose simulation language (e.g., SIMSCRIPT). Emphasis on managerial use of simulation and presentation of results (e.g., statistical analysis, graphics, animation). Extensive programming assignments.

270E. Expert Systems for Management. Prerequisite: second-year M.B.A. or doctoral standing or consent of instructor. Examination of expert systems for management, including rule and frame-based systems, certain and uncertain inference, expert system feasibility and development, available commercial systems, and current applications. Project that develops an expert system required.

271A. Information Systems Technology. Discussion, three hours. Prerequisite: course 404. Survey of computer hardware, software, telecommunications, and database technology. Specification and configuration of computer-based systems for management applications. Methods for costing system hardware and software and for assessing computer performance. Trade-off analysis of comparative computer configurations.

271B. On-Line and Network-Based Systems. Prerequisites: courses 271A and 272A, or consent of instructor. Distributed processing. Networked mini-computer systems. Data communication technology. Data security in computer networks. Cost/benefit analysis for design, configuration, and implementation of on-line and computer networks. Applications to computer utilities; command and control systems; and commercial, medical, and government networks.

271C. Database Management Systems. Discussion, three hours. Prerequisites: courses 271A and 272A, or consent of instructor. Features and capabilities of generalized database management systems, including system classification, comparison of software features, and evaluation of specific systems. Emphasis on management uses of such systems. Field study project may be required.

272A. Information Systems Development. Discussion, three hours. Prerequisite: course 404. Concepts and methodologies of systems analysis to determine user requirements. Overview of database management systems, with emphasis on the relational model. Project required, using a microcomputer-based CASE tool and relational dbms.

273A. Information Systems Management. Discussion, three hours. Prerequisite: course 404. Managing information systems within organizations. Role of chief information officer. Frameworks for understanding information systems function. Issues of planning, project management, computer operations, security, end-user computing, distributed and departmental computing, managing information systems professionals, costing of services, organizational structures.

274A. Special Topics in Information Systems. Prerequisite: consent of instructor. Examination in depth of issues or problems concerned with theory and practice of computing and management and use of information systems. Course may have a single theme or may deal with a number of topics. May be repeated for credit.

274B. Frontiers in Information Systems. Prerequisite: doctoral standing or consent of instructor. Examination in depth of problems or issues of current concern in information systems. Emphasis on recent contributions to theory, research, and methodology. May be repeated for credit.

274X-274Y-274Z. Current Research in Information Systems (1 unit, 1 unit, 2 units). Discussion, two hours. Prerequisite: doctoral standing. 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.

Discussion, three hours. Prerequisite: consent of instructor. 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.

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.

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.

Discussion, laboratory, and fieldwork. Prerequisite: second-year graduate standing or consent of instructor. Designed 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.

279X-279Y-279Z. Urban Research and Development (2 to 4 units each).

Prerequisite: graduate standing or consent of instructor. Exploration of urban area and its problems; prospects and prescriptions for delivery of a quality life. Macroscopic and microscopic exploration as related to problems of a selected urban area.

280A. Studies, Research Philosophies, and Methodology in Human Systems.

Discussion, three hours. Prerequisite: doctoral standing or consent of instructor. 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.

(Formerly numbered 280C.) Discussion, three hours. Prerequisite: doctoral standing or consent of instructor. 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.

(Formerly numbered 280D.) Discussion, three hours. Prerequisite: doctoral standing or consent of instructor. Process of designing studies of human systems, including choice of research topics. Actively involves students in preparation of research proposals for research papers and doctoral dissertations. May be repeated for credit. S/U or letter grading.

281A. Sociotechnical Systems. Prerequisite: graduate standing. 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. Prerequisite: graduate standing. 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.

Lecture, three hours. Prerequisite: course 281A or 281B or consent of instructor. 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.

Lecture, three hours. Prerequisite: course 281A or 281B or consent of instructor. 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.

Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

287. Groups and Their Facilitation.

Discussion, three hours. Prerequisite: consent of instructor. 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.

(Formerly numbered 288B.) Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

(Formerly numbered 288C.) Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

(Formerly numbered 288F.) Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

Discussion, three hours. Prerequisite: consent of instructor. 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. Behavioral and Organizational Sciences Colloquium (Proseminar).

(Formerly numbered 288X-288Y-288Z.) Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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.

Prerequisite: course 423 or consent of instructor. Analysis of theory and practice of managerial function of organizing through study of the literature, case analyses, and seminar discussion. Individual projects and reports.

291. Planning and Control.

Prerequisite: course 423 or consent of instructor. 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.

292A. Research and Development Policy.

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.

292B. Models of Organization Behavior.

Prerequisite: consent of instructor. Theoretical frameworks for developing explanatory and predictive models of complex organizations. Exercises in constructing formal models, usually in mathematical or stochastic form and, where appropriate, using materials from field studies to develop empirical tests. These models may be used to discover implications for systems changes recommended in sociotechnical field study.

292C. Comprehensive Planning in Public Sector.

Prerequisite: consent of instructor. 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.

Lecture, three hours. Prerequisite: consent of instructor. 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.

(Formerly numbered 293B.) (Same as Political Science M211.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Formerly numbered 298D.) Lecture, three hours. Prerequisite: consent of instructor. 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.

294A. Strategy Formulation and Implementation. Prerequisite: consent of instructor. Case course dealing with strategy decisions and their implementation, executive action, and administrative behavior involved in managing total enterprises. Students are confronted with complex company situations to develop ideas essential to overall managerial direction.

294B. Environmental Impacts on Management. Prerequisite: consent of instructor. Examination of ways in which business, government, labor, and consumer organizational managers might respond to external environmental problems. Methods studied for developing and evaluating alternative managerial solutions which permit organizations to assist in improving current and future environmental quality.

295A. Entrepreneurship and Venture Initiation. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Discussion, three hours. Prerequisite: course 205A or equivalent or consent of instructor. 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. Prerequisite: doctoral standing or consent of instructor. 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. Prerequisite: course 412 or consent of instructor. Comparative study of practice of management in selected foreign countries, as affected by their social environments and development of management theory.

297B. International Business Policy. Prerequisites: course 205A, consent of instructor. 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. Prerequisites: courses 205A, 296A. Legal environments in which international business operates; overseas business relationships and organizations; antitrust, taxation, transfer of capital, and technology regulations; patent, trademark, and copyright safeguards; arbitration of international business disputes; expropriation of foreign investments; international business and government relations.

297D. International Business Negotiations. Prerequisite: course 296A. Exploration of international business negotiations of multinational enterprises with governmental agencies and foreign-based firms on a wide range of issues, such as establishment/dissolution of joint ventures, extent of foreign ownership/management control, terms/conditions for technology transfer, investment incentives.

298A. Special Topics in Management Theory. Prerequisite: doctoral standing or consent of instructor. 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. Prerequisite: doctoral standing or consent of instructor. 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. Prerequisite: doctoral standing or consent of instructor. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 unit, 1 unit, 2 units). Discussion, three hours. Prerequisite: doctoral standing. Designed 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. Discussion, three hours. Prerequisite: doctoral standing. 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. Prerequisite: doctoral standing. 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 units). Prerequisite: 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.

The following courses are acceptable toward the M.B.A., M.S., and Ph.D. degrees within the limitations and conditions prescribed by the curricula of the John E. Anderson Graduate School of Management.

400. Mathematics for Management. Prerequisite: graduate standing. 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.

402. Data Analysis, Statistics, and Decision Making. Prerequisite: graduate standing. In-depth introduction to probability, decision theory, and statistical inference, with emphasis on solution to actual business problems.

403. Financial Accounting. Lecture, three hours. Prerequisite: graduate standing. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of "the language of business" — accounting.

404. Information Systems. Lecture, three hours. Prerequisites: courses 402, 403, 405. 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.

405. Managerial Economics. Lecture, four hours; discussion, one hour (optional). Prerequisite: graduate standing. 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. Prerequisites: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Introduction to human resource management function and management of human behavior in organizations. Emphasis on relationships among individuals, groups, and organizational units as they influence the managerial process and development of prospective general managers.

410. Operations and Technology Management. Lecture, three hours. Prerequisites: courses 402, 403, 405, 408, 411. 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.

411. Elements of Marketing. Prerequisites: 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. Lecture, three hours. Prerequisite: 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. Programming for Management Applications. Lecture, three hours. Prerequisite: graduate standing. Building management application systems. Programming in a high-level procedural language. Software specification, design, coding, testing, implementation, and maintenance. Extensive programming assignments.

413B. System Building with Advanced Tools. Prerequisite: graduate standing. Building management application systems with advanced software tools. Very high-level languages. Report writers. Query and graphics languages. Application generators. Extensive hands-on assignments.

420. Management Policy. Lecture, three hours. Prerequisites: courses 402, 403, 405, 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.

421A. Management Communications I (1 unit). 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 unit). 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. Discussion, three hours. Prerequisite: graduate standing. Study and practice of oral and written management communications, including audience analysis, persuasion, revising and editing, presentation of technical information, and uses of computer technology. Organized around writing and speaking exercises. Personal attention to students' written communications and oral presentations.

423. Advanced Management Theory. Advanced study of management theory in formally organized enterprise through significant readings; discussion of advanced approaches and techniques developed from applying theory; use of theory to integrate methods and findings of quantitative and behavioral sciences; lectures on sophisticated application of management theory in practice.

444A-444B. Management Field Study. Must be taken in two consecutive terms 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. In Progress grading.

450. Fieldwork in Behavioral Science Management Development (4 or 8 units). Prerequisites: course 287, consent of instructor. Supervised practical fieldwork in all phases of laboratory education for management development, such as sensitivity training laboratories, creativity and personal growth laboratories, simulated managerial behavior laboratories, etc.

451. Fieldwork in Organizational Development (2 to 12 units). Prerequisite: course 284B or 450 or consent of instructor. Supervised practical fieldwork in organizational development consultation in interpersonal, group, intergroup, total organization, and inter-organizational settings.

452. Fieldwork in Technical Assistance for Minority Business Enterprise (1 to 4 units). Prerequisite: completion of first year of master's program or consent of instructor. 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 units). Prerequisite: consent of instructor. 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. Prerequisites: completion of two terms of M.B.A. program, consent of supervising faculty and director 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. Discussion, three hours. Prerequisite: consent of instructor. 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.

The following individual study or research courses (501 through 599) may be used, within limitations and conditions prescribed by the school, to satisfy minimum higher degree requirements.

501. Cooperative Program (2 to 8 units). Prerequisite: 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.

596A-596N. Research in Management (1 to 8 units each). Prerequisite: consent of master's program director or Ph.D. program director by special petition. Directed individual study or research. May be repeated.

597. Preparation for Qualifying Examinations (4 or 12 units). Prerequisite: consent of master's program director or Ph.D. program director by special petition. Preparation for master's comprehensive examination or Ph.D. qualifying examinations.

598. Thesis Research in Management (4 or 12 units). Prerequisite: consent of master's program director by special petition. Research for and preparation of master's thesis. May be repeated. S/U grading.

599. Ph.D. Dissertation Research in Management (4 or 12 units). Prerequisite: consent of Ph.D. program director by special petition. Research for and preparation of Ph.D. dissertation.

Executive M.B.A. Program

Admission to the Executive M.B.A. Program is prerequisite for enrollment in the following courses:

461. Managerial Problem Solving (2 units). 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. 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. 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. 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. 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 units, 2 units). 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 units). 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 units). 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. 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 units). Provides methods of organizational and strategic analysis to determine relationship of the organization with its environment.

470B. Strategic Overview (2 units). 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.

470C. Action Research Project (2 units). Further research and analysis of one of the strategic issues facing the selected company and identified in the strategic overview (course 470B).

470D. Seminar: Policy Analysis (2 units). Site visit to selected company, presentation of final reports, and evaluation of student efforts by corporate personnel.

472. Marketing Strategy and Policy. Strategic marketing decisions, including development of marketing objectives and strategies and implementation of these strategies through pricing, channel, promotion, and new product decisions.

473. Managerial and Organizational Processes. Development of an understanding of workings of large, complex organizations, with emphasis on macroanalytic, rather than on microanalytic, approach.

474. Operations and Technology Management: Systems, Strategies, and Policies. Lecture, three hours. Analysis of strategic and operating policies and decisions for systems that produce goods and services. Examination of role of comprehensive planning, inventories, scheduling of resources, distribution systems, and system location. Comprehensive operating problems.

475. International Managerial Policies and Strategies. 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.

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.

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 units).

Examination of selected problems and issues in an area of current concern in management.

MATERIALS SCIENCE AND ENGINEERING

*School of Engineering and Applied
Science*

UCLA
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Professors

Alan J. Ardell, Ph.D.
Bruce S. Dunn, Ph.D.
John D. Mackenzie, Ph.D. (*Nippon Sheet Glass
Company Professor of Materials Science,
Associate Dean*)
Kanji Ono, Ph.D., *Chair*
Aly H. Shabaik, Ph.D.
King-Ning Tu, Ph.D.

Professors Emeriti

Rointan F. Bunshah, D.Sc.
David L. Douglass, Ph.D.
William Klement, Jr., Ph.D.
John H. Lyman, Ph.D.
George H. Sines, Ph.D.
Christian N.J. Wagner, Dr.rer.nat.
Alfred S. Yue, Ph.D.

Associate Professor

Jenn-Ming Yang, Ph.D., *Vice Chair*

Assistant Professor

Mark S. Goorsky, Ph.D.

Adjunct Professors

John J. Gilman, Ph.D.
Ryoichi Kikuchi, 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, on the other hand, is concerned with the design, fabrication, and nondestructive testing of engineering materials. Such materials must fulfill simultaneously dimensional, property, quality control, and economic requirements. Several manufacturing steps may be involved: (1) primary fabrication, such as solidification or vapor deposition of homogeneous or composite materials; (2) secondary fabrication, including shaping and microstructural control by operations such as mechanical working, machining, sintering, joining, and heat treatments; and (3) nondestructive testing, which measures the degree of reliability of a processed part.

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). Several courses in the undergraduate curriculum also play an important role in one of the options of the manufacturing engineering program.

The graduate program allows for specialization in one of the following fields: materials science, metallurgy and metals processing, mechanical metallurgy, and ceramics and ceramics processing.

Bachelor of Science in Materials Engineering

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, Aerospace, and Nuclear Engineering M105A), Civil and Environmental Engineering 108, Electrical Engineering

100, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 105D.

(2) Materials Science and Engineering 110, 120, 130, 131, 132, 150, 160, 190; 131L and 161L, plus two additional laboratory units from 111 (one unit of lab credit), 143L, 191L; Mechanical, Aerospace, and Nuclear Engineering 191A or 192A (satisfies the mathematics requirement); Civil and Environmental Engineering 106A (satisfies the engineering economics requirement).

(3) Four elective courses from Chemical Engineering C114, Civil and Environmental Engineering 135A, Electrical Engineering 121A, 123A, 123B, 124, Materials Science and Engineering 111, 121, 122, 143A, 143B, 147B, 151, 161, 162, Mechanical, Aerospace, and Nuclear Engineering 156B (the design content of the elective courses and the elective laboratory must total eight units).

(4) Chemistry and Biochemistry 11A, 11B/11BL; Civil and Environmental Engineering 15A and 15B or Electrical Engineering 5C or Mechanical, Aerospace, and Nuclear Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

(5) SEAS general education (GE) course requirements — see Curricular Requirements in the College and Schools section of this catalog for details.

(6) One free elective course.

Electronic Materials Option

Course requirements are as follows (190 minimum units required):

(1) Six core courses: Chemical Engineering M105A (or Mechanical, Aerospace, and Nuclear Engineering M105A), Electrical Engineering 10, 101, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, and Civil and Environmental Engineering 108 or Mechanical, Aerospace, and Nuclear Engineering 105D.

(2) Materials Science and Engineering 110, 121, 122, 130, 131, 131L, 190; Electrical Engineering 121A, 121B, 122BL, 123A, 123B, and two courses from Materials Science and Engineering 132, 150, 160; Mechanical, Aerospace, and Nuclear Engineering 191A or 192A.

(3) Four elective courses from Materials Science and Engineering 111, 143A, 162, Electrical Engineering 110, 124, 172; two laboratory courses from Materials Science and Engineering 161L, 191L, 199, Electrical Engineering 122AL, 172L.

(4) Chemistry and Biochemistry 11A, 11B/11BL; Civil and Environmental Engineering 15A and 15B or Electrical Engineering 5C or Mechanical, Aerospace, and Nuclear Engineering 20; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

(5) SEAS general education (GE) course re-

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program in Materials Science and Engineering 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 in the Curricula and Courses section of this catalog.

Application forms, including a departmental supplement to the application, may be obtained by writing to the address at the beginning of this listing 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

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. These 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, 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: Consult the department for details on specific courses required.

Ceramics and ceramic processing: Consult the department for details on specific courses required.

Structural materials: Consult the department for details on specific courses required.

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.

Comprehensive Examination Plan

Consult the graduate adviser for details. If the comprehensive examination is failed, the student may be reexamined once with the consent of the graduate adviser.

Thesis Plan

None.

Doctoral Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. program 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 by writing to the address at the beginning of this listing 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.

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 one may substitute coursework by examinations. Normally, however, the student takes courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree in Materials Science and Engineering 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 are 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 the student fails 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 in the Curricula and Courses section of this catalog.

Written and Oral Qualifying Examinations

After mastering of the body of knowledge defined in the three fields, the student takes a written preliminary examination in the major field. When this examination is passed and all coursework is completed, the student proceeds 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, the student is 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.

Lower Division Courses

14. Science of Engineering Materials. Lecture, three hours; demonstration, one hour; recitation, one hour. Prerequisites: Chemistry 11A, 11B/11BL, Physics 8A, 8B. Physics 8C may be taken concurrently. 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.

88. Freshman Seminar: New Materials. Lecture, two hours; recitation, one hour; laboratory, one hour; outside study, nine hours. Preparation: high school chemistry and physics. Not open to students with credit for course 14. Engineering or chemistry/materials science majors expected to use course only as free elective. 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.

90L. Physical Measurement in Materials Engineering (2 units). Laboratory, four hours; outside study, two hours. Prerequisite: course 14. Various physical measurement methods used in materials science and engineering. Mechanical, thermal, electrical, magnetic, and optical techniques.

Upper Division Courses

110. Introduction to Materials Characterization A (Crystal Structure and X-Ray Diffraction of Material). Lecture, three hours; laboratory, two hours. Prerequisite: 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.

110L. Introduction to Materials Characterization A Laboratory (2 units). Laboratory, two hours; outside study, four hours. Prerequisite: course 14. Experimental techniques and analysis of materials through X-ray scattering techniques; powder method, lane method, crystal structure determination, and special projects.

111. Introduction to Materials Characterization B (Electron Microscopy). Lecture, three hours; laboratory, two hours. Prerequisites: 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.

120. Physics of Materials. Lecture, four hours; outside study, eight hours. Prerequisites: 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.

121. Materials Science of Semiconductors. Prerequisite: 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.

122. Principles of Electronic Materials Processing. Prerequisite: course 14 or equivalent. 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.

123. Electronic Packaging and Interconnection (2 units). 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.

130. Phase Relations in Solids. Prerequisites: course 14, Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A. Summary of thermodynamic laws, equilibrium criteria, solution thermodynamics, mass-action law, binary and ternary phase diagrams, glass transitions.

131. Diffusion and Diffusion-Controlled Reactions. Prerequisite: 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.

131L. Diffusion and Diffusion-Controlled Reactions Laboratory (2 units). 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.

132. Structure and Properties of Metallic Alloys. Prerequisite: course 131. Physical metallurgy of steels, lightweight alloys (Al and Ti), and superalloys. Strengthening mechanisms, microstructural control methods for strength and toughness improvement. Grain boundary segregation.

143A. Mechanical Behavior of Materials. Prerequisite: course 14 or equivalent. 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.

143B. Failure Analysis of Metals. Prerequisite: course 131. Analysis and prevention of failure based on design deficiencies, material selection, metallurgical defects, processing and fabrication errors, improper service conditions. Relationship to heat treatment, corrosion, joining technology, and mechanical behavior. Engineering and legal aspects. Case histories.

143L. Mechanical Testing Laboratory (2 units). Laboratory, four hours. Prerequisite or corequisite: course 143A. Experimental techniques for measurements of mechanical properties of engineering materials. Elastic constants, tensile, compression and bend testing, fracture toughness, fatigue and creep testing.

147B. Manufacturing Processes. Prerequisite: course 14. Theoretical basis for cold forming and hot forming processes; rolling, extrusion, and forging. Conventional metal removal. Solidification processes and casting. Powder metallurgy.

150. Introduction to Polymers. Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. 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.

151. Structure and Properties of Composite Materials. Prerequisites: course 14, at least two courses from 132, 143A, 150, 160. 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.

160. Introduction to Ceramics and Glasses. Prerequisite: course 14 or equivalent. 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.

161. Processing of Ceramics and Glasses. Lecture, four hours; discussion, one hour. Prerequisite: 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.

161L. Laboratory in Ceramics (2 units). Laboratory, four hours. Prerequisite: course 160 or equivalent. 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.

162. Electronic Ceramics. Prerequisites: course 14, Electrical Engineering 100, or equivalent. 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.

190. Materials Selection and Engineering Design. Prerequisites: 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.

191L. Computer Methods and Instrumentation in Materials Science (2 units). Prerequisites: upper division standing in materials science and engineering, knowledge of BASIC or C or assembly language. Interface and control techniques, real-time data acquisition and processing, computer-aided testing.

197. Seminar: Technical Writing for Materials Engineers (2 units). Lecture, two hours; outside study, four hours. Corequisite: course 132 or 190 or 598 or 599 or consent of instructor. Types of technical documents and basic document patterns. Document planning, paragraph and sentence structures. Illustration and references. Reports, theses, and proposals. Oral presentation.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, consent of instructor. 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.

Graduate Courses

200. Principles of Materials Science I. (Formerly numbered 240B.) Lecture, four hours; outside study, eight hours. Prerequisite: course 120 or equivalent. 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.

201. Principles of Materials Science II. (Formerly numbered 247A.) Lecture, three hours; outside study, nine hours. Prerequisite: course 131. Kinetics of diffusional transformations in solids. Precipitation in solids. Nucleation theory. Theory of precipitate growth. Ostwald ripening. Spinodal decomposition. Cellular reactions.

221. Science of Electronic Materials. Lecture, four hours; outside study, eight hours. Prerequisite: course 120 or equivalent. 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.

222. Growth and Processing of Electronic Materials. Lecture, four hours; outside study, eight hours. Prerequisites: courses 120, 130, 131, or equivalent. Thermodynamics and kinetics that affect semiconductor growth and device processing. Particular emphasis on fundamentals of growth (bulk and epitaxial), heteroepitaxy, implantation, oxidation.

223. Materials Science of Thin Films. Lecture, four hours; outside study, eight hours. Prerequisites: courses 120, 131, or equivalent. 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.

240A. Principles of Materials Science A (Microstructural Thermodynamics). Prerequisites: course 130, Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A or equivalent. Thermodynamical equilibrium criteria for multi-component systems of materials. Phase transformations and chemical reactions. Properties of solutions; quasichemical approach. Free energy of binary systems and construction of phase diagrams. Constitution of melts. Thermodynamics of interfaces and defects.

241. Oxidation of Metals. Prerequisite: course 130 or equivalent or consent of instructor. Kinetics and mechanism of gas-solid reactions. Absorption and phase-boundary reactions. Nucleation of reaction products, defect structure of oxides, crystal structure and morphology of oxide films, factors influencing adherence of surface films.

243A. Fracture of Structural Materials. Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 156B or equivalent. 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.

243B. Design for Fatigue Reliability. Prerequisites: one or more courses from 143A, Mechanical, Aerospace, and Nuclear Engineering 156A, and 156B, or equivalent. Prediction of fatigue life of machines, structures, and vehicles with statistical confidence. Design concepts and fabrication, techniques to prevent premature failure. Low-cycle, long-life, and crack growth. Effects of environment, residual stress, over-stressing, and surface treatments. Air Force specifications.

243C. Dislocations and Strengthening Mechanisms in Solids. Prerequisite: course 143A or Mechanical, Aerospace, and Nuclear Engineering 156B. Elastic and plastic behavior of crystals, geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening.

244. Electron Microscopy. Prerequisite: course 111 or equivalent. 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.

245C. Diffraction Methods in Science of Materials. Prerequisite: course 110 or equivalent. 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.

246A. Mechanical Properties of Nonmetallic Crystalline Solids. Prerequisite: 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.

246B. Structure and Properties of Glass. Prerequisite: 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.

246D. Electronic and Optical Properties of Ceramics. Prerequisite: 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.

248A. Experimental Methods in Materials Synthesis. Prerequisite: bachelor's degree in chemistry, physics, or engineering. Techniques used in materials synthesis temperature measurement, vacuum techniques, methods of heating and quenching, consolidation and refining of metals, crystal growth, thin film deposition and thick film deposition. Laboratory experiments and demonstrations.

250A. Analysis and Design of Composite Materials. Prerequisites: course 151 and one course from 143A, Electrical Engineering 175, Mechanical, Aerospace, and Nuclear Engineering 156A, or 156B. 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.

250B. Advanced Composite Materials. Prerequisites: course 151, B.S. in Materials Science and Engineering or equivalent. Fabrication methods, structure and properties of advanced composite materials. Fibers; resin-, metal-, and ceramic-matrix composites. Physical, mechanical, and nondestructive characterization techniques.

296. Seminar: Advanced Topics in Materials Science and Engineering (2 units). (Formerly numbered 249AA-249ZZ.) Lecture, 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 units). Prerequisites: graduate standing in materials science and engineering, consent of instructor. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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. Lecture, four hours; outside study, eight hours. Prerequisite: consent of instructor. Survey of aerospace and advanced ground transportation systems, materials, structures, propulsion systems, control systems, communication systems, and infrastructure support.

475A. Manufacturing Processes. Lecture, four hours; outside study, eight hours. Prerequisite: consent of instructor. Manufacturing properties of materials, thermomechanical processes, chemical and physical processes, material removal processes, packaging, fastening, joining and assembly, tooling and fixtures.

596. Directed Individual or Tutorial Studies (2 to 8 units). Prerequisites: graduate standing in materials science and engineering, consent of instructor. 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). Prerequisites: graduate standing in materials science and engineering, consent of instructor. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations (2 to 16 units). Prerequisites: graduate standing in materials science and engineering, consent of instructor. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). Prerequisites: graduate standing in materials science and engineering, consent of instructor. 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). Prerequisites: graduate standing in materials science and engineering, consent of instructor. 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). Prerequisites: graduate standing in materials science and engineering, consent of instructor. Usually taken after student has been advanced to candidacy. S/U grading.

MATHEMATICS

College of Letters and Science

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Professors

Christopher R. Anderson, Ph.D. (*Numerical Analysis*)
Kirby A. Baker, Ph.D. (*Algebraic Systems, Lattice Theory*), Program in Computing Director
Mladen Bestvina, Ph.D. (*Geometric Topology*)
Don M. Blasius, Ph.D. (*Automorphic Forms, Number Theory*)
Robert F. Brown, Ph.D. (*Algebraic Topology*)
Russel Caflisch, Ph.D. (*Fluid Dynamics, Kinetic Theory, Partial Differential Equations*)
Lennart Carleson, Ph.D. (*Classical Analysis*)
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*)
S.Y. Cheng, Ph.D. (*Differential Geometry, Differential Equations*)
F. Michael Christ, Ph.D. (*Harmonic and Real Analysis, Differential Equations*)
Jan de Leeuw, Ph.D. (*Statistics*)
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*), Chair
David A. Gieseker, Ph.D. (*Algebraic Geometry*)
David Gillman, Ph.D. (*Topology*)
Mark L. Green, Ph.D. (*Algebraic and Differential Geometry*), Administrative Vice Chair
Robert E. Greene, Ph.D. (*Differential Geometry*)
Nathaniel Grossman, Ph.D. (*Differential Geometry, Mathematical Geodesy*)
Haruzo Hida, Ph.D. (*Number Theory*)

Héinz-Otto Kreiss, Ph.D. (*Applied Mathematics, Numerical Analysis*)
 Robert K. Lazarsfeld, Ph.D. (*Algebraic Geometry*)
 Ker-Chau Li, Ph.D. (*Statistics*)
 Thomas M. Liggett, Ph.D. (*Probability Theory*)
 D. Anthony Martin (*Mathematical Logic*)
 Ronald J. Miesch, Ph.D. (*Number Theory*)
 Yiannis N. Moschovakis, Ph.D. (*Mathematical Logic, Computation Theory*)
 William I. Newman, Ph.D. (*Applied Mathematics and Computation*)
 Stanley J. Osher, Ph.D. (*Scientific Computing, Applied Mathematics*)
 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, Graduate Vice Chair*)
 Roberto Schonmann, Ph.D. (*Probability Theory*)
 Lloyd S. Shapley, Ph.D. (*Game Theory, Mathematical Economics*)
 Christopher Sogge, Ph.D. (*Fourier Analysis and Partial Differential Equations*)
 John R. Steel, Ph.D. (*Mathematical Logic, Set Theory*)
 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*)
 N. Donald Ylvisaker, Ph.D. (*Statistics, Statistics Division Director*)
 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.
 C.C. Chang, Ph.D.
 Philip C. Curtis, Jr., Ph.D.
 Thomas S. Ferguson, Ph.D.
 Basil Gordon, Ph.D.
 John W. Green, Ph.D.
 Alfred W. Hales, Ph.D.
 Paul G. Hoel, Ph.D.
 Alfred Horn, Ph.D.
 S.T. Hu, Ph.D., D.Sc.
 Robert I. Jennrich, Ph.D.
 Paul B. Johnson, Ph.D.
 Barrett O'Neill, Ph.D.
 Lowell J. Paige, Ph.D.
 Sidney C. Port, Ph.D.
 William T. Puckett, Ph.D.
 Raymond M. Redheffer, Ph.D.
 Leo R. Sario, Ph.D.
 Robert H. Sorgenfrey, Ph.D.
 Robert Steinberg, Ph.D.
 Angus E. Taylor, Ph.D.
 Frederick A. Valentine, Ph.D.

Associate Professors

Rodolfo De Sapio, Ph.D. (*Differential and Algebraic Topology*)
 Jun Li, Ph.D. (*Algebraic Geometry*)
 Geoffrey Mess, Ph.D. (*Low-Dimensional Topology*)
 Thomas Mountford, Ph.D. (*Probability Theory*)
 Peter Petersen, Ph.D. (*Riemannian Geometry*)
 Lihe Wang, Ph.D.

Lecturers

David Cohen, M.A.
 Kathleen Neumann, Ph.D. (*Program in Computing*)
 John C. Williams, Ph.D. (*Program in Computing*)

Adjunct Professor

Herbert Enderton, Ph.D. (*Mathematical Logic*)

Adjunct Assistant Professors

Oliver Attie, Ph.D. (*Hedrick; Geometry, Topology*)

Amnon Besser, Ph.D. (*Hedrick*)
 Gadi Fibich, Ph.D. (*Computational/Applied Mathematics*)
 Robert Gould, Ph.D. (*Statistics*)
 Markus Keel, Ph.D. (*Hedrick*)
 Isabella Laba, Ph.D. (*Hedrick; Mathematical Physics, Partial Differential Equations*)
 Charles Y. Li, Ph.D. (*Hedrick*)
 Tong Li, Ph.D. (*Nonlinear Hyperbolic and Parabolic Partial Differential Equations*)
 Zhilin Li, Ph.D. (*Computational/Applied Mathematics*)
 Tony Lin, Ph.D. (*Statistics*)
 Rachel Lunnon, Ph.D. (*Program in Computing*)
 Jin Ma, Ph.D. (*Program in Computing; Computational/Applied Mathematics*)
 Paul Pedersen, Ph.D. (*Program in Computing; Computational/Applied Mathematics*)
 Erol Pekoz, Ph.D. (*Applied Probability/Operations Research*)
 Slawomir Solecki, Ph.D. (*Hedrick*)
 Alan Stacey, Ph.D. (*Percolation Theory*)
 Alex Stolboushkin, Ph.D. (*Program in Computing*)
 Tedd Szeto, Ph.D. (*Program in Computing; Computational/Applied Mathematics*)
 Tamir Tassa, Ph.D. (*Computational/Applied Mathematics*)
 Nathalie Wach, Ph.D. (*Algebra, Number Theory, Combinatorics*)
 Jiri Witzany, Ph.D. (*Logic, Mathematical Computer Science*)
 Feng Xu, Ph.D. (*Hedrick*)
 Shih-Hsieu Yu, Ph.D. (*Computational/Applied Mathematics*)

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 you wish to enroll in Mathematics 1, 3A, or 31A, you must pass the Mathematics Diagnostic Test.

This examination may be taken at any one of several times, including all sessions of the summer Orientation Program. It will also be given on Monday, September 25, 1995, for Fall Quarter 1995; Wednesday, November 15, 1995, for Winter Quarter 1996; and Wednesday, February 28, 1996, for Spring Quarter 1996. For information, 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. You may petition for 31A equivalency, or you may take course 31A at UCLA. 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. You may petition for 31A, 31B equivalency, or you may take courses 31A, 31B at UCLA.

If you received a score of 3 on the AB or BC examination, you should consult the undergraduate mathematics counselor prior to enrolling in a calculus course at UCLA. If you had calculus in high school but do not have Advanced Placement Test credit, you may take beginning calculus (Mathematics 3A or 31A), or you may seek advanced placement by passing examinations in the subject. Consult the Student Services Office for further details.

Credit Limitations

Credit is given for at most one course in each of the following groups: (1) 3A, 31A, 31AH, 31AQ; (2) 3B, 31B, 31BH, 31BQ, 31E; (3) 3C, 32A, 32AH, 32AQ; (4) 32B, 32BH, 32BQ; (5) 110A, 117; (6) 132, 132H; (7) 140A, 141A; (8) M150A, Statistics M152A, 154A.

Mathematics 2, 38A, 38B, and Statistics 50 are not open for credit to students with credit for any course from Mathematics 110A through 199.

Mathematics 140A-140B-140C and 141A-141B are not open for credit to students with credit for Electrical Engineering 103.

Mathematics M150A and Statistics M152A are not open for credit to students with credit for Electrical Engineering 131A.

You may not take a mathematics course for credit if you have credit for a more advanced course which has the first course as a prerequisite. This applies in particular to the repetition of courses (e.g., if you wish to repeat Mathematics

31B, you must do so before completing course 32A).

Undergraduate Majors

The Mathematics Department offers five majors: mathematics, applied mathematics, mathematics of computation, mathematics/applied science, and general mathematics.

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 and operations research.

Courses taken to fulfill any of the requirements for any of the mathematics majors must be taken for a letter grade.

If you plan to pursue graduate study in mathematics, you are strongly encouraged to take a three-term sequence of graduate-level courses during your senior year.

Bachelor of Science in Mathematics

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Physics 8A, and two additional courses from Biology 6, Chemistry and Biochemistry 11A, 11B, Economics 11, Philosophy 31, 32, Physics 6B, 6C, 8B, 8C, 8D, 8E. Each course must be passed with a minimum grade of C-, and you must have a minimum overall GPA 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 additional courses from 106 through 199 and Statistics M152A through 154B. The 12 courses must be passed with a minimum overall GPA of 2.0.

Bachelor of Science in Applied Mathematics

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Physics 8A, 8C, and one additional course from Phys-

ics 8B, 8D, 8E, Chemistry and Biochemistry 11A, 11B. Each course must be passed with a minimum grade of C-, and you must have a minimum overall GPA 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 140A-140B or 141A-141B, *probability and statistics*—courses M150A-150B or Statistics M152A and 152B or 154A-154B, *differential equations*—courses 135A-135B; four additional courses from 110A through 199 and Statistics M152A through 154B (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 GPA of 2.0.

Bachelor of Science in Mathematics of Computation

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Program in Computing 10A, 10B, 10C or 30, Physics 8A, 8C, and one additional course from Physics 8B, 8D, 8E, Chemistry and Biochemistry 11A, 11B. Each course must be passed with a minimum grade of C-, and you must have a minimum overall GPA of 2.0 for the courses.

The Major

Required: Eleven Mathematics Department courses, including Mathematics 115A, 117, 131A, two additional courses from 110A through 199 and Statistics M152A through 154B, and six courses from *Plan A (scientific computing)*—courses 131B or 132, 140A-140B-140C, and 135A-135B or 145/146, or *Plan B (computation theory)*—courses 114A-114B-114C and 118A-118B-118C, or *Plan C (computational statistics)*—courses 140A or 141A, M150A or Statistics M152A, Statistics 152B-152C, and M153A-M153B; three upper division computer science courses (12 units).

If you plan to pursue this major, see the undergraduate adviser in 6356 Math Sciences. There is a chance that courses 114A-114B-114C and 118A-118B-118C will be offered in alternating years.

Bachelor of Science in Mathematics/Applied Science

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. You may also select one of the established programs: the actu-

arial plan, the mathematics/economics plan, or the operations research plan. In the past, mathematics/applied science majors have combined the study of mathematics with fields such as physics, biology, chemistry, biochemistry, economics, and geography.

If you are interested in designing an individual program, you should meet with the undergraduate adviser, 6356 Math Sciences, during your 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 you must have a minimum overall GPA 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 M152A through 154B 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 GPA 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. If you will have 135 or more units by the end of the term in which you plan to enter the program, you will not be admitted to the major.

Actuarial Plan

Preparation for the Major: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, Economics 1 and 2 (or 100), 11. Economics 100 may not be applied as one of the upper division courses for the major.

The Major: Seven Mathematics Department courses, including Mathematics 115A, 140A or 141A, 144, M150A-150B or Statistics M152A and 152B or 154A-154B, and two courses from 113, 140B or 141B, 151, Statistics 152C, M153A; six outside courses, including Economics 101, 102, 147A, 160, and two additional courses from Management 130A, 130B, 190, English 131A through 131D, Economics 145 through 199.

Mathematics/Economics Plan

Preparation for the Major: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1, 2, 11, Program in Computing 10A.

The Major: Seven Mathematics Department courses, including Mathematics 110A or 117, 115A, 131A, 144, M150A or Statistics M152A or 154A, Statistics 152B or 154B, and one addi-

tional course from 110A through 199 and Statistics M153A, M153B; six economics courses, including Economics 101, 102, and four additional upper division courses, with at least three from 105AH, 105BH, and 141 through 148.

Operations Research Plan

Preparation for the Major: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1 and 2 (or 100), 11, Management 1A, Program in Computing 10A.

The Major: Seven courses in the Mathematics Department and six in economics and management. Consult the department for recommended courses. Programs are designed so that students in this plan qualify for a specialization in computing.

Bachelor of Science in General Mathematics

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 6 or 8 sequence, the Chemistry and Biochemistry 11 sequence, or Program in Computing 10B, 10C, 30, 60. Each course must be passed with a minimum grade of C-, and you must have a minimum overall GPA of 2.0 for the courses.

The Major

Required: Mathematics 110A or 117, 115A, 123, M150A or Statistics M152A or 154A, one course from 131A through 136, one course from 140A through 147, and six additional courses from 106 through 199, 370A, 370B, and Statistics M152A through 154B.

Specialization in Computing

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, 30, 60, with a minimum grade of C- in each course and a combined GPA of at least 2.0, and (3) completing at least two courses from Mathematics 141A, 141B, 149, 149HS. You must petition for admission to this program and are advised to do so after you complete Program in Computing 10B (petitions should be filed in the Student Services Office). You graduate with a bachelor's degree in your major and a specialization in computing.

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. Call the department (310-206-1286) for further details.

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. You may apply any time after completing four courses from the calculus sequence or from upper division mathematics courses with an overall GPA of 3.6 or better. The program entails taking a specified sequence of courses as part of your 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.

If you complete the program, you are awarded honors at graduation; if you demonstrate exceptional achievement (i.e., at least a 3.8 GPA in upper division mathematics courses taken for the major), you are awarded highest honors. Consult the department for further information.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

The department of Mathematics offers the Master of Arts in Mathematics and the Master of Arts in Teaching.

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 a master's degree program, 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 grade 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 out of 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.

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 100A-100B, 112, 312, 330A, and 330B. 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, 111A, 111B, 111C, 131B, 135A, and Statistics 152B. 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 doctoral program, 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 285L, 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 285L. 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. 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

A. Intermediate Algebra (No credit). Lecture, five hours. Mathematics A displaces four units on student's Study List but yields no credit toward degree. May not be applied toward Letters and Science general education requirements. Not open to students with credit for other mathematics courses. Designed for students requiring review of intermediate algebra. Polynomials, rational exponents, linear and quadratic equations and inequalities, coordinate geometry, systems of equations, theory of equations.

1. Precalculus. Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. 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. 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. Lecture, three hours; discussion, one hour. Prerequisites: three and one-half years of high school mathematics (including trigonometry) and successful completion of Mathematics Diagnostic Test, or course 1 (C – or better). Not open for credit to students with credit in another calculus sequence. Students with credit for course 5 will receive only two units of credit for this course. Techniques and applications of differential calculus. Introduction to the integral. P/NP or letter grading.

3B. Calculus for Life Sciences Students. Lecture, three hours; discussion, one hour. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisite: course 3B (C – or better). Functions of several variables, vectors, partial differentiation, and vector-valued functions. P/NP or letter grading.

5. Calculus for Liberal Arts Students. Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 3A, 3B, 3C, 31A through 33B, or 110A through 199. Brief look at concepts, techniques, and applications of both differential and integral calculus. Emphasis on intuitive ideas in place of mathematical proofs.

9. Mathematics: A First View (1 unit). Introductory course to acquaint freshmen with nature of mathematics, its larger vistas, and its increasingly dominant role in understanding and advancing the world around us. P/NP or letter grading.

30AL. Calculus Computer Laboratory (2 units). Requisite or corequisite: course 3A or 31A. Prior knowledge of computers not required. Investigation of functions and their derivatives using the computer. Topics include Newtonian method for solving an equation, optimization, quadratic approximation, parametric curves and their derivatives, curve fitting. P/NP or letter grading.

30BL. Calculus Computer Laboratory (2 units). Requisite or corequisite: course 3B or 31B. Prior knowledge of computers not required. Study and practice of solving elementary differential equations by closed forms and by numerical methods using computer software. P/NP or letter grading.

31A. Calculus and Analytic Geometry. Lecture, three hours; discussion, one hour. Requisites: at least three and one-half years of high school mathematics (including some coordinate geometry and trigonometry) and successful completion of Mathematics Diagnostic Test, or course 1 (C – or better). Students with credit for course 5 will receive only two units of credit for this course. Differential calculus and applications; introduction to integration.

31AH-31BH. Calculus and Analytic Geometry (Honors). Lecture, three hours; discussion, one hour. Preparation: successful completion of Mathematics Diagnostic Test or additional honors placement examination. Honors sequence parallel to courses 31A, 31B.

31AQ. Calculus and Analytic Geometry with Computer Laboratory (5 units). (Formerly numbered 31A/PC.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: at least three and one-half years of high school mathematics (including some coordinate geometry and trigonometry) and successful completion of Mathematics Diagnostic Test, or course 1 (C – or better). Same material as course 31A with one additional computer laboratory hour. P/NP or letter grading.

31B. Calculus and Analytic Geometry. Lecture, three hours; discussion, one hour. Requisite: course 31A (C – or better). Transcendental functions; methods and applications of integration.

31BQ. Calculus and Analytic Geometry with Computer Laboratory (5 units). (Formerly numbered 31B/PC.) Lecture, three hours; discussion, one hour; laboratory, one hour. Enforced requisite: course 31AQ (or 31A, C – or better). Same material as course 31B with one additional computer laboratory hour. P/NP or letter grading.

31E. Calculus for Economics Students. (Formerly numbered 3E.) Lecture, three hours; discussion, one hour. Enforced requisite: course 31A (C – or better). Not open for credit to students with credit for course 3B, 3C, 31B, 31BH, or 31BQ. 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. 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). Enforced requisite: course 31BH (or 31B, A or better). Honors sequence parallel to courses 32A, 32B.

32AQ. Calculus of Several Variables with Computer Laboratory (5 units). (Formerly numbered 32A/PC.) Lecture, three hours; discussion, one hour; laboratory, one hour. Enforced requisite: course 31B (or 31BQ, C – or better). Same material as course 32A with one additional computer laboratory hour. P/NP or letter grading.

32B. Calculus of Several Variables. Lecture, three hours; discussion, one hour. Enforced 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.

32BQ. Calculus of Several Variables with Computer Laboratory (5 units). Lecture, three hours; discussion, one hour; laboratory, one hour. Enforced requisite: course 32A (or 32AQ, C – or better). Same material as course 32B with one additional computer laboratory hour. P/NP or letter grading.

33A. Matrices and Differential Equations. Lecture, three hours; discussion, one hour. Enforced requisite: course 32A or 32AH or 32AQ. Introduction to matrix theory, differential equations, and systems of differential equations.

33AH-33BH. Matrices, Differential Equations, and Infinite Series (Honors). Lecture, three hours; discussion, one hour. Enforced requisite: course 32AH (or 32A, A or better). Honors sequence parallel to courses 33A, 33B. P/NP or letter grading.

33B. Infinite Series. Lecture, three hours; discussion, one hour. Enforced requisite: course 33A. Infinite sequences and series; applications.

38A. Fundamentals of Mathematics for Elementary Teachers. Lecture, three hours; discussion, one hour. 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. Counting numbers and other subsystems of real numbers; sets; operations, relations, algorithms; applications and problem solving. Emphasis on understanding arithmetic procedures. P/NP or letter grading.

38B. Fundamentals of Mathematics for Elementary Teachers. Lecture, three hours; discussion, one hour; laboratory, one hour. Enforced requisite: course 38A. Not open 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. 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. P/NP or letter grading.

61. Introduction to Discrete Structures. Lecture, three hours; discussion, one hour. Enforced requisites: courses 31A, 31B, and (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.

70. Theory of Interest. Lecture, three hours; discussion, one hour. Preparation: two calculus courses. Measurement of interest, annuities, amortization, sinking funds, bonds, and other securities.

88. Lower Division Seminar. Seminar, three hours. Limited to 15-20 freshmen. Seminar course on mathematics as a vital intellectual activity influencing all aspects of life. Substantial student participation. P/NP or letter grading.

Upper Division Courses

Mathematics 113, 115A, 117, 131A, 132, 141A, 142, 144, 147, and Statistics 154A-154B 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.

General and Teacher Training

104. Fundamental Concepts of Geometry. Lecture, three hours; discussion, one hour. Prerequisites: courses 38A and 38B or equivalent, or consent of instructor. 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. Prerequisite: course 32A. Topics in history of mathematics, with emphasis on development of modern mathematics.

Algebra, Number Theory, and Logic

109. Transition to Upper Division Mathematics. Lecture, three hours; discussion, one hour. Prerequisite: course 33B or consent of instructor. Not open for credit to students with credit for course 131A or 131AH. Introduction to mathematical proof. Principle of mathematical induction. Proof by contradiction. Developing and writing mathematical proofs. Proofs of basic theorems for limits and infinite series. Completeness property of the real number system. P/NP or letter grading.

110A-110B-110C. Algebra. Lecture, three hours; discussion, one hour. Prerequisite: course 115A or consent of instructor. **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. **110C.** Further topics in rings and modules; field extensions, Galois theory, applications to geometric constructions, and solvability by radicals.

110AH-110BH-110CH. Algebra (Honors). Prerequisite: consent of instructor. Honors sequence parallel to courses 110A-110B-110C.

111A-111B-111C. Theory of Numbers. Lecture, three hours; discussion, one hour. Prerequisites: courses 110A or 117, and 115A, or consent of instructor. Divisibility, congruences, Diophantine analysis, selected topics in theory of primes, algebraic number theory, Diophantine equations.

M112A. Introduction to Set Theory. (Formerly numbered 112A.) (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Prerequisite: course 31B or Philosophy 32 or consent of instructor. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

112B-112C. Logic. Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. Predicate logic, formalized theories; Gödel completeness and incompleteness theorems. P/NP or letter grading.

113. Combinatorics. Lecture, three hours; discussion, one hour. Prerequisites: 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-114C. Computation Theory and Logic. Lecture, three hours; discussion, one hour. Prerequisite: course 61. Turing machines and other models of computation; recursive functions; thesis of Church; Gödel numbering of computations; universal machines; unsolvability results. Recursive and recursively enumerable sets; reducibilities; relative recursiveness. Propositional and predicate logic; syntax and semantics; formal deductions; completeness and compactness; effective enumerability of valid sentences. Formal number theory; representation of recursive functions; incompleteness and undecidability; theorems of Gödel, Tarski, Church. Complexity of computations; time and space limitations; nondeterministic machines; polynomial classes P and NP; complete problems; measures of complexity; speed-up and gap theorems; lengths of proofs. P/NP or letter grading.

115A-115B. Linear Algebra. Lecture, three hours; discussion, one hour. P/NP or letter grading. **115A.** Prerequisite: course 33A. Abstract vector spaces, linear transformations, and matrices; determinants; inner product spaces; eigenvector theory. **115B.** Prerequisite: 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.

117. Algebra for Applications. Lecture, three hours; discussion, one hour. Prerequisite: 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.

118A-118B-118C. Combinatorial Algorithms. Lecture, three hours; discussion, one hour. Prerequisites: courses 33B, 61, 115A, 117 (latter may be taken concurrently with course 118A). Introduction to discrete mathematics and algorithms as used in computer science and related fields. Topics include asymptotic analysis, arithmetic algorithms, computer-oriented algorithms, graphs and matroids, coding theory and designs.

Geometry and Topology

120A-120B. Differential Geometry. Lecture, three hours; discussion, one hour. Prerequisites: 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, isometrics, geodesics, Gauss/Bonnet theorem.

121. Introduction to Topology. Prerequisite: course 131A. Metric and topological spaces, topological properties, completeness, mappings and homeomorphisms, metrization problem.

122. Projective Geometry. Lecture, three hours; discussion, one hour. Prerequisites: courses 110A-110B, 115A. Projective spaces, especially lines and planes; homogeneous coordinates; principles of duality; projectivities, fundamental theorem, and theorems of Desargues, Pappus, Steiner, and Pascal.

123. Foundations of Geometry. Lecture, three hours; discussion, one hour. Prerequisite: course 115A. Axioms and models, Euclid geometry, Hilbert axioms, neutral (absolute) geometry, hyperbolic geometry, Poincaré model, independence of parallel postulate.

Analysis

131A-131B. Analysis. (Formerly numbered 131A-131B-131C.) Lecture, three hours; discussion, one hour. **131A.** Prerequisite: course 33B. Rigorous introduction to foundations of real analysis; real numbers, point set topology in euclidean space, functions, continuity. **131B.** Prerequisites: courses 33B, 115A, 131A. Derivatives, Riemann integral, sequences and series of functions, power series, Fourier series.

131AH-131BH. Analysis (Honors). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Honors sequence parallel to courses 131A-131B. Courses 131AH-131BH and 132H form a full honors sequence in analysis.

132. Complex Analysis for Applications. Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. Introduction to basic formulas and calculation procedures of complex analysis of one variable relevant to applications. Topics include Cauchy/Riemann equations, Cauchy integral formula, power series expansion, contour integrals, residue calculus.

132H. Complex Analysis (Honors). Lecture, three hours; discussion, one hour. Prerequisite: course 131A. Honors course parallel to course 132. Courses 131AH-131BH and 132H form a full honors sequence in analysis.

133. Integration on Manifolds. Prerequisite: course 131B. Integration theory for functions of several variables, multilinear algebra, differential forms, Stokes theorem on manifolds.

134. Measure and Integration. Prerequisite: course 131B or consent of instructor. Introduction to Lebesgue measure and integration.

135A-135B. Ordinary Differential Equations. Lecture, three hours; discussion, one hour. Prerequisites: courses 33A, 33B, 115A. Systems of differential equations; linear systems with constant coefficients, analytic coefficients, periodic coefficients, and linear systems with regular singular points; existence and uniqueness results; linear boundary and eigenvalue problems; two-dimensional autonomous systems, phase/plane analysis; stability and asymptotic behavior of solutions.

136. Partial Differential Equations. Lecture, three hours; discussion, one hour. Prerequisites: courses 33A, 33B. Linear partial differential equations, particularly of the second order: wave equation, heat equation, and Laplace equation; appropriate boundary, initial value problems, and eigenvalue problems.

Applied Mathematics

140A-140B-140C. Numerical Analysis. Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B, 115A, and Program in Computing 3 or 10A or equivalent. Not normally open for credit to students with credit for course 141A, 141B, or Electrical Engineering 103. Emphasis on both theory, with error analysis, and applications. Analysis of numerical methods for following areas: **140A.** Nonlinear equations, systems of linear equations, and eigenvalue problems. **140B.** Interpolation, approximation, fast Fourier transforms, differentiation, and integration. **140C.** Differential equations, systems of nonlinear equations, and optimization.

141A-141B. Applied Numerical Methods. Lecture, three hours; discussion, one hour. Prerequisites: courses 32A, 32B, 33A, 33B, 115A, and Program in Computing 3 or 10A or equivalent. Not open for credit to students with credit for course 140A, 140B, or Electrical Engineering 103. Introduction to scientific computing, with emphasis on programming, algorithms, and applications. Case studies. Numerical methods and computer implementation for following areas: **141A.** Nonlinear equations, systems of linear equations, optimization, interpolation, differentiation, and integration. **141B.** Differential equations, least-squares approximation, and Monte Carlo methods.

142. Mathematical Modeling. Lecture, three hours; discussion, one hour. Prerequisites: courses 32B and 33B, or consent of instructor. 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 (e.g., physical sciences, biology, economics, traffic dynamics, etc.).

143. Analytic Mechanics. Lecture, three hours; discussion, one hour. Prerequisites: 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.

144. Linear Programming. Lecture, three hours; discussion, one hour. Prerequisite: course 115A or consent of instructor. 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.

145. Fourier Methods for Differential Equations. Lecture, three hours; discussion, one hour. Prerequisite: course 33B. Fourier series and integral transforms, separation of variables, eigenfunction expansions. Applications from such areas as mechanical vibrations, fluid dynamics, heat conduction, and electromagnetics.

146. Methods of Applied Mathematics. Lecture, three hours; discussion, one hour. Prerequisite: course 33B. Integral equations, Green's function, and calculus of variations. Selected applications from control theory, optics, dynamical systems, and other engineering problems.

147. Game Theory. Lecture, three hours; discussion, one hour. Prerequisite: course 115A or consent of instructor. 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.

148A. Numerical Methods for Partial Differential Equations. Lecture, three hours; discussion, one hour. Prerequisites: courses 141A-141B or equivalent. 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. P/NP or letter grading.

149. Mathematics of Computer Graphics. Lecture, three hours; discussion, one hour. Prerequisites: 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.

149HS. Honors Seminar: Mathematics of Computer Graphics. Lecture, three hours. Prerequisites: course 149, consent of instructor. Limited enrollment (admission to be based on performance in course 149; participants need not be in an honors program). Participating seminar on topics not covered in course 149. Each student prepares substantial course project and presents it to class.

Probability

M150A-150B. Probability Theory. Lecture, three hours; discussion, one hour. **M150A.** (Same as Statistics M152A.) Prerequisites: courses 32B, 33B. Not open to students with credit for Statistics M152A, 154A, or Electrical Engineering 131A. Probability distributions, random variables and vectors, expectation, normal approximations. P/NP or letter grading. **150B.** Prerequisite: course M150A or Statistics M152A. Convergence in distribution, laws of large numbers, Poisson processes, random walks.

151. Stochastic Processes. Lecture, three hours; discussion, one hour. Prerequisites: course M150A or Statistics M152A, and consent of instructor. Discrete Markov chains, continuous-time Markov chains and semi-Markov processes, renewal theory, Brownian motion.

172A-172B. Actuarial Mathematics. Lecture, three hours; discussion, one hour. **172A.** Prerequisite: course 70. Survival distributions and life tables, life insurance, life annuities, net premiums, net premium reserves. **172B.** Prerequisites: course 172A, Statistics 154A-154B. Multiple life functions, multiple decrement models, valuation theory for pension plans, insurance models, nonforfeiture benefits and dividends.

Special Studies

190. Honors Mathematics Seminar. Lecture, three hours. Prerequisite: consent of instructor. Participating seminar on advanced topics in mathematics. Content varies from year to year. May be repeated for credit by petition.

191. Upper Division Seminar (2 to 4 units). Prerequisites: courses 32A, 32B, 33A, 33B, consent of instructor. Limited to 15 students. Each term department offers a limited number of seminars in various branches of mathematics. Substantial student participation. May be repeated for credit.

199. Special Studies in Mathematics (1 to 4 units). Prerequisite: consent of department chair and instructor. 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. Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward M.A. degree requirements.

202A-202B. Mathematical Models and Applications. Prerequisite: bachelor's degree in mathematics or equivalent. Designed for students in mathematics/education program. Development of mathematical theories describing various empirical situations. Basic characterizing postulates; development of a logical structure of theorems. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences. May not be applied toward M.A. degree requirements.

Number Theory

205A-205B-205C. Number Theory. Prerequisites: courses 210A and 246A, or consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisites: courses 110A-110B-110C or consent of instructor. Students with credit for courses 110B and/or 110C will not 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. Prerequisite: course 210A or consent of instructor. Radical, irreducible modules and primitive rings, rings and algebras with minimum condition.

212. Homological Algebra. Prerequisite: course 210A or consent of instructor. 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. Prerequisite: course 210A or consent of instructor. 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. Prerequisite: course 210A or consent of instructor. 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. Prerequisite: course 210A or consent of instructor. Topics from commutative ring theory, including techniques of localization, prime ideal structure in commutative Noetherian rings, principal ideal theorem, Dedekind rings, modules, projective modules, Serre conjecture, regular local rings.

216. Further Topics in Algebraic Geometry. Prerequisites: courses 214A-214B or consent of instructor. 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.

Logic and Foundations

220A-220B-220C. Mathematical Logic and Set Theory. Prerequisites: courses M112A, 112B-112C, or equivalent. 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.

222A-222B. Lattice Theory and Algebraic Systems. Lecture, three hours. Prerequisite: course 210A or consent of instructor. 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. Prerequisites: 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. Prerequisites: courses 220A-220B-220C. Topics include constructibility theory, Cohen extensions, large cardinals, and combinatorial set theory.

223C. Recursion Theory. Prerequisites: 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. Prerequisites: 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. Lecture, three hours. Prerequisites: courses 121 and 131A-131B, or consent of instructor. 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. Lecture, three hours. Prerequisite: course 225A or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 225A and 225B, or consent of instructor. 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. Lecture, three hours. Prerequisite: course 225A or consent of instructor. 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. Lecture, three hours. Prerequisite: course 225B or consent of instructor. CW complexes, fiber bundles, homotopy theory, cohomology theory, spectral sequences.

229A-229B-229C. Lie Groups and Lie Algebras. Prerequisite: 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-Malcev. Semisimple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl character formula.

233. Partial Differential Equations on Manifolds. Lecture, three hours. Prerequisites: courses 226A and 251A, or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 226A-226B or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 225A and 225B, or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 225A and 225B, or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 227A-227B or consent of instructor. 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.

Analysis and Differential Equations

240. Methods of Set Theory. Lecture, three hours. Prerequisites: courses 110A-110B, 121 or equivalent, 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. Lecture, three hours. Prerequisites: courses 121, 131A-131B, or equivalent. Students with credit for course 134 will not 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. Prerequisites: courses 131A-131B. Students with credit for course 132 will not 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. Lecture, three hours. Prerequisites: 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. Prerequisite: course 246A or consent of instructor. 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. Prerequisite: 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. Prerequisites: 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. In-depth introduction to topics of current interest in partial differential equations or their applications.

252A-252B-252C. Topics in Complex Analysis. Lecture, three hours. Prerequisites: courses 245A-245B-245C and 246A-246B-246C, or consent of instructor. 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.

253A-253B. Several Complex Variables. Prerequisites: courses 245A-245B-245C and 246A-246B-246C, or consent of instructor. 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. Prerequisites: 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. Prerequisites: courses 245A-245B or 265A-265B, and 246A, or consent of instructor. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces including Hilbert spaces and $C(X)$.

255B-255C. Topics in Functional Analysis. Prerequisite: course 255A. Topics include Banach algebras, operators on Banach spaces and Hilbert space, semi-groups of operators, linear topological vector spaces, and other related areas.

256A-256B-256C. Topological Groups and Their Representations. Lecture, three hours. Prerequisite: course 255A or consent of instructor. 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.

258A-258B. Commutative Banach Algebras. Lecture, three hours. Prerequisites: courses 246A, 255A, 255B. Gelfand theory of commutative Banach algebras. Applications to harmonic analysis on locally compact abelian groups. Algebras of holomorphic functions. Special topics.

259A-259B. Operator Algebras in Hilbert Space. Prerequisites: courses 255A, 255B-255C. Selected topics from theories of C^* and von Neumann algebras. Applications.

Applied Mathematics

260. Introduction to Applied Mathematics. Prerequisite: course 142 or consent of instructor. Construction, analysis, and interpretation of mathematical models of problems which arise outside of mathematics.

M261. Game Theory. (Formerly numbered 261.) (Same as Economics M214B and Political Science M208A.) Lecture, three hours. Prerequisite: graduate standing in mathematics or consent of instructor. 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. Prerequisite: course 246A or consent of instructor. 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. Prerequisites: courses 131A-131B or consent of instructor. 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. Prerequisites: courses 131A-131B, 132, and 135A-135B or 145 and 146. Spectral theory of regular boundary value problems and examples of singular Sturm/Liouville problems, related integral equations, phase/plane analysis of nonlinear equations.

266B-266C. Applied Partial Differential Equations. Prerequisite: course 266A or consent of instructor. Classification of equations, classical potential theory, Dirichlet and Neumann problems. Green's functions, spectral theory of Laplace equation in bounded domains, first-order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

266D-266E. Applied Differential Equations. Prerequisites: 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.

267A-267B. Applied Algebra. Prerequisite: course 110A or equivalent. Students with credit for course 210A will not receive M.A. degree credit for course 267A. Linear algebra, eigenvalues, and quadratic forms; linear inequalities, finite fields, and combinatorial analysis. Group theory, with emphasis on representations. Application to physical problems.

268A. Applied Functional Analysis. Lecture, three hours. Prerequisites: courses 115A-115B, 131A-131B, and 132, or consent of instructor. 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. Prerequisite: 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. Prerequisites: courses 115A, 135A, and 140A-140B-140C, or consent of instructor. 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.

270A-270F. Mathematical Aspects of Scientific Computing. Lecture, three hours. Prerequisites: courses 115A, 140A or 141A-141B, and Program in Computing 10A or equivalent, or consent of instructor.

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, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations.

270F. Parallel Numerical Algorithms. Prerequisites: 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. Prerequisite: course 131A or consent of instructor. 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. Prerequisites: course 271A, prior knowledge of mechanics. Newtonian and Lagrangian equations. Hamilton principle. Principle of least action. Holonomic and nonholonomic systems. Hamilton canonical equations, contact transformations, applications.

271C. Introduction to Relativity. Prerequisites: course 271A, prior knowledge of mechanics. Restricted theory of relativity. Extensions to general theory. Relativistic theory of gravitation.

271D. Wave Mechanics. (Formerly numbered 273.) Prerequisite: consent of instructor. General concepts of mechanical systems (states, space-time, "logics," etc.). Classical and quantum examples. Correspondence principle. Spinors.

272A. Foundations of Continuum Mechanics. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: course 272A or consent of instructor. 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. Lecture, three hours. Prerequisites: course 272A, consent of instructor. Basic electromagnetism. Steady flows, Hartmann layers. Alfvén theorem and waves. Compressible media. Magnetostatic equilibria and stability.

272D. Rotating Fluids and Geophysical Fluid Dynamics. Lecture, three hours. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. (Formerly numbered M274A.) Lecture, three hours. Prerequisite: course 132 or equivalent. 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. Lecture, three hours. Prerequisite: course 266A or equivalent. Boundary layer theory, matched asymptotic expansions, WKB theory. Problems with several time scales: Poincaré method, averaging techniques, multiple-scale analysis. Application to eigenvalue problems, nonlinear oscillations, wave propagation, and bifurcation problems. Examples from various fields of science and engineering.

Probability and Statistics

275A-275B. Probability Theory. Prerequisite: 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. Lecture, three hours. Prerequisite: course 275B or consent of instructor. Brownian motion, continuous-time martingales, Markov processes, potential theory. S/U or letter grading.

275D. Stochastic Calculus. Lecture, three hours. Prerequisite: course 275C or consent of instructor. Stochastic integration, stochastic differential equations, Itô formula and its applications. S/U or letter grading.

275E. Stochastic Particle Systems. Lecture, three hours. Prerequisite: course 275C or consent of instructor. Interacting particle systems, including contact process, stochastic Ising model, and exclusion processes; percolation theory. S/U or letter grading.

276A-276B. Statistical Theory. Lecture, three hours. Prerequisite: Statistics 152C or consent of instructor.

276A. Sufficiency, exponential families, least squares, maximum likelihood estimation, Fisher information, Cramér/Rao inequality, confidence intervals. **276B.** Asymptotic properties of tests and estimates, consistency and efficiency, likelihood ratio tests, chi-squared tests.

276C. Statistical Decision Theory. Prerequisite: course 276A. Invariant estimates and tests; best unbiased and locally best tests; multiple decision problems; application to general linear model; other topics.

277. Data Analysis. Lecture, three hours. Prerequisites: course 276A and Statistics M153A, or consent of instructor. 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.

278A. Multivariate Analysis. Lecture, three hours. Prerequisite: course 276B or consent of instructor. 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.

278B. Nonparametric and Robust Statistics. Lecture, three hours. Prerequisite: course 276B or consent of instructor. Development of nonparametric and robust procedures for hypothesis testing, estimation in one- and two-sample problems, linear and nonlinear regression, multiple classification, density estimation.

278C. Decision Theory. Lecture, three hours. Prerequisites: courses 131A and 276B, or consent of instructor. Bayes, admissible, and minimax decision rules. Invariant tests and estimates, best unbiased tests, locally best tests. Application to general linear model.

278D. Sequential Analysis. Lecture, three hours. Prerequisites: courses 131A and 276B, or consent of instructor. Bayes sequential decision problems, stopping rule problems, optimality of sequential probability ratio test, Wald identity, asymptotic theory, and other topics.

M279A-M279B. Linear Statistical Models. (Formerly numbered M279A-M279B-M279C.) (Same as Biostatistics M250A-M250B.) Lecture, three hours; discussion, one hour. Prerequisite: 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. S/U or letter grading.

M280. Statistical Computing. (Same as Biomathematics M280 and Biostatistics M280.) Lecture, three hours. Prerequisites: course 115A, Statistics 152C, or equivalent. 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.

Special Studies

285A-285L. Seminars. Prerequisite: consent of instructor. 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:

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.

285L. Statistics.

290. Seminar: Current Literature. Intended for Ph.D. candidates. Readings and presentations of papers in mathematical literature under supervision of a staff member.

296A-296M. Participating Seminars (1 to 4 units each). (Formerly numbered 286A-286M.) Prerequisite: consent of instructor. 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.

296L. Statistics.

296M. Mathematics.

370A-370B. Teaching of Mathematics. (Formerly numbered 370.) Lecture, three hours; discussion, one hour. Prerequisites: course 33B, upper division standing. Course 370A is prerequisite 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 units). Prerequisite: 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 units). Discussion, one hour; two-day intensive training at beginning of Fall Quarter. Required of all new teaching assistants and new doctoral 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 units). Prerequisite: 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 units). 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.

599. Research in Mathematics (2 to 12 units). Prerequisite: advancement to doctoral candidacy. Study and research for Ph.D. dissertation. May be repeated for credit.

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. Lecture, three hours; laboratory, one hour; computer assignments, five hours. Fundamentals of computers and computing; editors, spreadsheets, file manager; machine organization and computer hardware; Internet; software applications. P/NP or letter grading.

3. Introductory FORTRAN Programming (5 units). Lecture, three hours; discussion, two hours; laboratory, eight hours. Students with credit for course 10A will 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 units). 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 will receive only two units of credit for this course. Basic principles of programming, using C++ as example language: algorithmic, procedural problem solving; program design and development; control structures and data structures; human factors in programming and program design.

10B. Intermediate Programming (5 units). Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10A. Arrays, pointers, classes; abstract data types, object-oriented programming; text processing, recursion, linked lists, stacks, queues, trees, and applications. Example language is C++.

10C. Advanced Programming (5 units). Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced requisite: course 10B. Sorting and searching; lexical analysis and parsing; algorithmic analysis; programming in UNIX environment.

15. Introduction to LISP and Symbolic Computation (5 units). 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.

30. Machine Organization and Assembly Language Programming (5 units). 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, I/O processing and interrupts.

60. Data Structures and Algorithms. 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. Lecture, three hours; discussion, 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. Introduction to Concurrent Computation (5 units). Lecture, three hours; discussion, two hours; laboratory, eight hours. Prerequisite: course 10C or equivalent familiarity with programming in C or C++ language. Introduction to programming of concurrent (parallel) computers. Shared and distributed memory parallel architectures; currently available concurrent machines; parallel algorithms and development of concurrent programs; estimation of algorithmic performance; selected advanced topics.

197. Advanced Topics in Programming. Lecture, three hours; discussion, two hours. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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.

285L. Computational Statistics.

296. Participating Seminar: Logic and Theory of Computation (1 to 4 units). (Formerly numbered 286.) Prerequisite: consent of instructor. Seminar and discussion by staff and students. S/U grading.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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.

Statistics

Lower Division Course

50. Elementary Statistics. 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.

Upper Division Courses

Students planning to pursue advanced degrees in statistics should enroll in the M152A, 152B-152C sequence. The 154A-154B sequence is less comprehensive than the 152 series. In particular, probability topics do not receive the same level of coverage. Courses 154A-154B are offered each term. The remaining upper division courses are usually offered once or twice each year. The tentative class schedule for the forth-

coming academic year is posted in the Student Services Office in February.

M152A. Probability Theory. (Same as Mathematics M150A.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 32B, 33B. Not open to students with credit for course 154A, Mathematics M150A, or Electrical Engineering 131A. Probability distributions, random variables and vectors, expectation, normal approximations. P/NP or letter grading.

152B-152C. Statistics. Lecture, three hours; discussion, one hour. Not open to students with credit for courses 154A-154B. P/NP or letter grading. **152B.** Prerequisite: course M152A. Survey sampling, estimation, testing, data summary, one- and two-sample problems. **152C.** Prerequisite: course 152B. Analysis of variance, categorical data, linear regression, decision theory and Bayesian inference.

M153A-M153B. Introduction to Computational Statistics. (Same as Biomathematics M153A-M153B and Biostatistics M153A-M153B.) Lecture, three hours; discussion, one hour. Prerequisites: course 152B, Mathematics 115A. Linear and nonlinear regression analysis using package programs. Emphasis on relation between statistical theory, numerical results, and analysis of data. **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.

154A-154B. Statistics. Lecture, three hours; discussion, one hour. Not open to students with credit for courses M152A and 152B. P/NP or letter grading.

154A. Prerequisites: Mathematics 32B, 33B. Not open to students with credit for Mathematics M150A or Electrical Engineering 131A. Probability, distributions, expectation, estimation, central limit theorem, confidence intervals, testing. **154B.** Prerequisite: course 154A. One- and two-sample problems, goodness of fit and contingency tables, correlation and regression, analysis of variance, nonparametrics.

MECHANICAL, AEROSPACE, AND NUCLEAR ENGINEERING

*School of Engineering and Applied
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Ivan Catton, Ph.D.
Vijay K. Dhir, Ph.D., *Chair*
Peretz P. Friedmann, Sc.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., *Vice Chair*
J. John Kim, Ph.D. (*Rockwell International Professor
of Engineering*)

Ajit K. Mal, Ph.D.
 William C. Meecham, Ph.D.
 Anthony F. Mills, Ph.D.
 D. Lewis Mingori, Ph.D.
 Gerald C. Pomraning, Ph.D.
 Owen I. Smith, Ph.D.
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 Daniel C.H. Yang, Ph.D.

Professors Emeriti

Harry Buchberg, M.S.
 Andrew F. Charwat, Ph.D.
 Kurt Forster, Ph.D.
 Walter C. Hurty, M.S.
 Cornelius T. Leondes, Ph.D.
 Michel A. Melkanoff, Ph.D.
 Peter A. Monkewitz, Ph.D.
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 Zvi Shiller, Ph.D.
 Xiaolin Zhong, Ph.D.

Senior Lecturers

C.H. Chang, M.S.
 Alexander Samson, Ph.D., *Emeritus*

Adjunct Professors

Yoseph Bar-Cohen, Ph.D.
 Frank E. Marble, Ph.D.
 Rudolph X. Meyer, Ph.D.

Adjunct Associate Professor

Sukumar Chakravarthy, Ph.D.

Scope and Objectives

The Mechanical, Aerospace, and Nuclear 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 the undergraduate and graduate levels, while nuclear engineering is a graduate program. The Gorman Report ranked UCLA's mechanical engineering program tenth in the nation for undergraduate programs.

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 mechanical systems — design and control; power systems and thermal design; manufacturing processes; or fluids engineering.

At the graduate level, the department offers programs leading to M.S. and Ph.D. degrees in Mechanical Engineering, Aerospace Engineering, and Nuclear Engineering. An M.S. in Manufacturing Engineering is also offered.

Bachelor of Science in Aerospace Engineering

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, materials and aeroelasticity, dynamics, control and guidance, propulsion, and energy conversion.

The Major

Course requirements are as follows (190 minimum units required):

(1) Ten department core courses: Civil and Environmental Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering

Engineering 20, 102, 103, M105A, 105D, 157, 192A.

(2) Twelve aerospace engineering core courses: Electrical Engineering 102; Mechanical, Aerospace, and Nuclear Engineering 150A, 150B, 150P, 154A, 154B, 154S, 157A, 161A or 169A, 166A, 171A; one mathematics elective from Mechanical, Aerospace, and Nuclear Engineering 191A, 192B, 192C, 192D, 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, Aerospace, and Nuclear Engineering 131A/131AL, 132A, 133A (thermodynamics, heat, and mass transfer); 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, Aerospace, and Nuclear Engineering 161A (unless taken as part of the core), 161B, 161C, 161D (space technology); 156B, 166C, 168, Civil and Environmental Engineering 130F (structural and solid mechanics); Mechanical, Aerospace, and Nuclear Engineering 162A, 162C, M192F (design and mechanisms); Materials Science and Engineering 143A, 143L, 147B.

(4) Chemistry and Biochemistry 11A, 11B/11BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

(5) SEAS general education (GE) course requirements — see Curricular Requirements in the College and Schools section of this catalog for details.

Bachelor of Science in Mechanical Engineering

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 an option in mechanical systems — design and control; power systems and thermal design; manufacturing processes; or fluids engineering.

The Major

Course requirements are as follows (192 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, Aerospace, and Nuclear Engineering 20, 102, 103, M105A, 105D, 157, 192A.

(2) Ten mechanical engineering core courses: Electrical Engineering 110L (may be taken concurrently with 100), Materials Science and Engineering 147B, Mechanical, Aerospace, and Nuclear

clear Engineering 131A, 133A, 156A, 162A, 162B, 162M, 169A, 171A.

(3) Twenty technical elective units, of which at least four should be laboratory units, to be selected from one of the subject areas listed below; no more than eight units may be taken from any one of subgroups a, b, c:

Fluids Engineering

(a) Mechanical, Aerospace, and Nuclear Engineering 157A.

(b) Electrical Engineering 103, Mechanical, Aerospace, and Nuclear Engineering 150A, 150B, 153A, 192B, 192C.

(c) Mechanical, Aerospace, and Nuclear Engineering 136, 150P, 151, 161A, 161B.

Manufacturing Processes

(a) Materials Science and Engineering 143L, 161L, Mechanical, Aerospace, and Nuclear Engineering 163B, 163C, 194, 195.

(b) Materials Science and Engineering 143A, Mechanical, Aerospace, and Nuclear Engineering 163A, 164.

(c) Civil and Environmental Engineering 175, Mechanical, Aerospace, and Nuclear Engineering 155, 174, 194.

Mechanical Systems — Design and Control

(a) Civil and Environmental Engineering 130F, 137L, Materials Science and Engineering 143L, Mechanical, Aerospace, and Nuclear Engineering 162C, 163B, 163C, 194.

(b) Electrical Engineering 103, 131A, 131B, Mathematics 115A, 115B, 131A, 131B, Mechanical, Aerospace, and Nuclear Engineering 155, 156B, 164, 174, 191A.

(c) Materials Science and Engineering 143A, Mechanical, Aerospace, and Nuclear Engineering 163A, 168.

Power Systems and Thermal Design

(a) Mechanical, Aerospace, and Nuclear Engineering 131AL.

(b) Electrical Engineering 103, Mechanical, Aerospace, and Nuclear Engineering 132A, 135, 150A, 192B, 192C.

(c) Mechanical, Aerospace, and Nuclear Engineering 136, 150P, 151, 161B, 174.

(4) Chemistry and Biochemistry 11A, 11B/11BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Mechanical, Aerospace, and Nuclear Engineering 94; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

(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; you are strongly encouraged to consult your adviser.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Aerospace Engineering Mechanical Engineering

Master's Degrees

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program in Aerospace Engineering and to the Master of Science program 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 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 School-wide Programs in the Curricula and Courses section of this catalog.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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

Applied dynamics systems control; dynamics; fluid mechanics; heat and mass transfer; structural and solid mechanics.

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.

Aerospace Engineering

Breadth Requirements. Students are required to take at least three courses from the following four categories: (1) Mechanical, Aerospace, and Nuclear Engineering 154A or 154B or 154S; (2) 150B or 150B; (3) 166A or 169A or 155; (4) 161A or 171A.

Graduate-Level Requirement. Students are required to take at least one course from the following: Mechanical, Aerospace, and Nuclear 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, Aerospace, and Nuclear Engineering 162A or 169A or 171A; (2) 150B 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, Aerospace and Nuclear 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, is required to be in written form. The comprehensive examining committee may conduct an oral examination after review of the written examination. The student may, in consultation with the adviser and the major field chair, choose to take the first part of the Ph.D. preliminary written examination as the comprehensive examination. In case of failure, the student 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. program in Aerospace Engineering and to the Ph.D. program 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.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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.

Major Fields or Subdisciplines

Applied dynamics systems control; dynamics; fluid mechanics; heat and mass transfer; structural and solid mechanics.

Course Requirements

There is no formal course requirement for the Ph.D. degree. Normally, however, the student takes 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 major and minor fields. The syllabus for each major field can be obtained from the department. Each minor field 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 the student fails 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.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in the Curricula and Courses section of this catalog.

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the major field, the student takes a written preliminary examination covering this knowledge. This examination 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 the preliminary examination, the student may take the University Oral Qualifying Examination. The nature and content of the qualifying examination are at the discretion of the doctoral committee but include a review of the prospectus of the dissertation. The examination may include a broad inquiry into the student's preparation for research.

Nuclear Engineering

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program in Nuclear 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 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 in the Curricula and Courses section of this catalog.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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

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 compre-

hensive 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:

Applied Plasma Physics and Fusion Engineering

Applied Plasma Physics — Mechanical, Aerospace, and Nuclear Engineering 137, 235B, M237A, M237B, Electrical Engineering 118, Physics 180E.

Plasma Engineering — Mechanical, Aerospace, and Nuclear Engineering 135, 137, M237A, 237C, Electrical Engineering 118, Physics 180E.

Fusion Engineering — Mechanical, Aerospace, and Nuclear Engineering 135, 136, 137, 231C, 235A, 235B, 236A, 236B, 236C, M237A, M237B, 237C.

Nuclear Science and Engineering

Fission Reactor Analysis — Mechanical, Aerospace, and Nuclear Engineering 135, 235A, 235B, 236C, 236E.

Fission Reactor Safety — Mechanical, Aerospace, and Nuclear Engineering 135, 136, 235A, 236C, 236E, 274.

Nuclear Fuels and Materials — Mechanical, Aerospace, and Nuclear Engineering 135, 236A, 236B, 236C, 236E.

Electives

Mechanical, Aerospace, and Nuclear Engineering 131A, 136, 192A, 192B, 192C, 231A, 231C, 231D, 231E, Civil Engineering 175.

Substitutions may be made with the consent of the departmental graduate adviser. Electives may be chosen from courses listed outside the major area or from the list of electives above.

Comprehensive Examination Plan

The comprehensive examination is required in written form. The comprehensive examining committee may conduct an oral examination after review of the written examination. In case of failure, the student 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 Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Ph.D. pro-

gram in Nuclear 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 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 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.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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.

Major Fields or Subdisciplines

Applied plasma physics and fusion engineering; nuclear science and engineering.

Course Requirements

There is no formal course requirement for the Ph.D. degree. Normally, however, the student takes courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degree in Nuclear Engineering is built around one major field and two minor fields. 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. The two major fields named above are described in a Ph.D. major field syllabus, which can be obtained in 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 the student fails 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 a subset of other major fields.

For information on completing the Engineer degree, see Engineering Schoolwide Programs in the Curricula and Courses section of this catalog.

Written and Oral Qualifying Examinations

After mastering the body of knowledge defined in the major field, the student takes a written preliminary examination. When this examination is passed and all coursework is completed, the student proceeds 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, the student is ready to take the University Oral Qualifying Examination. The nature and content of the examination are at the discretion of the doctoral committee but include a review of the prospectus of the dissertation. The examination may include a broad inquiry into the student's preparation for research.

Manufacturing Engineering

Master's Degree

Admission

In addition to meeting the requirements of the Graduate Division, applicants to the Master of Science program 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 in the Curricula and Courses section of this catalog.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the address given at the beginning of this listing 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

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 compre-

hensive 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:

Upper Division Courses. Students are required to take at least three courses from the following: Mechanical, Aerospace, and Nuclear Engineering 163A, 163B, 163C, 168, 174, 192D, 194, 195; Materials Science and Engineering 147B.

Graduate Courses. Students are required to take at least three courses from the following: Mechanical, Aerospace, and Nuclear Engineering 263A, 263C, 263D, 293, 294, 295A.

Additional Courses. The remaining courses may be taken from other major fields of study in the department or from the following: Mathematics 120A, 120B; Computer Science 241A, 241B; Architecture and Urban Design 226B, M227B, 227D; Management 240A, 240B, 240C, 240D, 241A, 241B, 242A, 242B, 243A, 243B, 243C.

Comprehensive Examination Plan

The comprehensive examination, which is offered every quarter, is required to 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.

Lower Division Courses

1. Energy: Resources, Conversion, Utilization, and the Environment. Lecture, three hours; laboratory, one hour; outside study, eight hours. Intended for students interested in energy. Topics include resources, conversion and utilization using fossil and nuclear fuels, solar, geothermal, and biomass. Conservation, sociopolitical aspects, and the environment.

2. Toxic Waste Control. Lecture, three hours; discussion, one hour. Intended for students interested in toxic wastes. Topics include sources of toxic substances, effects on public health and environment, technological solutions, public policy, and risk assessment.

20. FORTRAN Programming with Numerical Methods Applications. Lecture, three hours; laboratory, two hours; outside study, seven hours. Prerequisites: Mathematics 31A, 31B. Introduction to programming with FORTRAN. Applications to numerical methods used in engineering.

94. Introduction to Computer-Aided Design and Drafting. 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.

Upper Division Courses

102. Mechanics of Particles and Rigid Bodies. Lecture, three hours; recitation, two hours. Prerequisites: Mathematics 33A, Physics 8A. 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.

103. Elementary Fluid Mechanics. Lecture, three hours; recitation, two hours. Prerequisites: Mathematics 32B, 33A, Physics 8B. Introductory course dealing with application of principles of mechanics to flow of compressible and incompressible fluids.

M105A. Introduction to Engineering Thermodynamics. (Same as Chemical Engineering M105A.) Lecture, four hours; recitation, one hour. Prerequisites: Mathematics 32B, Physics 8B. 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.

105D. Transport Phenomena. Lecture, four hours; recitation, one hour. Prerequisites: 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.

131A. Intermediate Heat Transfer. Lecture, four hours; other, eight hours. Prerequisite: course 105D. Steady conduction: two-sided, two-ended, tapered, and circular fins; buried cylinders, thick fins. Transient conduction: slabs, cylinders, products. Convection: transpiration, laminar pipe flow, film condensation, boundary layers, dimensional analysis, working correlations. Surface radiation. Two-stream heat exchangers. Elements of thermal design.

131AL. Thermodynamics and Heat Transfer Laboratory. Laboratory, eight hours; other, four hours. Prerequisites: 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.

132A. Mass Transfer. Lecture, four hours; other, eight hours. Prerequisites: courses 105D, 131A. Principles of mass transfer by diffusion. Mass transfer by convection in laminar and turbulent flows. Simultaneous heat and mass transfer. Applications including combustion of solids and volatile fuels, evaporation and condensation, ablation and transpiration cooling, gas absorption and catalysis.

133A. Engineering Thermodynamics. Lecture, four hours; other, eight hours. Prerequisites: 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.

135. Fundamentals of Nuclear Power. Prerequisite: junior standing. 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.

136. Thermal Hydraulic Design of Nuclear and Other Power Systems. Lecture, four hours; recitation, two hours; outside study, six hours. Prerequisite: senior standing. 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.

137. Introduction to Fusion Engineering and Reactor Design. Prerequisite: course 135 or consent of instructor. Fusion reactions, fuel cycle, and operating conditions. Magnetic and inertial confinement, including tokamaks, magnetic mirrors, laser fusion, and selected others. Concepts for and subsystems of fusion reactors. Design of reactors and key subsystems. Application of fusion reactors for electricity, fissionable fuel, and/or chemical fuel production.

150A. Intermediate Fluid Mechanics. Prerequisite: course 103 or equivalent or consent of instructor. 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.

150B. Aerodynamics. Prerequisites: courses 103, 150A, or equivalent. 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.

150P. Jet Propulsion Systems. Lecture, four hours; recitation, two hours; outside study, six hours. Prerequisites: courses M105A, 150A, or equivalent. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics.

151. Performance of Vehicles. Lecture, four hours; other, eight hours. Prerequisites: courses 103, M105A. Transportation systems and their characteristics in terms of speed, range, payload, efficiency, etc. Engines: power available. Vehicles, including automobiles, trains, aircraft, and boats: power required. Engine-vehicle mission matching.

153A. Engineering Acoustics. Prerequisite: upper division standing in engineering or consent of instructor. Fundamental course in acoustics; propagation of sound; sources of sound. Design of field measurements. Estimation of jet and blade noise with design aspects.

154A. Preliminary Design of Aircraft. Prerequisite: 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.

154B. Design of Aerospace Structures. Prerequisites: 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.

154S. Flight Mechanics, Stability, and Control of Aircraft. Prerequisites: 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.

155. Intermediate Dynamics. Lecture, four hours; other, eight hours. Prerequisite: course 102 or equivalent. 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.

156A. Strength of Materials. Lecture, four hours; recitation, one hour; outside study, seven hours. Prerequisite: Civil Engineering 108 or equivalent. 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.

156B. Introduction to Elasticity. (Formerly numbered 158A.) Lecture, four hours; outside study, eight hours. Prerequisite: course 156A or equivalent. Kinematics of deformation, strain displacement relations. Balance laws, stress tensor, principal stresses, equilibrium equations. Conservation of energy, strain energy function. Generalized Hooke's law, thermoplasticity and viscoelasticity. Stress calculation in cylinders and spheres. Plane elasticity, Airy stress function. Stress concentration problems at holes, corners, and crack tips.

157. Basic Mechanical Engineering Laboratory. Laboratory, eight hours; other, four hours. Prerequisites: courses 103, M105A, 105D, Civil Engineering 108. 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.

157A. Fluid Mechanics/Aerodynamics Laboratory. Laboratory, eight hours. Prerequisites: courses 103, 150A, 150B, and 157, or consent of instructor. 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.

161A. Introduction to Astronautics. Prerequisite: course 102. 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.

161B. Introduction to Space Technology. Lecture, four hours; other, eight hours. Recommended (but not prerequisite): 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.

161C. Spacecraft Design. Lecture, four hours; other, eight hours. Prerequisite: 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.

161D. Space Technology Hardware Design (2 units). Lecture, one hour; laboratory, two hours; outside study, three hours. Prerequisite or corequisite: course 161B. Design, by students, of hardware with applications to space technology. Best designs are then built by professional machine shop and tested by the students. May be taken in Winter or Spring Quarter, or twice with different projects in each term.

162A. Introduction to Mechanisms and Mechanical Systems. Lecture, four hours; other, eight hours. Prerequisite: course 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.

162B. Mechanical Product Design. Lecture, three hours; discussion, one hour; laboratory, two hours; outside study, six hours. Prerequisites: courses 156A, 162A. 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.

162C. Electromechanical System Design Laboratory. Lecture, one hour; laboratory, eight hours; other, three hours. Prerequisite: course 162B. Laboratory and design course consisting of design, development, construction, and testing of complex mechanical and electromechanical systems. The assembled machine is instrumented and monitored for operational characteristics.

162M. Senior Mechanical Engineering Design. Lecture, one hour; laboratory, six hours; other, five hours. Prerequisites: course 162B, Civil Engineering 106A. 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.

163A. Introduction to Computer-Controlled Machines. Prerequisite: 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.

163B. Interfacing of Computer-Controlled Machines. Laboratory, eight hours. Prerequisite: course 171A. Recommended: courses 162B, 163A, 163C. Hands-on experience with computer-controlled electromechanical systems, with special emphasis on real-time programming and interfacing techniques of microprocessors and their integration with sensors and actuators. Final design project required.

163C. Robotics and Motion Control Laboratory. Laboratory, eight hours; outside study, four hours. Prerequisite: course 171A or consent of instructor. 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, multiaxes coordination, programming of industrial robots. Final project required.

164. Digital Control of Physical Systems. Prerequisite: 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.

166A. Analysis of Flight Structures. Prerequisite: 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.

166C. Design of Composite Structures. Prerequisite: 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.

168. Introduction to Finite Element Technology. Lecture, four hours; laboratory, four hours; other, four hours. Prerequisites: Civil Engineering 108, Computer Science 10F, Mathematics 33A. Recommended: courses 94 or 194, 166A. Introduction to finite element method (FEM) and its matrix formulation; 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.

169A. Introduction to Mechanical Vibrations. (Formerly numbered M169A.) Lecture, four hours; other, eight hours. Prerequisites: course 102, Civil Engineering 108. 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.

171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I. Prerequisite: course 191A or 192A or Electrical Engineering 102 or equivalent. 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.

171C. Dynamic Systems Control II. Recommended (but not prerequisite): course 171A or Electrical Engineering 141. State-space models of continuous-time and discrete-time dynamic systems. Linear algebra of systems; vector spaces; geometric concepts; transformations and matrices; canonical forms. Stability. Controllability and observability. State representation of nonlinear systems; linearization. Emphasis on modeling concepts, applications, and computer-aided problem solving.

174. Probability and Its Applications to Risk, Reliability, and Quality Control. 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.

175. Applications of Probabilistic Risk Analysis. Prerequisite: consent of instructor. Applications of probabilistic models for failure of components, sub-systems, and systems. Derivation and application of models for source terms, dispersion, dose-response relationships, and cost/benefit relationships. Emphasis on several case studies (e.g., hazardous waste control, energy systems, and high-level radioactive waste).

180A. Environmental Biotechnology. Prerequisite: consent of instructor. Physical, physiological, and psychological aspects of interaction between man and thermal, atmospheric, radiant, and mechanical agents and energies in the environment. Biological and physical requirements for engineering control of the environment; applications to complex systems.

191A. Complex Analysis and Integral Transforms. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

192A. Mathematics of Engineering. Prerequisites: 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.

192B. Mathematics of Engineering. Prerequisite: course 192A or equivalent. 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.

192C. Numerical Methods for Engineering Applications. Recommended (but not prerequisite): Electrical Engineering 103. Basic topics from numerical analysis having wide application in solution of practical engineering problems. 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.

192D. Introduction to Random Processes. (Formerly numbered 193A.) Lecture, four hours; outside study, eight hours. Recommended (but not prerequisite): course 174 or equivalent. Elements of probability, time, series, probability density function (PDF), averages, characteristics function; joint PDF, correlation function, and energy density function; Gaussian distributions, white noise process; random walk, least-square linear smoothing.

M192F. Numerical Optimization Methods for Engineering Design. (Same as Civil Engineering M140.) Lecture, four hours; outside study, eight hours. Prerequisites: course 20 or Civil Engineering 15A and 15B, 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.

194. Introduction to CAD/CAM Systems: Design and Implementation. (Formerly numbered 194A, 194B.) Laboratory, eight hours; outside study, four hours. Prerequisites: course 94 or consent of instructor, FORTRAN programming language. Hands-on experience with CAD/CAM systems design and implementation, with special emphasis on theory of parametric curves and surfaces for design and manufacturing and their computer interactive graphics implementation.

195. Computer Numerical Control and Applications. (Formerly numbered 195A.) Laboratory, eight hours; outside study, four hours. Prerequisite: upper division standing. 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.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, consent of instructor. 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.

Graduate Courses

201. Mechanical, Aerospace, and Nuclear Engineering Seminar (2 units). Prerequisite: graduate standing in engineering. Lectures on current research topics in mechanics and structures. May be repeated for credit. S/U grading.

202. Manufacturing Engineering Seminar (2 units). Prerequisite: graduate standing in engineering. Lectures on current research and development in manufacturing engineering. S/U grading.

231A. Convective Heat Transfer Theory. Prerequisite: course 131A. 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.

231B. Radiation Heat Transfer. Prerequisite: 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.

231C. Boiling and Condensation. Prerequisites: courses 131A, 150A, or equivalent. 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.

231D. Application of Numerical Methods to Transport Phenomena. Prerequisite: course 132A or consent of instructor. 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.

231E. Two-Phase Flow Heat Transfer. Prerequisites: 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.

231F. Advanced Heat Transfer. Prerequisite: 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.

232B. Advanced Mass Transfer. Prerequisites: courses 131A, 132A. Formulation of general convective heat and mass transfer problem, including equilibrium and nonequilibrium chemistry. Similar and non-similar solutions for laminar flows; solution procedures for turbulent flows. Multicomponent diffusion. Application to hypersonic boundary layer, ablation and transpiration, cooling combustion.

233A. Advanced Power Production and Propulsion. Prerequisite: course 133A or equivalent. Thermodynamic cycle analysis. Fluid mechanics and thermodynamics of compressors and turbines. Component matching. Atomization and vaporization. Flow and mixing in combustion chambers. Flame stabilization and combustion instabilities. Turbojet and ramjet engines and gas turbines. Rocket propulsion and stability of combustion processes.

234A. Topics in Thermal Design. Prerequisites: courses 131A, 132A. Consideration of thermal design problems selected from applications such as heat exchangers, heat shields, heat pipes, thermal environment control, spacecraft temperature control, and solar thermal conversion. Presentations made by the staff and occasionally by invited off-campus specialists.

235A. Nuclear Reactor Theory. Prerequisites: 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.

235B. Kinetic Theory of Plasmas and Particle Transport. Prerequisites: course 135 or 137 and Electrical Engineering M185, or consent of instructor. Unified kinetic theory treatment of plasma, neutron, and radiation transport phenomena. Liouville equation, Boltzmann collision integral and H-theorem. Derivation of Fokker/Planck, neutron, and radiation transport equations. Fluid moment equations, dispersion relations, space and time relaxation phenomena. Applications from neutron transport, plasma physics, and radiative transfer.

236A. Nuclear Materials Engineering. Prerequisites: course 135 and Materials Science 143A, or consent of instructor. 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.

236B. Plasma Processing of Materials. Lecture, four hours; outside study, eight hours. Prerequisite: Materials Science 147B or consent of instructor. Applications of plasma-materials interactions in processing of materials and fusion energy; atomic bonding and surface defects; atomic collision theory; energy loss of plasma ions, collision cascades, sputterings, reflection, and implantation. Formation of plasma coatings and thin films: atomic clustering, residual stresses, failure analysis and process optimization.

236C. Nuclear Reactor Safety. Prerequisites: courses 135, 136, and 235A, or consent of instructor. Safety-related characteristics of thermal and fast nuclear power reactors; design criteria and siting considerations; methods of accident analysis; general risk considerations. Analysis of specific accidents; anticipated transients without scram, loss-of-coolant accidents, and reactivity transients.

236E. Advanced Problems in Reactor Design. Prerequisites: at least four courses from 235A, 235B, 236A, 236B, 236C, 274, 275. Methods of attack and solution for advanced problems in reactor design, including fuel elements, power reactor cores, pulsed reactors, fuel cycle and fuel management, thermal hydraulics, shielding, and safety.

M237A. Principles of Magnetic Confinement Fusion. (Same as Electrical Engineering M286.) Prerequisites: Electrical Engineering M185, and 285A and 285B or Physics 222A-222B, or consent of instructor. Plasma requirements for controlled fusion. Structure of magnetic fields. Theory of MHD equilibrium and stability. Shear and minimum-B stabilization. Resistive and microinstabilities. Neoclassical diffusion physics of tokamak and tandem-mirror plasmas. Neutral beams and auxiliary heating. Alternate concepts.

M237B. Fusion Plasma Physics and Analysis. (Same as Electrical Engineering M287.) Prerequisite: 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.

237C. Fusion Reactor Technology and Design. (Formerly numbered M237C.) Prerequisites: courses 135, 137. Magnetic fusion reactor concepts and technological components, solid and liquid breeder blankets, neutronics, fuel cycles, in-vessel components, radiation shielding, magnets, system design and optimization.

239BA-239BZ. Seminars: Current Topics in Transport Phenomena (2 to 4 units each). Prerequisite: consent of instructor. Lectures, discussions, student presentations, and projects in areas of current interest in transport phenomena. May be repeated for credit. S/U grading.

239DA-239DZ. Seminars: Current Topics in Nuclear Engineering (2 to 4 units each). Prerequisite: consent of instructor. Lectures, discussions, student presentations, and projects in areas of current interest in nuclear engineering. May be repeated for credit. S/U grading.

239FA-239FZ. Special Topics in Transport Phenomena (2 to 4 units each). Prerequisites: consent of instructor, additional prerequisites for each offering as announced in advance by department. 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.

239GA-239GZ. Special Topics in Nuclear Engineering (2 to 4 units each). Prerequisites: consent of instructor, additional prerequisites for each offering as announced in advance by department. 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.

239HA-239HZ. Special Topics in Fusion Physics, Engineering, and Technology (2 to 4 units each). Prerequisites: consent of instructor, additional prerequisites for each offering as announced in advance by department. 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.

250A. Foundations of Fluid Dynamics. Lecture, four hours; outside study, eight hours. Prerequisite: course 150A or consent of instructor. 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.

250B. Viscous and Turbulent Flows. Prerequisite: course 150A or consent of instructor. 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.

250C. Compressible Flows. Prerequisites: courses 150A, 150B, or equivalent. 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.

250D. Computational Aerodynamics. Lecture, eight hours. Prerequisites: courses 150A, 150B or equivalent, 192C. Introduction to useful methods for computation of aerodynamic flow fields. Coverage of potential, Euler, and Navier/Stokes equations for subsonic to hypersonic speeds.

251A. Stratified and Rotating Fluids. Prerequisite: course 150A or equivalent or consent of instructor. 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.

252A. Stability of Fluid Motion. Prerequisite: course 150A or equivalent or consent of instructor. 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.

252B. Statistical Theory of Turbulence. Prerequisite: course 150A or consent of instructor. 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.

252C. Fluid Mechanics of Combustion Systems. Prerequisites: 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.

253A. Advanced Engineering Acoustics. Advanced studies in engineering acoustics, including three-dimensional wave propagation; propagation in bounded media; Ray acoustics; attenuation mechanisms in fluids.

253B. Fundamentals of Aeroacoustics. Prerequisite: course 150A or consent of instructor. 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.

254A. Special Topics in Aerodynamics. Prerequisites: courses 150A, 150B, 192A, 192B, and 192C, or equivalent, or consent of instructor. Special topics of current interest in advanced aerodynamics. Examples include transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics.

254B. Helicopter Engineering. Prerequisites: course 150A, Civil Engineering 108. Recommended: courses 166A, 169A. Introduction to helicopter engineering covering basic areas of helicopter design, aerodynamics, performance, stability and control, fatigue, and elements of rotor dynamic analysis. Class problem covering preliminary design of a helicopter is central part of course.

255A. Advanced Dynamics. Prerequisites: courses 155 and 169A, or consent of instructor. Variational principles and Lagrange equations. Kinematics and dynamics of rigid bodies; precession and nutation of spinning bodies.

255B. Mathematical Methods in Dynamics. Prerequisite: 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.

256A. Mechanics of Deformable Solids. Prerequisites: courses 156B and 166A, or consent of instructor. 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.

M256B. Elasticity. (Same as Civil Engineering M230.) Lecture, four hours; outside study, eight hours. Prerequisite: course 256A or consent of instructor. 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 stress function, complex variable method, transform method; three-dimensional problems, torsion, entire space and half-space problems; boundary integral equations.

256C. Plasticity, Creep, and Thermal Stresses. Prerequisite: course 156A or 156B or consent of instructor. Incremental plastic stress-strain relations. Stress-strain-time relations commonly used in structural analysis. Unified treatment of plastic strain, creep strain, and thermal strain. Elastic-plastic, and creep analyses of beams, columns, shafts, frames, and plates.

256F. Analytical Fracture Mechanics. Prerequisites: 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.

M257A. Elastodynamics. (Same as Earth and Space Sciences M224A.) Lecture, four hours; outside study, eight hours. Prerequisites: courses 256A and M256B, or consent of instructor. 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.

M257B. Elastic Wave Propagation II. (Same as Earth and Space Sciences M224B.) Prerequisite: course M257A. Diffraction and scattering of elastic waves by isolated cracks and inclusions; normal mode theories for vibration of finite elastic bodies; dynamic theories of fracture; representative applications in engineering and seismology.

258. Experimental Techniques in Fluid Mechanics and Thermal Science. Prerequisite: consent of instructor. 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.

259A. Seminar: Advanced Topics in Fluid Mechanics. Prerequisite: consent of instructor. 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).

259B. Seminar: Advanced Topics in Solid Mechanics. Prerequisite: consent of instructor. 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.

260AA-260ZZ. Seminars: Current Topics in Mechanical Engineering (2 to 4 units each). Prerequisite: consent of instructor. 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. Prerequisite: 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.

262. Mechanics of Intelligent Material Systems. Lecture, four hours; outside study, eight hours. Prerequisite: course 156B or equivalent. 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.

263A. Electromechanics of Computer-Controlled Machines. Lecture, four hours; other, eight hours. Prerequisite: 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.

263B. Topics in Modeling and Dynamics of Aerospace Vehicles. Prerequisites: courses 171A, 255A. Recommended: courses 154A, 255B, M269A. Modeling, dynamics, and stability of aerospace vehicles; improvement of performance using active control; applications to spinning and dual-spin spacecraft, space structures, rotordynamics and coupled rotor/fuselage dynamics of helicopters, active control of aircraft modes.

263C. Mechanics and Trajectory Planning of Industrial Robots. Lecture, four hours; other, eight hours. Prerequisite: course 163A or consent of instructor. 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.

263D. Advanced Robotics. Lecture, four hours; outside study, eight hours. Recommended (but not prerequisite): 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.

M267A. Optimum Structural Design. (Same as Civil Engineering M240.) Prerequisite: course 261A or Civil Engineering 235A or consent of instructor. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures.

268B. Failure of Structural Systems. Lecture, four hours; other, eight hours. Prerequisite: Civil Engineering 135B. Exploration of a current area of research in depth.

M269A. Dynamics of Structures. (Same as Civil Engineering M237A.) Prerequisite: 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.

269B. Advanced Dynamics of Structures. Prerequisite: course M269A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations.

M269C. Introduction to Probabilistic Dynamics. (Same as Civil Engineering M237C.) Prerequisite: course 169A. Response of structural and mechanical systems to random vibrations. Stationary and nonstationary excitations. Response of systems with random parameters. Discrete and continuous linear systems. Applications to earthquakes, wind sway of buildings, gust response, vibrations due to gearing inaccuracies, train vibrations.

269D. Aeroelastic Effects in Structures. Prerequisite: 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.

270A. Linear Systems. Lecture, four hours; outside study, eight hours. Prerequisite: course 171A or consent of instructor. State-space representation of continuous-time and discrete-time control systems, linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; stability of linear systems; controllability and observability; control and observer canonical forms; stabilization and pole-placement by feedback; realization theory.

270B. Linear Optimal Control. (Formerly numbered 271A.) Lecture, four hours; outside study, eight hours. Prerequisite: course 270A or Electrical Engineering 240A or equivalent. 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.

270C. Optimal Control Theory. (Formerly numbered 271B.) Lecture, four hours; outside study, eight hours. Prerequisite: course 270B or equivalent. Necessary and sufficient conditions for weak and strong local optimality. Variational methods, Pontryagin maximum principle, and dynamic programming.

271A. Stochastic Processes in Dynamical Systems. Lecture, four hours; outside study, eight hours. Prerequisites: courses 171A and 174, or consent of instructor. Probability space, random variables, stochastic processes, Brownian motion, Markov processes, stochastic integrals and differential equations, power spatial density, and Kolmogorov equations.

271B. Stochastic Estimation. Lecture, four hours; outside study, eight hours. Prerequisite: course 271A. Linear and nonlinear estimation theory, orthogonal projection lemma, Bayesian filtering theory, conditional mean and risk estimators.

271C. Stochastic Optimal Control. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

271D. Seminar: Special Topics in Dynamic Systems Control. Prerequisite: consent of instructor. 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.

274. Methods of Probabilistic Safety Assessment. (Formerly numbered 236D.) Lecture, four hours; outside study, eight hours. Prerequisite: course 174 or consent of instructor. 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.

275. Principles and Methods of Risk Management. Lecture, four hours; outside study, eight hours. Prerequisites: courses 174 and 274, or consent of instructor. Considerations regarding balancing of society's resources: risk/benefit, value/impact, and risk management. Methodological problems and approaches. Risk-based decision theory, aspects of risk management: criteria and standards, uncertainty, perception, value of life, and judicial review. Case studies.

280. Introduction to Micromachining. Lecture, four hours; outside study, eight hours. Prerequisite: Materials Science 14 or equivalent. Introduction to microscopic world and MEMS; basics of 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.

M291A. Analytical Methods of Engineering I. (Same as Electrical Engineering M208A.) Prerequisites: 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.

M291B. Analytical Methods of Engineering II. (Same as Electrical Engineering M208B.) Prerequisite: course M291A or Electrical Engineering M208A or consent of instructor. 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.

291C. Integral Equations in Engineering. Prerequisite: 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.

293. Quality Engineering in Design and Manufacturing. Lecture, four hours; outside study, eight hours. Prerequisite: course 174 or consent of instructor. 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.

294. Advanced CAD/CAM Systems. Lecture, four hours; outside study, eight hours. Prerequisite: course 194 or consent of instructor. 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.

295A. Computer-Aided Manufacturing. Prerequisites: courses 94, 163A, 163C. Analysis of usage of computer in manufacturing. Manufacturing information systems; group technology; computer-aided manufacturing process planning; flexible manufacturing systems.

295B. Computer-Integrated Manufacturing. Prerequisite: course 295A. Systems analysis and design of computer-integrated manufacturing, including automated factories and flexible manufacturing systems.

297. Composites Manufacturing. Lecture, four hours; outside study, eight hours. Prerequisites: course 166C and Materials Science 151, or consent of instructor. 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.

298. Seminar: Engineering (2 to 4 units). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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.

476. Integrated Manufacturing Engineering (IME) Seminar Series (1 unit). Prerequisite: consent of instructor. 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.

497A-497B. Field Project in Manufacturing Engineering. Lecture, two hours. Prerequisite: consent of instructor. Teams of students perform detailed system analysis and plan design of manufacturing engineering systems at various manufacturing plants. In Progress grading.

596. Directed Individual or Tutorial Studies (2 to 8 units). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. 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). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations (2 to 16 units). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. 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). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. 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). Prerequisites: graduate standing in mechanical, aerospace, and nuclear engineering, consent of instructor. Usually taken after student has been advanced to candidacy. S/U grading.

MEDICINE

School of Medicine

UCLA
37-120 Center for the Health Sciences
Box 951736
Los Angeles, CA 90095-1736
(310) 825-6275

Chairs

Alan M. Fogelman, M.D. (*William S. Adams, M.D., Professor of Medicine*), Executive Chair
Robert K. Oye, M.D., Executive Vice Chair, Clinical Affairs
Dennis J. Slamon, M.D., Executive Vice Chair, Finance
Mary C. Territo, M.D., Executive Vice Chair, Academic Affairs
Jan H. Tillisch, M.D., Executive Vice Chair, Education and Administration

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*.

Upper Division Course

199. Special Studies (2 to 8 units). Prerequisite: consent of instructor. 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.

MICROBIOLOGY AND IMMUNOLOGY

School of Medicine

UCLA
43-239 Center for the Health Sciences
Box 951747
Los Angeles, CA 90095-1747
(310) 206-5148

Professors

Rafi Ahmed, Ph.D. (*Virology*)
Benjamin Bonavida, Ph.D. (*Immunology*), *Vice Chair*
Irvin S.Y. Chen, Ph.D. (*Virology*)
Asim Dasgupta, Ph.D. (*Virology*)
John L. Fahey, M.D. (*Immunology*)
Sydney M. Finegold, M.D., *in Residence* (*Bacteriology*)
Marcus A. Horwitz, M.D. (*Bacteriology*)
Dexter H. Howard, Ph.D. (*Mycology*)
Michael Lovett, M.D., Ph.D. (*Bacteriology*)
Robert L. Modlin, M.D. (*Immunology*)
Debi P. Nayak, B.V.Sc., Ph.D. (*Virology*)
Larry Simpson, Ph.D. (*Parasitology*)
Jack G. Stevens, D.V.M., Ph.D. (*Virology*; *M. Phillip Davis Professor of Microbiology and Immunology*), *Chair*
Ronald H. Stevens, Ph.D. (*Immunology*)
Jerrold A. Turner, M.D. (*Parasitology*)
Randolph Wall, Ph.D. (*Immunology*)
Felix O. Wettstein, Ph.D. (*Virology*)
Ruth A. Boak, M.D., Ph.D., *Emerita*
James N. Miller, Ph.D., *Emeritus*
Margret I. Sellers, Ph.D., *Emerita*
Henry E. Weimer, Ph.D., *Emeritus*
Stephen Zamenhof, Ph.D., *Emeritus*

Associate Professors

David A. Campbell, Ph.D. (*Parasitology*)
Lawrence T. Feldman, Ph.D. (*Virology*)
Patricia J. Johnson, Ph.D. (*Parasitology*), *Graduate Adviser*

Mitchell Kronenberg, Ph.D. (*Immunology*)
Otoniel Martinez-Maza, Ph.D. (*Immunology*)
Stephen T. Smale, Ph.D. (*Immunology*)

Assistant Professors

David Chang, Ph.D. (*Immunology*)
Andrew H. Kaplan, M.D. (*Virology*)
M. Carrie Miceli, Ph.D. (*Immunology*)
Jeffery F. Miller, Ph.D. (*Bacteriology*)
Olaf Schneewind, M.D. (*Bacteriology*)

Adjunct Professor

Lawrence M. Souza, Ph.D. (*Biotechnology*)

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

The department does not accept students whose sole objective is a master's degree.

Doctoral Degree

Admission

In addition to the University minimum requirements, the following are required:

(1) A bachelor's degree with a major in either the biological or physical sciences.

(2) At least a B+ in chemistry, physics, and mathematics; at least a B average in biology (upper division and prior graduate study).

(3) Three letters of recommendation.

(4) Graduate Record Examination (GRE) General Test and Subject Test in Biology.

(5) Statement of purpose.

(6) An interview with members of the departmental graduate studies committee when indicated.

For departmental brochures and/or application forms, write to the address given at the beginning of this listing.

New Ph.D. students may also be admitted through UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, Los Angeles, CA 90095-1570, (310) 206-6051.

Major Fields or Subdisciplines

The student is 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) Microbiology and Immunology M253 and M229 and Biological Chemistry CM253 (to be completed during the first year of study).

(2) Course 596 is required. Students are required to complete at least two laboratory rotations during the first year of study.

(3) Two of the following three courses are also required: Microbiology and Immunology 208, M227, M261.

(4) Additional course requirements are determined by a student's chosen major field and preceptor.

Written and Oral Qualifying Examinations

The departmental written examination is to be taken at the end of the first year of study and no later than the Winter Quarter of the second year. It consists of written examinations in all three areas of study in the department (immunology, microbiology, virology). One area is chosen as the student's major and the other two topics are the minors. The examination in microbiology (major or minor) covers the fields of bacteriology and either mycology or parasitology. The examinations require factual knowledge, the ability to analyze experimental work, and the capacity to design problem-solving experiments. The examinations are graded on a pass/fail basis and may be repeated once if not passed. The makeup examination is administered no sooner than three months and no later than six months after the failure, unless specified remedial work requires a longer period for proper preparation.

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. 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.

Upper Division Courses

M185A. Immunology (5 units). (Same as Biology M185A and Microbiology M185A.) Lecture, three hours; discussion, 90 minutes; outside study, 11½ hours. Prerequisites: Life Sciences 3 and 4 or equivalent. Recommended prerequisites or corequisites: Biology 100B or C139 or M140, Chemistry 153A, 153L. Not open for credit to students with credit for course M261 or 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 units). Prerequisites: senior standing, consent of instructor (based on written research proposal). Individual research projects carried out under direction of a professor.

Graduate Courses

Undergraduates may enroll in some graduate courses with consent of instructor.

201. Microbiology and Immunology (8 units). 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 units). Prerequisite: consent of instructor. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cell-mediated immune functions.

202B. Medical Bacteriology (2 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. 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.

208. Molecular Biology of Animal Viruses. Lecture, three hours. Prerequisites: courses in general biochemistry and general microbiology, including virology (consent of instructor may be obtained in special cases). 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.

210. Medical Mycology (3 units). Lecture, four hours. Prerequisite: consent of instructor. Study of morphology, physiology, and pathogenicity of fungi causing human and animal diseases.

210L. Medical Mycology (2 units). Laboratory, four hours. Prerequisite: consent of instructor. Required of undergraduate students. Laboratory application of principles discussed in course 210.

M215. Interdepartmental Course: Tropical Medicine (2 units). (Same as Medicine M215, Pathology M215, and Pediatrics M215.) Lecture, two and one-half hours. Prerequisites: 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.

M223. Membrane Research Seminar (2 units). (Same as Microbiology M223.) Prerequisite: consent of instructor. 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. (Same as Biology M226A-M226B and Microbiology M226A-M226B.) Lecture, one hour; discussion, three hours. Prerequisites: courses 202A, 202B, 202C, and 202D, or equivalent, or consent of instructor. 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. (Same as Chemistry M227 and Microbiology M227.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or consent of instructor. Molecular and cellular biology of bacteria and bacteriophages.

M229. Cellular Biology of Host/Pathogen Interactions (6 units). (Same as Biology M229 and Microbiology M229.) Lecture, four hours; discussion, 90 minutes. Prerequisite: Biological Chemistry CM253 or consent of instructor. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and hosts.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biological Chemistry M233, Biology M233, Chemical Engineering M233, Chemistry M233, Microbiology M233, and Radiological Sciences M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

250. Cell and Molecular Biology. 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.

251. Selected Topics on History of Microbiology (2 units). Lecture, one hour; discussion, one hour. Consideration of history of infectious diseases, their host/parasite relationships, etiology, pathogenesis, epidemiology, diagnosis, and immunity. S/U or letter grading.

M252. Seminar: Microbial Pathogenesis (2 units). (Same as Microbiology M252.) Prerequisite: consent of instructor. 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 units). (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.

M258A. Molecular Genetic Mechanisms of Immune Response (2 units). (Same as Biology M258A and Microbiology M258A.) Lecture, two hours; discussion, two hours. Prerequisite: course 202A or M285 or Biology CM185B or consent of instructor. Reading and discussion of current research articles on immunoglobulin I and II, oncogenes of immune system, T cell antigen receptor, and loci affecting differentiation. S/U or letter grading.

M258B. Biology of B Cells: Development, Repertoire, and Activation (2 units). (Same as Biology M258B and Microbiology M258B.) Lecture, two hours; discussion, two hours. Prerequisite: course 202A or M285 or Biology CM185B or consent of instructor. Reading and discussion of current research articles on B cell development, repertoire, and growth and differentiative regulation. S/U or letter grading.

M258D. Molecular Interactions in Immune Responses (2 units). (Same as Biology M258D and Microbiology M258D.) Lecture, two hours; discussion, two hours. Prerequisite: course 202A or M285 or Biology CM185B or consent of instructor. Reading and discussion of current research articles on immunochemistry of antibodies, antigens, and complement, antigenic recognition, antibody restriction. S/U or letter grading.

M258E. Immunopathology: Immunology of Disease (2 units). (Same as Biology M258E and Microbiology M258E.) Lecture, two hours; discussion, two hours. Prerequisite: course 202A or M285 or Biology CM185B or consent of instructor. Reading and discussion of current research articles on tolerance and autoimmunity, autoimmune disease models, immune complex disease, immediate hypersensitivity and its cellular basis, and natural and acquired immune deficiency disease. S/U or letter grading.

M258F. Immune Regulation (2 units). (Same as Biology M258F and Microbiology M258F.) Lecture, two hours; discussion, two hours. Prerequisite: course 202A or M285 or Biology CM185B or consent of instructor. Reading and discussion of current research articles on idiotypic networks, suppressor T cells, tolerance at T and B cell levels, and Ir gene control. S/U or letter grading.

M260. Immunology Forum (2 units). (Same as Microbiology M260.) Prerequisite: 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. (Same as Biology CM261 and Microbiology M261.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or consent of instructors. 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 units). (Same as Microbiology M262A.) Prerequisite: consent of instructor. Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. May be repeated for credit. S/U grading.

M262B. Immunology of AIDS (2 units). (Same as Epidemiology M214 and Microbiology M262B.) Lecture, one hour; discussion, one hour. Prerequisites: courses 202A, 202B, 202C, 202D, M258B, or equivalent, consent of instructor. Lecture and student discussion of assigned publications. Topics include specific anti-HIV immune responses, activation of immune system by HIV, and basic mechanisms that underlie HIV-induced immunodeficiency. S/U or letter grading.

M262C. Biological Individuality and Immunity (2 units). (Same as Microbiology M262C.) Prerequisites: course M261 and/or consent of instructor. Review of current literature in the field of immunogenetics, with emphasis on fundamental studies involving genetic and immunologic principles and techniques. Selected topics discussed and results interpreted; conclusions and experimental methods evaluated.

M262D. Selected Topics in Immunology (2 units). (Same as Microbiology M262D.) Prerequisite: consent of instructor. 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 units). (Same as Microbiology M263.) Prerequisite: consent of instructor. Critical discussions of current literature in T and B cell immunology, with emphasis on molecular mechanisms.

264. Molecular Microbiology and Cell Biology (2 units). Prerequisite: consent of instructor. Discussion of selected current topics related to microbiology and cell biology, with special emphasis on understanding of basic phenomena at the molecular level. S/U grading.

270. Immunology in Disease (2 units). Lecture, one hour; discussion, one hour. Prerequisite: basic immunology. Introduction to role of immune processes in disease for students with prior knowledge of basic immunology. Topics include immunodeficiency, immediate hypersensitivity reactions, autoimmune disease, and immune complex-mediated diseases, together with transplantation immunology, tumor immunology (re role of immunity in infection). Students prepare a 20- to 30-minute presentation on a selected topic.

274. Interactions of Immune System and Nervous System (2 units). Lecture, one hour; discussion, one hour. Prerequisites: graduate or postdoctoral standing in immunology, behavioral sciences, or neurosciences, consent of instructor. Limited to 10 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. (Same as Epidemiology M228.) Lecture, three hours. Prerequisites: Biostatistics 100A and Epidemiology 100 or equivalent, two biology courses, consent of instructor. 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.

M285. Intermediate Immunology. (Formerly numbered M285B.) (Same as Biology CM285 and Microbiology CM285.) Lecture, three hours; discussion, one hour. Prerequisite: course M185A or equivalent. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A.

M293. Major Concepts in Oncology. (Same as Oral Biology M293 and Pathology M293.) Lecture, three hours. Prerequisite: graduate standing or consent of instructor. 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.

M298. Seminar: Current Topics in Molecular Biology (2 units). (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology M298, and Molecular Biology M298.) Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. Program. Each student conducts or participates in discussions on assigned topics. May be repeated for credit.

596. Directed Individual Study or Research (2 to 8 units). Laboratory, to be arranged. Prerequisite: consent of graduate adviser. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations (2 to 6 units).

599. Research for and Preparation of Ph.D. Dissertation (2 to 12 units). 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

UCLA
1602 Molecular Sciences
Box 951489
Los Angeles, CA 90095-1489

(310) 825-8482
<http://www.lifesci.ucla.edu/repository/microbio&molecgenet/>

Professors

Arnold J. Berk, M.D.
Frederick A. Eiserling, Ph.D.
C. Fred Fox, Ph.D.
Robert P. Gunsalus, Ph.D.
H. Ronald Kaback, M.D.
Aldons J. Lusis, Ph.D.
Jeffrey H. Miller, Ph.D.
Sherie L. Morrison, Ph.D., *Chair*
Donald P. Nierlich, Ph.D.
Eli E. Sercarz, Ph.D.
Jack Stevens, D.V.M., Ph.D.
Bernadine J. Wisniewski, Ph.D.
Owen N. Witte, M.D. (*President's Professor of Developmental Immunology*)
June Lascelles, Ph.D., *Emerita*
Rafael J. Martinez, Ph.D., *Emeritus*
M.J. Pickett, Ph.D., *Emeritus*

Sydney C. Rittenberg, Ph.D., *Emeritus*
William R. Romig, Ph.D., *Emeritus*

Associate Professors

Virginia L. Miller, Ph.D.
Robert W. Simons, Ph.D.
Fuyuhiko Tamanoi, Ph.D.

Assistant Professor

Douglas L. Black, Ph.D.

Adjunct Assistant Professors

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. If you are interested in a doctoral program with a fundamentally disease-oriented approach to microbiology, see the Microbiology and Immunology Department description.

Bachelor of Science Degree

Preparation for the Major

Life Sciences Core Curriculum (effective Fall Quarter 1995) — *Required:* Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A;

Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL.

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. If you receive a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, you 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 for majors equivalent to Life Sciences 1, 2, and 3; 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.

If you intend to major in microbiology and molecular genetics, you 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 your faculty adviser. All major courses must be taken for a letter grade, with a minimum overall 2.0 GPA in the major. A maximum of four units of Microbiology and Molecular Genetics 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 you must have junior standing and the sponsorship of a faculty adviser. 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, you 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants for the Master of Arts program 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 department.

Course Requirements

A total of nine courses is required for the M.A. degree. A total of 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, 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 Ph.D. program in Microbiology and Molecular Genetics is through UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, 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.

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.

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 C204C, C206, Microbiology and Immunology 208, 210.
- (3) Immunology: Microbiology and Molecular Genetics M185A or CM285B, M258A, M258B, M258D, M258E, M258F.
- (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.

Students are expected to complete a course in physical chemistry (Chemistry and Biochemistry 156). This requirement can be waived on the basis of work done before entering UCLA.

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 of residence.

Laboratories. During the first 12 months of 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.

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, the student prepares and defends a written research proposal. Before presentation to the doctoral committee, the student is 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.

Lower Division Courses

6. Introduction to Microbiology. Lecture, three hours. Not open for credit to students with credit for course 101, Life Sciences 2, former Biology 5, or equivalent. 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.

7. Developments in Biotechnology. Lecture, three hours; demonstration, one hour; outside study, eight hours. Recommended (but not requisite): 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. General Microbiology for Nursing Students (5 units). Lecture, three hours; laboratory, five hours; outside study, eight hours. Enforced requisites: Chemistry 15, Life Sciences 2. Designed for pre-nursing students. 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.

Upper Division Courses

101. Fundamentals of Bacteriology. Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 153A, Life Sciences 3 or equivalent. Recommended: Life Sciences 4 or equivalent. Recommended corequisite: course 101L. Historical foundations of the science; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology.

101L. Bacteriology Laboratory (3 units). Discussion, one hour; laboratory, six hours. Prerequisites: 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. Lecture, three hours. Prerequisites: 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 units). Laboratory, four hours. Prerequisites: Life Sciences 1, 2, 3, 4, with grades of C or better. Recommended corequisite: course 102. General laboratory techniques and theory in virology, including complementation, recombination, transduction, experiments in animal virology, using tissue culture.

C104A. Mammalian Cell as a Microorganism (2 units). Lecture, three hours; discussion, four hours. Prerequisites: Chemistry 132A, 132B, 153A, Life Sciences 3. Recommended: Chemistry 153B, 153C. Cultured mammalian cell as an experimental system for study of normal regulatory processes and disease mechanisms. Contents include regulation of cell growth in chemically defined medium; establishment, cloning, and characterization of cell lines, cultured cells as model systems in study of normal growth and development, disease mechanisms and cancer. May be concurrently scheduled with course C204A. P/NP or letter grading.

C104B. Mammalian Cell Genetics (2 units). Lecture, two hours; discussion, two hours. Prerequisites: biochemistry, introductory genetics. Topics include cytogenetics, chromosomal organization and gene mapping, somatic cell mutants and hybrid cells, oncogenes and cancer genetics, mouse genetics, targeted mutagenesis, analysis of simple and complex genetic diseases. Reading material includes reviews and recent original publications. May be concurrently scheduled with course C204B.

C104C. RNA Tumor Viruses (2 units). Lecture, three hours. Prerequisite: consent of instructor. Interactions of RNA tumor viruses with differentiating tissues, such as immune system and erythroid development. Concurrently scheduled with course C204C. P/NP grading.

C106. Molecular and Genetic Basis of Bacterial Infections. Lecture, three hours; discussion, one hour. Prerequisites: 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. Lecture, three hours; discussion, one hour. Prerequisites: course 101 and Chemistry 153C, or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: 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 multi-component cellular systems from perspective of contemporary research techniques. Concurrently scheduled with course C212.

CM156. Human Genetics. (Same as Biology CM156.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 100A or Life Sciences 3, Life Sciences 4 or equivalent. Strongly recommended: Biology 100B 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.

C159. Advanced Molecular Genetics (5 units). (Formerly numbered C119.) Lecture, three hours; discussion, two hours. Prerequisites: Chemistry 153A and Life Sciences 4, or consent of instructor. 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. (Same as Chemical Engineering CM165.) Lecture, two hours; laboratory, eight hours; outside study, two hours. Prerequisites: course 101, Chemical Engineering C115, and Chemistry 156, or consent of instructor. 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.

M185A. Immunology (5 units). (Same as Biology M185A and Microbiology and Immunology M185A.) Lecture, three hours; discussion, 90 minutes; outside study, 11½ hours. Prerequisites: Life Sciences 3 and 4 or equivalent. Recommended prerequisites or corequisites: Biology 100B or C139 or M140, Chemistry 153A, 153L. Not open for credit to students with credit for course M261 or Biology C180. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions.

CM185B. Intermediate Immunology. (Same as Biology CM185B.) Lecture, three hours; discussion, one hour. Prerequisite: course M185A or equivalent. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM285.

195. Proseminar (2 units). Prerequisites: senior standing, consent of instructor. 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 units). Prerequisites: Chemistry 153A, 153L, and junior or senior standing with minimum 3.0 GPA in the premajor and major, or consent of departmental adviser. 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 units). Prerequisite: honors program standing. 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

C204A. Mammalian Cell as a Microorganism (2 units). Lecture, three hours; discussion, four hours. Prerequisites: Chemistry 132A, 132B, 153A, Life Sciences 3. Recommended: Chemistry 153B, 153C. Cultured mammalian cell as an experimental system for study of normal regulatory processes and disease mechanisms. Contents include regulation of cell growth in chemically defined medium; establishment, cloning, and characterization of cell lines, cultured cells as model systems in study of normal growth and development, disease mechanisms and cancer. May be concurrently scheduled with course C104A. S/U or letter grading.

C204B. Mammalian Cell Genetics (2 units). Lecture, two hours; discussion, two hours. Prerequisites: biochemistry, introductory genetics. Topics include cytogenetics, chromosomal organization and gene mapping, somatic cell mutants and hybrid cells, oncogenes and cancer genetics, mouse genetics, targeted mutagenesis, analysis of simple and complex genetic diseases. Reading material includes reviews and recent original publications. May be concurrently scheduled with course C104B. S/U or letter grading.

C204C. RNA Tumor Viruses (2 units). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Interactions of RNA tumor viruses with differentiating tissues, such as immune system and erythroid development. Concurrently scheduled with course C104C. Includes additional discussion section for graduate students on research literature and methodology. S/U grading.

C206. Molecular and Genetic Basis of Bacterial Infections. Lecture, three hours; discussion, one hour. Prerequisites: 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. Lecture, three hours; discussion, one hour. Prerequisites: course 101 and Chemistry 153C, or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: 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 units). Lecture, 30 minutes; discussion, 90 minutes. Prerequisites: course 101 or equivalent, graduate standing or consent of instructor. 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.

221. Seminar: Eukaryotic Transcription (2 units). Prerequisite: Biological Chemistry CM253 or equivalent. Reading and discussion of current literature in area of transcription regulation in eukaryotes. S/U grading.

M223. Membrane Research Seminar (2 units). (Same as Microbiology and Immunology M223.) Prerequisite: consent of instructor. 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. (Same as Biology M226A-M226B and Microbiology and Immunology M226A-M226B.) Lecture, one hour; discussion, three hours. Prerequisites: Microbiology and Immunology 202A, 202B, and 202D, or equivalent, or consent of instructor. 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. (Same as Chemistry M227 and Microbiology and Immunology M227.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or consent of instructor. Molecular and cellular biology of bacteria and bacteriophages.

M229. Cellular Biology of Host/Pathogen Interactions (6 units). (Same as Biology M229 and Microbiology and Immunology M229.) Lecture, four hours; discussion, 90 minutes. Prerequisite: Biological Chemistry CM253 or consent of instructor. Molecular and cellular biology of pathogens, eukaryotic host cells, and interaction between pathogens and host.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biological Chemistry M233, Biology M233, Chemical Engineering M233, Chemistry M233, Microbiology and Immunology M233, and Radiological Sciences M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

242. Seminar: Microbial Molecular Genetics (2 units). (Formerly numbered 256.) Prerequisite: consent of instructor. 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. (Same as Biology M246.) Lecture, two hours; laboratory, six hours. Prerequisite: course C159 or Life Sciences 4 or equivalent. 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 units). (Same as Biological Chemistry CM248 and Biology CM248.) Lecture, five hours. Prerequisite: Chemistry CM153G or Biological Chemistry CM153G or equivalent. 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.

250. Seminar: Microbial Metabolism (2 units). Prerequisite: consent of instructor. Discussion and student presentations of recent work in areas of genetic regulation and physiology of bacterial metabolism.

251. Seminar: Regulation and Differentiation (2 units). S/U grading.

M252. Seminar: Microbial Pathogenesis (2 units). (Formerly numbered 252.) (Same as Microbiology and Immunology M252.) Prerequisite: consent of instructor. 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 units). Seminar, three hours. Prerequisite: graduate standing or consent of instructor. 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 units). Prerequisite: consent of instructor. 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. (Same as Biology CM256.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 100A or Life Sciences 3, Life Sciences 4 or equivalent. Strongly recommended: Biology 100B 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.

M258A. Molecular Genetic Mechanisms of Immune Response (2 units). (Same as Biology M258A and Microbiology and Immunology M258A.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on immunoglobulin I and II, oncogenes of immune system, T cell antigen receptor, and loci affecting differentiation. S/U or letter grading.

M258B. Biology of B Cells: Development, Repertoire, and Activation (2 units). (Same as Biology M258B and Microbiology and Immunology M258B.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on B cell development, repertoire, and growth and differentiative regulation. S/U or letter grading.

M258D. Molecular Interactions in Immune Responses (2 units). (Same as Biology M258D and Microbiology and Immunology M258D.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on immunochemistry of antibodies, antigens, and complement, antigenic recognition, antibody restriction. S/U or letter grading.

M258E. Immunopathology: Immunology of Disease (2 units). (Same as Biology M258E and Microbiology and Immunology M258E.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on tolerance and autoimmunity, autoimmune disease models, immune complex disease, immediate hypersensitivity and its cellular basis, and natural and acquired immune deficiency disease. S/U or letter grading.

M258F. Immune Regulation (2 units). (Same as Biology M258F and Microbiology and Immunology M258F.) Lecture, two hours; discussion, two hours. Prerequisite: course CM185B or CM285 or Microbiology and Immunology 202A or consent of instructor. Reading and discussion of current research articles on idiotype networks, suppressor T cells, tolerance at T and B cell levels, and Ir gene control. S/U or letter grading.

C259. Advanced Molecular Genetics (5 units). (Formerly numbered C219.) Lecture, three hours; discussion, two hours. Prerequisites: Chemistry 153A and Life Sciences 4, or consent of instructor. 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 units). (Same as Microbiology and Immunology M260.) Prerequisite: 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. (Same as Biology CM261 and Microbiology and Immunology M261.) Lecture, three hours; discussion, one hour. Prerequisite: Biological Chemistry CM253 or consent of instructors. 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 units). (Same as Microbiology and Immunology M262A.) Prerequisite: consent of instructor. Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. May be repeated for credit. S/U grading.

M262B. Immunology of AIDS (2 units). (Same as Epidemiology M214 and Microbiology and Immunology M262B.) Lecture, one hour; discussion, one hour. Prerequisites: course M258B, Microbiology and Immunology 202A, 202B, 202C, 202D, or equivalent, consent of instructor. Lecture and student discussion of assigned publications. Topics include specific anti-HIV immune responses, activation of immune system by HIV, and basic mechanisms that underlie HIV-induced immunodeficiency. S/U or letter grading.

M262C. Biological Individuality and Immunity (2 units). (Same as Microbiology and Immunology M262C.) Prerequisites: course M261 and/or consent of instructor. Review of current literature in the field of immunogenetics, with emphasis on fundamental studies involving genetic and immunologic principles and techniques. Selected topics discussed and results interpreted; conclusions and experimental methods evaluated.

M262D. Selected Topics in Immunology (2 units). (Same as Microbiology and Immunology M262D.) Prerequisite: consent of instructor. 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 units). (Same as Microbiology and Immunology M263.) Prerequisite: consent of instructor. Critical discussions of current literature in T and B cell immunology, with emphasis on molecular mechanisms.

CM265. Bioprocess Technology. (Same as Chemical Engineering CM265.) Lecture, two hours; laboratory, eight hours; outside study two hours. Prerequisites: course 101, Chemical Engineering C115, and Chemistry 156, or consent of instructor. 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.

270. Seminar: Molecular Virology (2 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisites: graduate standing, consent of instructor. Discussion and student presentations of recent work in molecular and cellular endocrinology. S/U grading.

CM285. Intermediate Immunology. (Formerly numbered CM285B.) (Same as Biology CM285 and Microbiology and Immunology M285.) Lecture, three hours; discussion, one hour. Prerequisite: course M185A or equivalent. Recommended corequisite: Chemistry 153B. In-depth exploration of topics introduced in course M185A. Concurrently scheduled with course CM185B

290. Seminar: Molecular Genetics (2 units). Lecture, one hour; discussion, one hour. Prerequisites: graduate standing, consent of instructor. Discussion and student presentations of recent work in molecular and genetic analysis of cellular gene regulation. S/U grading.

296A-296Z. Seminars: Research Topics in Microbiology and Molecular Genetics (1 to 4 units each). Discussion, three hours. Prerequisite: consent of instructor. 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.

M298. Seminar: Current Topics in Molecular Biology (2 units). (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology and Immunology M298, and Molecular Biology M298.) Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. Program. Each student conducts or participates in discussions on assigned topics. May be repeated for credit

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Lecture/discussion/laboratory. Prerequisites: graduate standing, consent of instructor. 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 units).

598. Research for M.A. Thesis (2 to 12 units).

599. Research for Ph.D. Dissertation (2 to 12 units).

Professors

Jorge R. Barrio, Ph.D.
Gautam Chaudhuri, M.D., Ph.D.
Arthur K. Cho, Ph.D., *Vice Chair*
Bernard K-K. Fung, Ph.D.
Edward J. Hoffman, Ph.D.
Sung-Cheng (Henry) Huang, D.Sc.
Louis J. Ignarro, Ph.D.
Donald J. Jenden, M.D., Ph.D.
Jamshid Maddahi, M.D.
John C. Mazzotta, M.D., Ph.D.
Richard W. Olsen, Ph.D.
Michael E. Phelps, Ph.D. (*Jennifer Jones Simon Professor of Biophysics*), *Chair*
Heinrich R. Schelbert, M.D., Ph.D., *Vice Chair*
Werner E. Flacke, M.D., *Emeritus*
Robert George, Ph.D., *Emeritus*
Peter Lomax, M.D., D.Sc., *Emeritus*
Dermot B. Taylor, M.D., *Emeritus*

Associate Professors

Denis B. Buxton, Ph.D.
Don H. Catlin, M.D.
Cameron B. Gundersen, Ph.D.
Sherrel G. Howard, Ph.D.
Nagichettiar Satyamurthy, Ph.D.

Assistant Professors

Simon R. Cherry, Ph.D.
Samson Chow, Ph.D.
Johannes Czernin, M.D.
Magnus Dahlbom, Ph.D.
Jon M. Fukuto, Ph.D.
Sanjiv Gambhir, M.D., Ph.D.
Carl Hoh, M.D.
Daniel L. Kaufman, Ph.D.
Harley I. Kornblum, M.D., Ph.D.
William Melega, Ph.D.
Phoebe L. Stewart, Ph.D.
Joy A. Umbach, Ph.D.

Scope and Objectives

The Department of Molecular and Medical Pharmacology is a newly reorganized department with basic and clinical components. Students have opportunities to develop intellectually and experimentally in the interface between these two levels of biomedical science. 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 of drugs, departmental investigators study gene expression and its regulation, signal transduction processes, cell-to-cell communication, and integrated organ functions using techniques of structural chemistry and biology, molecular and cell biology, and cellular and organ imaging. Organic synthesis, genetic engineering, and imaging techniques such as confocal and cryoelectron microscopy, autoradiography, and positron emission tomography are extensively employed. The latter techniques are available in the Crump Institute for Biological Imaging and the UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, which are closely affiliated with the department. The goal of the education program is to provide faculty members and students the opportunity to examine diseases and the basic mechanisms of drugs used in their treatment, and to visualize the changes in the disease state with procedures that monitor cellular and organ function.

MOLECULAR AND MEDICAL PHARMACOLOGY

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The graduate program seeks to prepare students for these interdisciplinary activities with a basic foundation in 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 and programs are provided formally through available coursework and informally through 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. For a complete outline of degree requirements see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

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, the student must formally request approval by the graduate training committee. If approved, a guidance committee, proposed by the student 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.

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 must have received a bachelor's degree in a biological or physical science or in the premedical curriculum. Prerequisite 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 address at the beginning of this listing for a departmental brochure and/or application form.

Students may also enter the program through UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, 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 medical school 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 non-molecular 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. This 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 pharmacology and the status of topics of current interest in pharmacology.

After passing the departmental comprehensive examination, the student must take the University Oral Qualifying Examination within 24 months. This 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. When this examination has been passed, the student is eligible to petition the Graduate Division for advancement to doctoral candidacy.

If any one of the above required examinations is failed, the student may be reexamined at a later date determined by the guidance committee.

Upper Division Courses

110. Drugs: Mechanisms, Uses, and Misuse. Lecture, four hours (seven weeks); discussion, four hours (three weeks). Prerequisites: Biology 5, 6, 9 or equivalent, Chemistry 15 or equivalent. Introduction to pharmacology for undergraduate students, emphasizing principles underlying mechanism of action of drugs, their development, control, rational use, and misuse.

M115. Introduction to Pharmacology and Therapeutics (2 units). (Same as Nursing M115.) Prerequisite for non-nursing students: consent of instructor. Systematic review of major drug groups used therapeutically, the most commonly used members in each group, differences among them, and their mechanisms of action.

199. Special Studies (2 to 8 units). Prerequisite: consent of instructor and department chair. 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 units). Prerequisite: consent of instructor. 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.

203. Clinical Pharmacology (2 units). Lecture, zero to two hours; discussion, zero to two hours. Prerequisites: 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 units, 2 units). Lecture, three to eight hours; discussion, zero to nine hours. Prerequisites: 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: Clinical Pharmacology (2 units each). Prerequisites: mammalian physiology, biochemistry. Supplementation of topics covered in course 203. Primarily for graduate students.

M221. Cellular and Molecular Neurochemistry. (Formerly numbered M221A.) (Same as Biological Chemistry M221, Neurobiology M221, Neuroscience M240, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Prerequisite: 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 units each). Prerequisite: consent of instructor. Survey of experimental methods and instrumentation used in analysis, identification, and study of mechanisms of action of pharmacologically active compounds.

236. Neuropharmacology. Prerequisite: neurophysiology. Advanced neuropharmacology, including actions and modes of action of drugs acting on central nervous system, interactions between drugs and nervous tissue, movements of drugs through blood brain barrier, and distribution to central nervous system; problems of central transmission.

237A-237B-237C. Research Frontiers in Cellular and Molecular Pharmacology. Prerequisites: course 241, consent of instructor. 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.

238. Behavioral Toxicology. Prerequisite: consent of instructor. Lectures and discussions designed to examine effects of exposures to a wide variety of chemical and physical agents on behavior of total organism as it adjusts to changes in its physical and social environments. Such effects may be reflected as subtle disturbances of behavior before classic symptoms of toxic states become apparent. Consideration to methodologies by which such disturbances may be measured, to state of present knowledge, and to application of knowledge in regulating risks of both prenatal and postnatal exposure. Particular emphasis on relevance of this knowledge to human behavior.

241. Introduction to Chemical Pharmacology. Prerequisite: organic and biological chemistry. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, and excretion.

251. Seminar: Pharmacology (2 units). Seminars presented by students, faculty, and guest lecturers on a variety of topics. S/U grading.

253. Seminar: Environmental Toxicology (2 units). Prerequisite: consent of instructor. Oral reports and discussions of current research on chemical pollutants in environment, their effects on biological systems, and mechanism of these effects.

M255. Biological Catalysis. (Same as Biological Chemistry M255, Biology CM252, and Chemistry CM255.) Prerequisites: Biology 100A or Life Sciences 3, 100B or C139 or M140, Chemistry 110A, 153A, 153B, or equivalent. 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. (Same as Pathology M257.) Prerequisite: course 241 or consent of instructor. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems.

M258. Pathologic Changes in Toxicology. (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).

261. Introduction to Clinical Pharmacology (2 units). Prerequisite: consent of instructor. Lectures, case presentations, and discussions designed to acquaint graduate students with special problems and effects encountered in clinical use of drugs, including absorption, metabolism and excretion, drug interactions and interference with clinical laboratory analysis.

291. Special Topics in Pharmacology (2 to 4 units). Prerequisite: consent of instructor. Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced Ph.D. candidates, academic staff, or visiting faculty. May be taken twice for credit.

596. Directed Individual Research in Pharmacology (4 to 12 units).

599. Research for and Preparation of Ph.D. Dissertation (4 to 12 units).

MOLECULAR BIOLOGY

*Interdepartmental Program
College of Letters and Science*

UCLA
168 Molecular Biology Institute
Box 951570
Los Angeles, CA 90095-1570
(310) 825-1018

Professors

Arnold J. Berk, M.D. (*Microbiology and Molecular Genetics*), Director
Lutz Birnbaumer, Ph.D. (*Biological Chemistry*)
Clifford F. Brunk, Ph.D. (*Biology*)
William R. Clark, Ph.D. (*Biology/Immunology*)
Steven G. Clarke, Ph.D. (*Biochemistry*)
Asim Dasgupta, Ph.D. (*Microbiology and Immunology*)
Edward M.F. De Robertis, M.D., Ph.D. (*Biological Chemistry*)
Richard E. Dickerson, Ph.D. (*Biochemistry, Geophysics*)
Peter A. Edwards, Ph.D. (*Biological Chemistry*)
David S. Eisenberg, D.Phil. (*Physical Chemistry, Molecular Biology*)
Frederick A. Eiserling, Ph.D. (*Microbiology and Molecular Genetics*)
Juli F. Feigon, Ph.D. (*Biochemistry*)
John H. Fessler, Ph.D. (*Biology, Molecular Biology*)
C. Fred Fox, Ph.D. (*Microbiology and Molecular Genetics, Molecular Biology*)
Armand J. Fulco, Ph.D. (*Biological Chemistry*)
Judith C. Gasson, Ph.D. (*Biological Chemistry, Medicine*)
Dohn G. Glitcz, Ph.D. (*Biological Chemistry*)
Robert B. Goldberg, Ph.D. (*Biology*)
Jay D. Gralla, Ph.D. (*Biochemistry*)
Michael Grunstein, Ph.D. (*Biological Chemistry, Molecular Biology*)
Robert P. Gunsalus, Ph.D. (*Microbiology and Molecular Genetics*)
Oliver Hankinson, Ph.D., in Residence (*Pathology and Laboratory Medicine*)
Harvey R. Herschman, Ph.D. (*Biological Chemistry*)
Ann M. Hirsch, Ph.D. (*Biology*)
Wayne L. Hubbell, Ph.D. (*Ophthalmology, Biochemistry*)
H. Ronald Kaback, M.D. (*Physiology*)
Harumi Kasamatsu, Ph.D. (*Biology*)
James A. Lake, Ph.D. (*Biology, Molecular Biology*)
Judith A. Lengyel, Ph.D. (*Biology*)
Aldons J. Lusis, Ph.D., in Residence (*Medicine, Microbiology and Molecular Genetics*)
Kevin McEntee, Ph.D. (*Biological Chemistry*)
David I. Meyer, Ph.D. (*Biological Chemistry*)

- Jeffrey H. Miller, Ph.D. (*Microbiology and Molecular Genetics*)
 Sherie L. Morrison, Ph.D. (*Microbiology and Molecular Genetics*)
 Elizabeth F. Neufeld, Ph.D. (*Biological Chemistry*)
 Donald P. Nierlich, Ph.D. (*Microbiology and Molecular Genetics*)
 Richard W. Olsen, Ph.D. (*Molecular and Medical Pharmacology*)
 Dan S. Ray, Ph.D. (*Biology, Molecular Biology*)
 Emil Reisler, Ph.D. (*Biochemistry, Molecular Biology*)
 Leonard H. Rome, Ph.D. (*Biological Chemistry*)
 Bruce N. Runnegar, Ph.D. (*Earth and Space Sciences*)
 Winston A. Salsler, Ph.D. (*Biology, Molecular Biology*)
 J. William Schopf, Ph.D. (*Earth and Space Sciences*)
 David S. Sigman, Ph.D. (*Biological Chemistry*)
 Larry Simpson, Ph.D. (*Biology*)
 Allan J. Tobin, Ph.D. (*Physiological Science*)
 Elaine M. Tobin, Ph.D. (*Biology*)
 Joan S. Valentine, Ph.D. (*Inorganic Chemistry and Biochemistry*)
 Randolph Wall, Ph.D. (*Microbiology and Immunology*)
 Richard L. Weiss, Ph.D. (*Biochemistry*)
 Felix O. Wettstein, Ph.D. (*Microbiology and Immunology*)
 Bernadine J. Wisnieski, Ph.D. (*Microbiology and Molecular Genetics*)
 Owen N. Witte, M.D. (*Microbiology and Molecular Genetics*)
 S. Larry Zipursky, Ph.D. (*Biological Chemistry*)

Professors Emeriti

- Daniel E. Atkinson, Ph.D. (*Biochemistry*)
 Marcel A. Baluda, Ph.D. (*Pathology and Laboratory Medicine*)
 Paul D. Boyer, Ph.D. (*Biochemistry*)
 Verne N. Schumaker, Ph.D. (*Biochemistry, Molecular Biology*)
 J. Philip Thornber, Ph.D. (*Biology, Molecular Biology*)
 Charles A. West, Ph.D. (*Biochemistry*)
 Irving Zabin, Ph.D. (*Biological Chemistry*)

Associate Professors

- Jonathan Braun, M.D., Ph.D. (*Pathology and Laboratory Medicine*)
 David A. Campbell, Ph.D. (*Microbiology and Immunology*)
 Christopher T. Denny, M.D. (*Pediatrics*)
 Lawrence T. Feldman, Ph.D. (*Microbiology and Immunology*)
 Patricia J. Johnson, Ph.D. (*Microbiology and Immunology*)
 Reid C. Johnson, Ph.D. (*Biological Chemistry*)
 Mitchell Kronenberg, Ph.D. (*Microbiology and Immunology*)
 Charles R. Marshall, Ph.D. (*Earth and Space Sciences*)
 Sabeeha Merchant, Ph.D. (*Biochemistry*)
 Virginia L. Miller, Ph.D. (*Microbiology and Molecular Genetics*)
 Diane M. Papazian, Ph.D. (*Physiology*)
 Gregory S. Payne, Ph.D. (*Biological Chemistry*)
 Robert W. Simons, Ph.D. (*Microbiology and Molecular Genetics*)
 Stephen T. Smale, Ph.D. (*Microbiology and Immunology*)
 Fuyuhiko Tamanoi, Ph.D. (*Microbiology and Molecular Genetics*)

Assistant Professors

- Renato J. Aguilera, Ph.D. (*Biology*)
 Utpal Banerjee, Ph.D. (*Biology*)
 Douglas L. Black, Ph.D. (*Microbiology and Molecular Genetics*)
 James U. Bowie, Ph.D. (*Biochemistry*)
 Michael F. Carey, Ph.D. (*Biological Chemistry*)
 Samson Chow, Ph.D. (*Molecular and Medical Pharmacology*)
 Catherine F. Clarke, Ph.D. (*Biochemistry*)
 John J. Colicelli, Ph.D., in Residence (*Biological Chemistry*)
 Albert J. Courey, Ph.D. (*Biochemistry*)
 Jeanne M. Erickson, Ph.D. (*Biology*)
 James W. Goyer, Ph.D. (*Biochemistry*)

- Volker Hartenstein, Ph.D. (*Biology*)
 Daniel L. Kaufman, Ph.D. (*Molecular and Medical Pharmacology*)
 Frank A. Laski, Ph.D. (*Biology*)
 Jorge R. Mancillas, Ph.D. (*Neurobiology*)
 M. Carrie Miceli, Ph.D. (*Microbiology and Immunology*)
 Jeffery F. Miller, Ph.D. (*Microbiology and Immunology*)
 Stanley F. Nelson, M.D. (*Pediatrics, Psychiatry and Biobehavioral Sciences*)
 Charles L. Sawyers, M.D. (*Medicine/Hematology-Oncology*)
 Olaf Schneewind, M.D. (*Microbiology and Immunology*)
 Ke Shuai, Ph.D. (*Biological Chemistry*)
 Karam Singh, Ph.D. (*Biology*)
 Phoebe L. Stewart, Ph.D. (*Molecular and Medical Pharmacology*)
 Alexander van der Blik, Ph.D. (*Biological Chemistry*)
 Geraldine A. Weinmaster, Ph.D. (*Biological Chemistry*)
 Todd O. Yeates, Ph.D. (*Biochemistry*)

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 the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Doctoral Degree

Admission

Students are admitted to the program through UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, Los Angeles, CA 90095-1570, (310) 206-6150. In addition, under special circumstances, the program may admit students directly to the first year according to the following criteria. Recommended undergraduate training for the Ph.D. program includes a major in a biological or physical science. Coursework should include one year each of calculus, general chemistry, organic chemistry, physics, and biology. In addition, the student should have completed intermediate level courses in physical chemistry, organic chemistry, biochemistry, and genetics. Undergraduate requirements may be modified for qualified candidates with interests in certain areas. Students entering the program with course deficiencies are ex-

pected to rectify these early in the graduate program.

Only superior students are admitted, and in addition to the application, transcripts, and statement of purpose, three letters of recommendation are required along with Graduate Record Examination (GRE) scores.

Major Fields or Subdisciplines

Consult department.

Course Requirements

The usual program is two regular courses per quarter or the equivalent of 12 quarter units of upper division or graduate work. Five quarters of Molecular Biology M298 are required, as well as one quarter each of Biological Chemistry CM248, CM253, and CM267.

Written and Oral Qualifying Examinations

Examinations are given in Molecular Biology M298, and four must be passed. The first proposal should be submitted by the third week of the first Summer Quarter. The University Oral Qualifying Examination on original research proposed by the candidate independently of the Ph.D. adviser and on a topic distinct and separate from thesis research is held usually during the second year in the program. A "mid-stream seminar" must be presented at the end of the third year of study.

Graduate Course

M298. Seminar: Current Topics in Molecular Biology (2 units). (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology and Molecular Genetics M298, and Microbiology and Immunology M298.) Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. Program. Each student conducts or participates in discussions on assigned topics. May be repeated for credit.

Related Courses in Other Departments

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, CM248, CM253, M255, M263, M264A-M264B-M264C, M266A-M266B-M266C, CM267, M298

Biology 228, M230B, M230D, 234, CM248, 257A, M298

Chemistry and Biochemistry M230B, M230D, CM253, M263, M264A-M264B-M264C, M267, M298

Microbiology and Immunology 250, M256, M258A, M258B, M260, M262A, M262B, M263, 264, M298

Microbiology and Molecular Genetics 242, M248, 250, 251, M260, M263, 290, M298

MUSIC

School of the Arts and Architecture

UCLA
2539 Schoenberg Hall Annex
Box 951616
Los Angeles, CA 90095-1616
(310) 825-4761

Professors

Alden Ashforth, Ph.D.
Elaine R. Barkin, Ph.D.
Kenneth Burrell, B.A.
Gary G. Gray, M.M.
Thomas F. Harmon, Ph.D.
D. Thomas Lee, D.M.A.
Vitaly Margulis, M.M.
Donald Neuen, M.A.
Paul V. Reale, Ph.D.
Jon Robertson, D.M.A., *Chair*
Robert S. Winter, Ph.D.
Paul E. Des Marais, M.A., *Emeritus*
Maurice Gerow, Ph.D., *Emeritus*
Frederick F. Hammond, Ph.D., *Emeritus*
Henri Lazarof, M.F.A., *Emeritus*
Roy E. Travis, M.A., *Emeritus*

Associate Professors

Roger Bourland, Ph.D.
Timothy Mussard, D.M.A.

Assistant Professors

Frank Heuser, D.M.A.
Ian Krouse, Ph.D.
David Lefkowitz, Ph.D.

Lecturers

Linda Anderson, M.S.
John L. Hall, M.M., *Senior*
Gordon Henderson, M.M.E.
Lou Anne Neill, M.A.
Theodore Norman
Barbara Northcutt, B.M.
Mitchell T. Peters, M.M.
Sheridon W. Stokes, *Senior*
Paul Zibits, M.M.
Gerald E. Anderson, M.S., *Emeritus*
Maureen D. Hooper, Ed.D., *Senior Emerita*
Bess Karp, M.A., *Senior Emerita*
Samel Krachmalnick, *Senior Emeritus*
Aube Tzerko, B.M., *Senior Emeritus*
Donn E. Weiss, M.M., *Senior Emeritus*

Adjunct and Visiting Professors

Alexander Treger, *Visiting*
Dorothy Warenskjold, B.A., *Adjunct*

Adjunct and Visiting Associate Professors

Heinz Blankenburg, *Adjunct*
Don Green, M.M., *Visiting*
Malcolm McNab, *Visiting*

Adjunct and Visiting Assistant Professors

Mark Baranov, D.M.A., *Visiting*
William Booth, M.M., *Adjunct*
Charles Coker, M.M., *Visiting*
Ruth DeSarno, M.M., *Visiting*
Barry Gold, M.M., *Visiting*
David Goodman, Ph.D., *Visiting*
John T. Johnson, B.M., *Adjunct*
Jeffrey Kaatz, D.M.A., *Visiting*
Ick-Choo Moon, D.M.A., *Visiting*
Antoinette Perry, D.M.A., *Adjunct*
Richard Todd, B.M., *Adjunct*
Evan Wilson, *Adjunct*
Kari Windingstad, B.A., *Adjunct*
Peter Yates, M.F.A., *Adjunct*

Scope and Objectives

Students interested in a concentration in music history and literature should consider the major in 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 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.

Bachelor of Arts Degree

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 60A through 65; two years (12 units) of performance organizations (courses C90A through 90N) for a letter grade; and Musicology 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. You must participate in a minimum of two different organizations over the course of your stay at UCLA. In addition, you 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: A minimum of 48 units in upper division, including Music 120A, 120B, 120C, Musicology 126A-126B-126C, and six courses selected from one of the specializations listed below.

Composition — Music 106A, 106B, 123A-123B-123C, and at least one course from 101, 109A, 109B, 109C, 116, 117, 118A, 118B, 121, C122, additional terms of 123A-123B-123C, 156, C176, 199, Ethnomusicology and Systematic Musicology 117, 128, 130, 136A, 136B,

146, 156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 181. In addition, you must have an original work completed and ready for rehearsal and performance on campus during your senior year.

Music Education — Music 100A-100B-100C, 116, 117, eight units from 115A through 115E. You are encouraged to take additional coursework from 112A, 112B, 118A, 118B, 199, Ethnomusicology and Systematic Musicology 170, 172B, 174 as your schedule allows. You are required to enroll in the type of performance organizations (courses C90A through 90N; 90M may be used in Fall Quarter only) that you plan to teach. In addition, if you intend to teach instrumental music, you are encouraged to select three terms of choral organizations (courses C90A, 90B, 90C, 90J, or 90K); if you intend to teach general music, you are encouraged to elect three terms of ethnomusicology performance organizations (Ethnomusicology and Systematic Musicology 91A-91Z).

Performance — Twelve units in performance instruction courses 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, Musicology C127A through C127F, 130, 133, 134, 135A, 135B, 135C, 139, Ethnomusicology and Systematic Musicology M108A, 108B, 120A, 120B, 121, 170, 176, and one upper division elective course in music. During each term in which you take private lessons, you 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

Admission

Applicants for the M.A. or M.M. must have completed a Bachelor of Arts 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 for a degree 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 audition has been taken and all of the above materials have been received.

Applicants applying for the M.M. 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 Master of Fine Arts degree. 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.

Early April — Assessment examination/audition 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 be-

fore 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.

Areas of Study

The Music Department offers the degrees of Master of Arts in the field of composition and Master of Music 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 Music 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 and Systematic Musicology 106A, 106B, 106C, 113, M126, 128, 130, 136A, 136B, 146, 147, 156A, 156B, 157, 158A, 158B, 158C, 160A, 160B, 170, 173, 176, M180, 181. Course 598 serves to guide the preparation of the thesis and should normally be taken during the last quarters of residency.

Required courses are Music 251A, 266A-266B; one course from Music 251B through 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, 42 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.

The 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 400-level chamber ensembles; one quarter of Music 401; one quarter of Music 595A; and one additional course (selected with advisement) from Music 261A through 261F, C267, 270E, 270F, 271, 596D, courses in pedagogy, Musicology 250A, 250B, 269, and Ethnomusicology and Systematic Musicology 271, 273, 275, 279.

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 400-level chamber ensembles; one quarter of Music 401; one quarter of Music 595A; and one additional course (selected with advisement) from Music 261A through 261F, C267, 270E, 270F, 271, 596D, courses in pedagogy, Musicology 250A, 250B, 269, and Ethnomusicology and Systematic Musicology 271, 273, 275, 279.

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), Ethnomusicology and Systematic Musicology 170, 176, 596A, 596C, 596D, and additional courses from the 200 and 400 series. Course 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, stu-

dents 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 the student has completed the core seminars and three quarters of performance/conducting instruction, and after verification from the graduate adviser that these 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 Senate faculty. The committee oversees the preparation of the recital, the accompanying program notes, and the new music forum, and adjudicates the recital itself.

Qualifying Examinations. Written (about three hours) and oral (about two hours) qualifying examinations are administered by the master's committee. The examination covers the material in the core courses as well as a general knowledge of music history, with an equally strong emphasis on historical and contemporary styles. The examinations are administered each year at the end of Fall and Spring Quarters. Students may take the examinations twice if necessary; a second failure results in a recommendation for dismissal.

Master's Recital. Students present a final master's recital with accompanying program notes. During the final year of residence and after completion of the major coursework, students perform for their committee and present the program notes for their approval. The committee decides whether the student qualifies for advancement to candidacy and the presentation of the master's recital. No recital takes place until the notes have 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 elucidat-

ed 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 drawn 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 Schoenberg Hall 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 xeroxes or the original and one xerox copy) 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 Doctor or Philosophy (Ph.D.) program must have completed a Master of Arts degree in Music (or the equivalent degree).

The degree normally 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 Doctor of Musical Arts (D.M.A.) program are required to (1) submit a statement of purpose which also includes a description of the 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 applicants' academic potential); and (3) 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 — 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.

Early April — Examination/audition 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. and D.M.A. degrees 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 examina-

tion 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 and Systematic Musicology 20A-20B-20C. They are also encouraged to participate in the ethnomusicology performance organizations (Ethnomusicology and Systematic Musicology 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 through 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 disser-

ation, 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 and Systematic Musicology C201A for Musicology 200A and Ethnomusicology and Systematic Musicology 282 or 283 for Music 251B through 251D. Students are required to take two courses from Ethnomusicology and Systematic Musicology 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. Course 599 serves to guide the preparation of the doctoral paper 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 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 given 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 400-level chamber ensembles; one quarter of Music 401; one quarter of Music 595B; one quarter of Music 599; the appropriate course from Music 469, 471, 473, 474; one additional course from Music 261A through 261F, C267, 270E, 270F, 271, 596D, courses in pedagogy, Musicology 250A, 250B, 269, and Ethnomusicology and Systematic Musicology 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; one quarter of Music 595B; one quarter of Music 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, and Ethnomusicology and Systematic Musicology 271, 273, 275, 279.

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) Composition of a short homophonic and short polyphonic piece (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, the student 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. The student's first-year lecture-recitals are adjudicated by a committee of three Music Department faculty including the student's teacher. At least two of the three committee members must be full-time Senate faculty members. On successful completion of this recital, a member of the

composition faculty joins with the student's teacher to guide the new music forum project.

Two sets of qualifying examinations are required. The first covers material in the three-quarter core sequence of Music 202, 203, 204, one of the performance practice seminars, and the appropriate pedagogy course. This examination must be passed before approval can be granted for the second-year recital. The second examination is the defense of the final recital repertoire and thesis topic with the doctoral committee (University Oral Qualifying Examination).

After passing the first examination, students may propose their second-year entrepreneurial recital. This 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 has been passed and the foreign language requirement has been met, the student may submit the request for a doctoral committee.

A minimum of three months before the final doctoral recital, 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 thesis topic, and its relationship to the final recital.

Final Recital and Doctoral Paper

The third-year doctoral recital is a full professional recital of approximately 90 minutes duration. Materials should represent a broad knowledge of contrasting musical styles showcasing students' work with the degree program. Memorization is required if it is common for the student's instrument.

In conjunction with the final recital, students prepare a doctoral paper dealing with substantive performance issues related to the repertoire of their final recital. The paper should be approximately 25 to 40 pages in length, dealing with performance practice or pedagogical problems found in specific repertory in their recital. Rather than a superficial summary of performance issues across an entire program, the paper should address one work in depth. Designed to be publishable, the paper should provide an original contribution to the understanding of performance, performance practices, or analysis and performance of the chosen work. The doctoral paper must be submitted to the student's committee at least two weeks before the doctoral recital.

Lower Division Courses

1A-1B. Fundamentals of Music. Lecture, three hours; discussion, two hours. Designed for nonmusic majors.

1A. Introduction to elements of music: pitch and rhythm symbols, meter and time signatures, notation, scales, intervals, and chord structure. **1B.** Prerequisite: 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 units each). 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 units each). Laboratory, three hours. Class instruction in elementary ear training and keyboard skills.

8G. Graduate Piano Sight-Reading (2 units). 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 units). Lecture, two hours; laboratory, one hour. Prerequisite: 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 units each). Lecture, four hours. **12A.** Preparation: music theory placement examinations. 16th-century modal counterpoint in two parts, including writing of motets. **12B.** Prerequisites: courses 20A, 20B, 20C. 18th-century tonal counterpoint in two parts, including writing of inventions.

15. Art of Listening. 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. 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. Lecture, four hours; discussion, four hours. Prerequisite: 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. Lecture, four hours; discussion, four hours. Prerequisite: 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 units). Prerequisites: 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 units each). Limited to music majors (all lower division majors, and upper division 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.

C90A. UCLA Chorale (2 units). (Formerly numbered 90A.) 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 units). 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 units). 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 units). 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 units). (Formerly numbered 90E.) 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 units). 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 units). (Formerly numbered 90G.) 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 units). 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 units). 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 units). 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. Musical Comedy Workshop (2 units). 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 units). 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 units). 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. Lecture, four hours; laboratory, one hour. Prerequisites: courses 20A, 20B, 20C, 116, 120A, 120B, 120C, Musicology 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. Prerequisite: course 120B or consent of instructor. Intensive individual work in keyboard harmony and reading of chamber and orchestral scores. May be repeated once for credit.

102. Instrumentation. Lecture, three hours. Prerequisite: course 120B with a grade of C (2.0) or better. Not open for credit to students with credit for course 106A. Intended for music majors in specializations other than composition. Ranges and characteristics of instruments, exercises in scoring.

105. Introduction to Composition. Lecture, three hours. Prerequisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Intended for music majors in specializations other than composition. Nature of compositional process, with selected exercises in specific techniques and styles.

106A. Orchestration I. Discussion, three hours. Prerequisites: courses 20A, 20B, 20C. May be taken concurrently with courses 120A, 120B, 120C. Ranges and characteristics of instruments, with exercises in scoring.

106B. Orchestration II. Discussion, three hours. Prerequisite: course 106A. Scoring and analysis for ensembles and full orchestra.

109A-109B-109C. Composition for Motion Pictures and Television (2 units each). Prerequisites: courses 20A, 20B, 20C, 120A, 120B, and 120C, or consent of instructor. Course 109A is prerequisite to 109B, which is prerequisite to 109C. Composition of music for dramatic and documentary film in cinema and television. Techniques used in recording and editing.

112A-112B. Practical Scoring. Lecture, two hours; laboratory, two hours. Prerequisites: courses 20A, 20B, 20C, 120A, 120B, 120C, and Musicology 26A-26B-26C, or consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisites: course 1A and Musicology 2A, or consent of instructor. Course 113A is not prerequisite 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 unit each). (Formerly numbered 115A-115F.) Laboratory, three hours. Prerequisite 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 units). Lecture, three hours. Prerequisites: 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 units). (Formerly numbered 117A-117B.) Lecture, three hours. Prerequisite: course 116 or consent of instructor. 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 units each). Lecture, one hour; laboratory, two hours. Prerequisites: courses 116 and 117, or consent of instructor. Detailed investigation of musical styles, performance practices, and rehearsal techniques. Each course may be repeated once for credit. **118A.** Choral; **118B.** Instrumental.

119. Creative Process: Developing Imagination and Craft. Lecture, three hours. Prerequisites: courses 106A and 106B, or consent of instructor. In-depth philosophical and technical discussions as to nature of creativity, as well as compositional exercises intended to develop technique and imagination and to enrich musical vocabulary of students.

120A. Music Theory IV. Lecture, four hours; discussion, four hours. Prerequisites: course 20C with a grade of C (2.0) or better, passing score on departmental first-year examination. 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. Lecture, four hours; discussion, four hours. Prerequisites: course 120A with a grade of C (2.0) or better, consent of instructor. 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. Lecture, four hours; discussion, two hours; listening, two hours. Prerequisites: course 120B with a grade of C (2.0) or better, consent of instructor. 20th-century harmonic language, including nonfunctional harmony, polytonality, free atonality, serialism, and minimalism.

121. Special Topics in 20th-Century Music. Lecture, three hours. Prerequisites: courses 20A, 20B, 20C, 120A, 120B, and 120C, or consent of instructor. 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. Discussion, three hours. Prerequisites: courses 20A, 20B, 20C, 120A, 120B, and 120C, or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Course 123A is prerequisite to 123B, which is prerequisite to 123C. Designed for students specializing in composition. 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.

136A-136B-136C. Historical Survey of Music Theater. 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.** Music Theater, Early Forms to 1900; **136B.** Music Theater, 1900 to 1945; **136C.** Music Theater, 1945 to 1975.

150. Introduction to Music Criticism. Lecture, three hours. Prerequisite: music major or consent of instructor. 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. Prerequisites: courses 20A, 20B, 20C, 120A, 120B, Musicology 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. Lecture, two hours; laboratory, three hours. Prerequisites: courses 20A, 20B, 20C, consent of instructor. Theory and practice of sound engineering in relation to concert and studio recording techniques.

156. Electronic Music: Theory and Techniques. Lecture, three hours; laboratory, three hours. Prerequisites: courses 123A-123B-123C. Designed for students specializing in composition. 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. 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 units each). Limited to upper division 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. Lecture, three hours. Corequisite: course 164A or 164B or 164C or consent of instructor. 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. The Language of Song (2 units each). Prerequisite: music major. 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 units). (Formerly numbered 175.) Prerequisite: 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. Lecture, three hours; studio, three hours. Prerequisites: course 156, advanced experience and accomplishment in serious composition (art music), consent of instructor. 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.

C185. Historical and Philosophical Foundations of Music Education. Lecture, three hours. Prerequisite: completion of undergraduate music education specialization or consent of instructor. Development of music education in the U.S. according to established schools of thought. May be concurrently scheduled with course C225.

199. Special Studies in Music (2 or 4 units). Hours to be arranged. Prerequisites: senior standing, 3.0 GPA, consent of instructor and department chair. Individual studies in music resulting in research project. May be repeated for a maximum of eight units.

Graduate Courses

202. Analysis for Performers. Lecture, three hours. Prerequisite: graduate standing. 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. Lecture, three hours. Prerequisite: graduate standing in music. Survey of musical terminology designed 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. Lecture, three hours. Prerequisite: graduate standing in music performance. Survey of general bibliographic techniques in music, with emphasis on materials for the performing musician.

C222. Speculative Music Theory. Discussion, three hours. Prerequisite: graduate standing in music. 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. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. 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. Lecture, three hours; studio, three hours. Prerequisites: course 156, graduate standing, advanced experience and accomplishment in serious composition (art music), consent of instructor. 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. 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 units each). Seminar, three hours. Prerequisites: courses 106B, 123C. Course 252A is prerequisite to 252B, which is prerequisite 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. Seminar, three hours. Prerequisites: courses 151A-151B or consent of instructor. 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.

266A-266B. Seminars: Music of the 20th Century. Seminar, three hours. Prerequisite: graduate standing in music or consent of instructor. 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. Lecture, three hours. Corequisite: course 464A or 464B or 464C or consent of instructor. 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 units each). Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, four hours; media laboratory, one hour. Prerequisite: graduate standing in music performance. Survey of music and its place in emerging digital world of the arts, including training in arranging and multimedia production.

370. Music in General Education (2 units). Prerequisite: graduate standing in Graduate School of Education and Information Studies teacher training program (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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: 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 units). Tutorial/laboratory. Prerequisite: 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 units each). Limited to M.F.A. students. Individual instruction of one hour per week, with performance laboratory at discretion of instructor. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. **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; **465.** Voice.

469. Piano Pedagogy. Lecture, three hours; discussion, one hour. Prerequisites: graduate standing in music, advanced proficiency on piano. 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. Laboratory, six hours. Prerequisites: graduate standing, consent of instructor. Performance techniques and repertoire for graduate students in opera.

471. Vocal Pedagogy. Lecture, three hours; discussion, one hour. Prerequisites: graduate standing in music, advanced proficiency in voice. 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 units). Laboratory, three hours. Limited to M.F.A. students. Intensive study and preparation of opera literature. May be repeated for credit.

473. String Pedagogy. Lecture, three hours; discussion, one hour. Prerequisites: graduate standing in music, advanced proficiency on a string instrument. 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. Lecture, three hours; discussion, one hour. Prerequisites: graduate standing in music, advanced proficiency on a woodwind instrument. 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 units). Laboratory, three hours. Limited to M.F.A. students. Intensive study and preparation of musical literature in specialized field of conducting. May be repeated for credit.

476. Brass Pedagogy. Lecture, three hours; discussion, one hour. Prerequisites: graduate standing in music, advanced proficiency on a brass instrument. 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. Lecture, three hours; discussion, one hour. Prerequisites: graduate standing in music, advanced proficiency in percussion. 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 units). Activity, four hours. Prerequisites: audition, enrollment in M.M. or D.M.A. program. 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 units). Activity, four hours. Prerequisite: 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 units). Activity, four hours. Prerequisites: audition, enrollment in M.M. or D.M.A. program. 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 units). Prerequisite: 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 units). Eight weekly two-hour sessions, plus intensive training session during Fall Quarter registration week. Prerequisite: 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 units). Tutorial, three hours. Prerequisite: graduate standing in master's program in performance. 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 units). Tutorial, three hours. Prerequisite: advancement to candidacy for D.M.A. degree. Intensive study and preparation of final doctoral 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 units). Only four units may be applied toward M.A. or M.F.A. degree requirements. May be repeated for credit.

596C. Directed Individual Studies in Music Education (2, 4, or 6 units). Only four units may be applied toward M.A. or M.F.A. course requirements.

596D. Directed Individual Studies in Performance Practices (2 to 12 units). Prerequisite: graduate standing. Only four units may be applied toward M.A. or M.F.A. degree requirements. May be repeated for credit.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations (2 or 4 units). S/U grading.

598. Guidance of M.A. Thesis or M.F.A. Final Project (4, 8, or 12 units). M.A. candidates may apply four units toward degree requirements; M.F.A. candidates may apply eight units toward degree requirements. May be repeated for credit. S/U grading.

599. Guidance of Ph.D. Dissertation (4, 8, or 12 units). May be repeated for credit. S/U grading.

Related Courses in Other Departments

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

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Professors

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Malcolm S. Cole, Ph.D.
Frank A. D'Accone, Ph.D.
Marie Louise Göllner, Ph.D.
Susan McClary, Ph.D., *Chair*
Gilbert Reaney, M.A.
Edwin H. Hanley, Ph.D., *Emeritus*
Richard A. Hudson, Ph.D., *Emeritus*
W. Thomas Marrocco, Ph.D., *Emeritus*

Robert U. Nelson, Ph.D., *Emeritus*
Robert M. Stevenson, Ph.D., *Emeritus*
Robert L. Tusler, Ph.D., *Emeritus*

Assistant Professors

Raymond Knapp, Ph.D.
Harris S. Saunders, Ph.D.
Robert Walser, Ph.D.

Scope and Objectives

The Department of Musicology provides students with a broad understanding of the history and literature of the art 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. Musicology will appeal 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 will enable 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 your particular interests and career goals, you 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 you wish to participate in performance at UCLA, you 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.

Bachelor of Arts Degree

Admission

All applicants for admission and change of major must demonstrate proficiency in vocal or instrumental performance at the intermediate level. This requirement may be satisfied by completing a required requisite course with a grade of B or better or by passing an individual audition with a departmental faculty committee. If you are a junior transfer student, you are required to pass an audition with the departmental faculty admissions committee before you can be admitted to the program.

Preparation for the Major

Required: Musicology 1A-1B, 26A-26B-26C, 28A-28B-28C, Music 4A, 20A, 20B, 20C, and six units (three terms) of performance organizations selected from Ethnomusicology and Systematic Musicology 91D, 91F, 91H, 91K, 91P or Music C90A, 90B, C90E, 90F, C90G.

The Major

Required: Musicology 126A-126B-126C, four courses from 122, C127A through C127F, 130, 156, 188A through 188F; two courses (each in a different geographical or cultural area) from Ethnomusicology and Systematic Musicology 106A, 106B, 106C, M108A, 108B, M110A, M110B, 136A, 136B, 146, 147, 156A, 156B, 157, 160A, 160B; four courses in one area of concentration (arts, literature, history and society, or philosophy and religion) within which you may focus on a more specialized field such as Afro-American, American Indian, Asian American, Chicana and Chicano, and women's studies. A list of approved courses is available in the department office.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Applicants for the Master of Arts in Musicology must have completed a Bachelor of Arts degree, or its equivalent, in Music or Music History. 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 for the M.A. are required to (1) take a departmental assessment examination (details are automatically sent after the application has been received); (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 the applicant has worked; and (4) submit written examples of their work such as a paper on an appropriate subject. No application can be considered until the examination has been taken and all of the above materials have been received.

Admission Timetable

December 30 — Application for admission/fellowship is due.

January 30 — Supplementary application materials are due.

End of January — Assessment examination is administered. Note: Applicants for fellowships must take the early examination; all monies are awarded at that time.

March 1 — Late applications are accepted until March 1; however, due to mail transit time, late foreign applications from outside the U.S. cannot be accepted.

By March 15 — Notice of acceptance or denial is sent.

April 1 — Supplementary application materials are due.

Early April — Assessment examination is administered.

May 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.

Assessment Examination. The assessment examination is administered at Schoenberg Hall on the UCLA campus twice a year at the end of January and early April. Those applying from outside the Southern California area who 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. Further information is sent after the application has been received.

The assessment examination is approximately two and one-half hours in length and consists of three parts: (1) harmonic and formal analysis, (2) an essay on each of two historical subjects, one before and one after 1750, and (3) keyboard harmony, score reading, sight singing, piano sight reading, and performance. Part 3 is taken on entrance, during the week before classes start in Fall Quarter. Students with weakness in any of Part 3 must enroll in the musicology practicum during their first year of study.

The assessment examination and dossier are reviewed, along with those of other applicants, by the musicology faculty to assess each applicant's potential as a graduate student in that field at UCLA.

Areas of Study

The Musicology Department offers the degree of Master of Arts in the field of historical musicology. Degrees in composition, performance, and ethnomusicology and systematic musicology 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 includes Musicology 201A through 201F, 210, 211, 250A-250B, and other 200-level courses.

Comprehensive Examination

None.

Thesis Plan

The thesis is an article-length paper prepared under faculty guidance. The thesis topic and the composition of the master's committee are approved by the Musicology Department. If students plan to go on for the Ph.D., they must make formal application for this program after their coursework for the M.A. has been finished and while they are preparing for or writing their thesis.

Doctoral Degree

Admission

Applicants for the Ph.D. program 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 a departmental assessment examination (details are sent after the application has been received); (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 the applicant has worked; and (4) submit written examples of work such as a paper on an appropriate subject. Applicants applying to the Ph.D. program should submit their M.A. thesis, if possible. No application can be considered until the examination has been taken and all of the above materials have been received.

Major Fields or Subdisciplines

The Musicology Department offers the degree of Doctor of Philosophy in the field of historical musicology. Degrees in composition, performance, and ethnomusicology and systematic musicology 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

When the student and the committee feel the student is ready to take the qualifying exami-

nations, 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 may be repeated a maximum of two times and may be scheduled in consultation with the student's guidance committee within a six-month period. After successful completion of the written examinations, a departmental oral qualifying examination is scheduled.

The written examinations consist of five examinations, three hours each: (1) general music history; (2) analysis of form and style; (3) one area from ancient, medieval, Renaissance, or baroque music; (4) one area from classic, Romantic, or 20th-Century music; (5) one from acoustics, aesthetics of music, ethnomusicology, organology, or music theory.

After completion of the written and oral qualifying examinations, the student 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 department and submitted to the Graduate Division for approval. The University Oral Qualifying Examination may then be scheduled.

Lower Division Courses

1A-1B. Introduction to Musicology. Introduction to principles, problems, and methods of musical historiography through examination of selected issues and concepts.

2A-2B. Introduction to the Literature of Music. Lecture, four hours; laboratory, one hour. Limited to undergraduate students. Course 2A is not requisite to 2B. Designed for nonmusic majors. **2A.** Technical and formal principles of music literature through the mid-18th century. **2B.** Music literature from the mid-18th century to the present.

6GA-6GB. Musicianship for Musicology Graduate Students (2 units each). Seminar/laboratory, three hours. Designed to help entering graduate students remedy entrance deficiencies. S/U grading.

13. 20th-Century Music of the Western World. Survey of main trends in 20th-century music, with emphasis on representative works from avant-garde, mainstream, and popular traditions.

26A-26B-26C. History and Analysis of Music I. Lecture, four hours; laboratory, one hour. Enforced requisite: Music 20C. Course 26A is enforced requisite to 26B, which is enforced requisite to 26C. History and literature of music from beginning of the Christian era to 1750, with emphasis on analysis of representative works of each style period. Materials selected illustrate history of style and changing techniques of composition.

28A-28B-28C. Early Music Laboratory (2 units each). 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.

Upper Division Courses

122. Studies in History of Musical Thought. Prerequisite: consent of instructor. Alternative conceptions of music from early 18th century to about 1800, with emphasis on its nature as a medium of expression to its nature as a primarily formal or abstract art form.

126A-126B-126C. History and Analysis of Music II. Lecture, four hours; laboratory, one hour. Prerequisites: courses 26A-26B-26C, Music 20A, 20B, and 20C, or consent of instructor. Course 126A is prerequisite to 126B, which is prerequisite to 126C. History and literature of music from 1750 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.

C127A-C127F. Selected Topics in History of Music. Discussion, three hours. Prerequisites to all courses: courses 1A-1B, 26A-26B-26C, Music 20A, 20B, 20C; in addition, 126A is prerequisite to C127D, 126B is prerequisite to C127E, and 126C is prerequisite to C127F. Designed as proseminars for undergraduates in preparation for graduate work. Special aspects of music of each period studied in depth. May be concurrently scheduled with courses C227A-C227F. **C127A.** Middle Ages; **C127B.** Renaissance; **C127C.** Baroque; **C127D.** Classic; **C127E.** Romantic; **C127F.** 20th Century.

130. Music of the U.S. Prerequisite: consent of instructor. Survey of art music in the U.S. from Colonial times to the present.

131. American Popular Song. 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.

133. Bach. Lecture, two hours; laboratory, two hours. Prerequisite: undergraduate standing. Life and works of Johann Sebastian Bach.

134. Beethoven. Lecture, two hours; laboratory, two hours. Prerequisite: undergraduate standing. Life and works of Ludwig van Beethoven.

135A-135B-135C. History of Opera. Lecture, four hours; laboratory, one hour. Prerequisite: undergraduate standing. **135A.** Opera of Baroque and Classical Periods; **135B.** Opera of Romantic Period; **135C.** Opera of the 20th Century.

139. History and Literature of Church Music. Prerequisite: consent of instructor. Study of forms and liturgies of Western church music.

156. Studies in Musical Genres. Prerequisite: consent of instructor. Survey of musical genres, with emphasis on analysis of structural organization.

188A-188F. The Master Composer. Lecture, three hours; laboratory, one hour. Prerequisite: consent of instructor. Survey of works of an outstanding composer in Western art music, considered within context of his age. **188A.** Middle Ages; **188B.** Renaissance; **188C.** Baroque; **188D.** Classic; **188E.** Romantic; **188F.** 20th Century.

189. The Symphony. Lecture, three hours; laboratory, one hour. Prerequisite: undergraduate standing. Survey of symphonic literature from Haydn through the 20th century.

199. Special Studies in Musicology (2 or 4 units). Prerequisites: senior standing, 3.0 GPA, consent of instructor and department chair. Individual studies in musicology resulting in a research project. May be repeated for a maximum of eight units.

Graduate Courses

200A. Research Methods and Bibliography (6 units). Lecture, three hours. Prerequisite: graduate standing in musicology. Survey of general bibliographic material in music.

200B. Historiography (6 units). Seminar, three hours. Prerequisite: graduate standing in musicology, ethnomusicology, or music, or consent of instructor. 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 units). Seminar, three hours. Prerequisite: graduate standing in musicology, ethnomusicology, or music, or consent of instructor. 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.

201A-201F. Current Research Problems in Historical Musicology (6 units each). Discussion, three hours. Prerequisite: graduate standing in musicology. Investigation at graduate level of central questions and problems in history of Western music designed to give beginning graduate students a unified background for remainder of their studies and to employ their developing skills in research and bibliography. **201A.** Medieval; **201B.** Renaissance; **201C.** Baroque; **201D.** Classic; **201E.** Romantic; **201F.** 20th Century.

202. Selected Topics in History of Western Music (4 or 6 units). Lecture, three hours. Prerequisite: course 200A or consent of instructor. Designed for graduate students in areas other than musicology who are preparing for qualifying examinations. Systematic review of major stylistic trends in history of Western music from medieval times to the present through formal analysis and readings in contemporary and modern theoretical writings. May be repeated for a maximum of 12 units.

210. Medieval Notation (6 units). Lecture, three hours. Prerequisite: consent of instructor. Vocal and instrumental notation; paleography of the period.

211. Renaissance Notation (6 units). Lecture, three hours. Prerequisite: consent of instructor. Vocal and instrumental notation; paleography of the period.

C227A-C227F. Selected Topics in History of Music. Discussion, three hours. Prerequisite: graduate standing. Special aspects of music of each period studied in depth. Each course may be repeated once for credit. May be concurrently scheduled with courses C127A-C127F. Additional assignments, as well as evidence of greater depth of study, required of graduate students. **C227A.** Middle Ages; **C227B.** Renaissance; **C227C.** Baroque; **C227D.** Classic; **C227E.** Romantic; **C227F.** 20th Century.

250A-250B. Seminars: History of Music Theory (6 units each). Lecture, three hours. Prerequisite: course 200A. Course 250A is not prerequisite 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.

256. Seminar: Musical Form (6 units). Lecture, three hours. Prerequisites: courses 126A-126B-126C. Analysis of structural organizations in music. Specific topics vary from year to year.

257. Seminar: Music of the U.S. and Canada. Discussion, three hours. Prerequisite: course 130. Examination of principal figures and trends in North American music since the 18th century. Topics vary from year to year.

260A-260F. Seminars: Historical Musicology (6 units each). Lecture, three hours. Prerequisites: 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.** Classic; **260E.** Romantic; **260F.** 20th Century.

261A-261F. Problems in Performance Practices. Lecture, three hours. Prerequisites: graduate standing, consent of instructor. 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.

262. Contemporary Popular Music Studies. Seminar, three hours. Prerequisite: graduate standing or consent of instructor. 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.

269. Seminar: History of European Instruments. Discussion, three hours. Investigation of origins and development of principal families of instruments used in European music since the Middle Ages. Topics vary from year to year.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Eight weekly two-hour sessions, plus intensive training session during Fall Quarter registration week. Prerequisite: 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 units). Prerequisites: graduate standing, consent of instructor. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 or 4 units). Prerequisites: graduate standing, completion of all M.A. or Ph.D. course and language requirements. S/U grading.

598. Guidance of M.A. Thesis (4, 8, or 12 units). Prerequisites: graduate standing, completion of all M.A. degree requirements (except thesis). S/U grading.

599. Guidance of Ph.D. Dissertation (4, 8, or 12 units). Prerequisites: graduate standing, advancement to Ph.D. candidacy. May be repeated for credit. S/U grading.

NEAR EASTERN LANGUAGES AND CULTURES

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Elizabeth Carter, Ph.D. (*Near Eastern Archaeology*)
Lev Hakak, Ph.D. (*Hebrew*)
Antonio Loprieno, Dr.phil.habil. (*Egyptology*), Chair
Ismail 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

Hossein Ziai, Ph.D. (*Iranian and Islamic Studies*)

Assistant Professors

Daniel C. Polz, Ph.D. (*Egyptian Archaeology and History*)
William Schniedewind, Ph.D. (*Biblical Studies and Northwest Semitics*)

Lecturers

Nancy Ezer, Ph.D. (*Hebrew*)
 Michael Fishbein, Ph.D. (*Arabic*)
 Latifeh Hagigi, M.A. (*Iranian*)
 Ralph Jaeckel, Ph.D. (*Turkic*)
 Thomas Ritter, Dr.phil. (*Egyptology*)

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 you must meet the prerequisites and take the courses prescribed. Your adviser assists in selecting a plan of study developed around your interests.

You may combine your major with one in another department (double major) to enhance your educational opportunities. Due to the number of additional courses required, you are advised to consider this option early in your academic career and in consultation with program advisers in both majors.

Bachelor of Arts in Ancient Near Eastern Civilizations

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 follows: *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.

Bachelor of Arts in Arabic

Students majoring in Arabic may combine the major with the interdepartmental specialization in business and administration to enhance their career opportunities. Due to the number of additional courses required, you are advised to consider this option early in your academic career.

Preparation for the Major

Required: Arabic 1A-1B-1C, 102A-102B-102C, 150A-150B.

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, 164.

Bachelor of Arts in Hebrew**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.

Bachelor of Arts in Iranian Studies

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, you are advised to consider this option early in your 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 and Systematic Musicology 20B, History 106A, 106B, 106C, 110B, Iranian 120, 169, 170, 190A, 190B, Political Science 164.

Bachelor of Arts in Jewish Studies**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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree**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 Master of Arts 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. Write to the address given at the beginning of this listing for more information.

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. As a rule, students are not admitted with a grade-point average of less than 3.25 or a GRE scores of less than 1,600. The GRE must be taken within 24 months prior to the date of the application. Write to the address given at the beginning of this listing for more information.

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, the student is 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.

Ancient Near East

(Akkadian, Aramaic, Phoenician, and Ugaritic are listed under Semitics.)

Upper Division Courses

M104A-M104B. Ancient Egyptian Civilization. (Same as History M104A-M104B.) Lecture, three hours. Course M104A is not prerequisite to M104B. 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. (Same as History M105.) Lecture, three hours. Political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achaemenid period.

120A-120B-120C. Elementary Ancient Egyptian. Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. Grammar and texts.

121A-121B-121C. Intermediate Ancient Egyptian. Lecture, three hours. Prerequisites: courses 120A-120B-120C. Readings in ancient Egyptian literature.

123A-123B. Coptic. Lecture, three hours. Prerequisite: consent of instructor. Introduction to Coptic grammar and reading of Coptic texts.

124. Middle Egyptian Technical Literature. Prerequisite: course 121C. Reading of Middle Egyptian technical literature in hieroglyphic transcription. Medical, veterinary, mathematical, and astronomical texts included.

130. Ancient Egyptian Religion. 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. (Formerly numbered 140A-140B.) Lecture, three hours; outside study, nine hours. Prerequisites: Semitics 140A-140B. Elementary grammar and reading of royal inscriptions, letters, and administrative texts from the Ur III period.

145. Sumerian Literary Texts. Lecture, three hours. Prerequisites: courses 140A-140B or consent of instructor. Reading and interpretation of selected Sumerian literary texts.

150A-150B-150C. Survey of Ancient Near Eastern Literatures in English. 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. Lecture, three hours. Terminology, geography, principles, strategy of research, bibliography, and general survey of Near Eastern archaeology.

161A-161B-161C. Archaeology of Mesopotamia. Prerequisite: consent of instructor. 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. 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. 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. Prerequisites: courses M105 and 161A-161B-161C, or consent of instructor. 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. Lecture, three hours. Prerequisites: 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. 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. (Formerly numbered 198A.) (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 units). Prerequisite: consent of instructor.

Graduate Courses

210. Late Egyptian. Lecture, three hours. Prerequisites: courses 121A-121B-121C, consent of instructor. 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. Lecture, three hours. Prerequisite: 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. Seminar, three hours. Prerequisite: consent of instructor. May be repeated for credit.

221A-221B. Demotic. Prerequisite: course 121C. Introduction to Demotic grammar and orthography. Reading of texts from various genres.

240A-240B-240C. Seminars: Sumerian Language and Literature. Lecture, two hours. Prerequisite: consent of instructor. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history.

M250. Seminar: Ancient Mesopotamia. (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 unit). Prerequisite: consent of instructor. 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. Lecture, two hours. Prerequisite: consent of instructor. May be repeated for credit.

261. Practical Field Archaeology (2 to 8 units). Fieldwork, two hours. Prerequisite: consent of instructor. Participation in archaeological excavations or other archaeological research in the Near East under staff supervision. May be repeated.

262. Seminar: Object Archaeology. Discussion, two hours; laboratory, one hour. Prerequisite: consent of instructor. Selected topics in analysis and interpretation of Near Eastern archaeological finds in museum collections. Students work with objects in Heeramaneck Collection of Los Angeles County Museum of Art.

263. Seminar: Egyptian Monuments. Prerequisite: consent of instructor. 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. (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. Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C, Semitics 130, Greek 1, and 2, or consent of instructor. 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 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Related Courses in Other Departments

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. Lecture, six hours. Basic grammar and syntax.

Upper Division Courses

102A-102B-102C. Intermediate Literary Arabic. Lecture, four hours; discussion, one hour. Prerequisites: courses 1A-1B-1C or consent of instructor. Grammar and syntax; readings of excerpts from literary texts; composition.

103A-103B-103C. Advanced Arabic. Prerequisites: courses 102A-102B-102C or consent of instructor. Review of grammar, composition, conversation, and readings from classical and modern literary texts.

111A-111B-111C. Elementary Spoken Egyptian Arabic. Lecture, three hours. Prerequisites: courses 1A-1B-1C or consent of instructor. Basic grammar and syntax of Egyptian colloquial Arabic.

112A-112B-112C. Advanced Spoken Egyptian Arabic. Lecture, three hours. Prerequisites: courses 111A-111B-111C or consent of instructor. Grammar and syntax; excerpts from literary texts using colloquial Arabic.

113A-113B-113C. Elementary Spoken Levantine Arabic. Lecture, three hours. Prerequisites: courses 1A-1B-1C or consent of instructor. 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. 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. Prerequisite: course 103C or consent of instructor. Readings from Qur'an, Tafsir, Hadith, Fiqh. May be repeated for credit

130. Classical Arabic Texts. Prerequisite: course 103C or consent of instructor. Readings from medieval literary texts, with grammatical and syntactical analysis. May be repeated for credit.

132. Philosophical and Kalam Texts. Lecture, three hours. Prerequisite: course 120 or consent of instructor. Readings in medieval and Kalam texts. May be repeated for credit.

141. Modern Arabic Literature. Prerequisite: course 103C or consent of instructor. Conducted in Arabic. Readings in selected texts representing important trends in Arabic literature of the 19th and 20th centuries. May be repeated for credit.

150A-150B. Survey of Arabic Literature in English. Lecture, three hours. Knowledge of Arabic not required. Survey of Arabic literature from its beginning to the present, with selected readings in translation. Each course may be taken independently for credit

151. Survey of Modern Arabic Literature in English. 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. Prerequisite: course 102C or consent of instructor. 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 units). Prerequisite: consent of instructor.

Graduate Courses

220. Seminar: Islamic Texts. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, two hours. Prerequisite: consent of instructor. Readings in Arabic prose and poetry, survey of prosody. May be repeated for a maximum of 24 units.

240. Seminar: Arab Historians and Geographers. Lecture, three hours. Prerequisite: consent of instructor. Selected readings from works of major historians, geographers, and travelers. May be repeated for a maximum of 24 units.

250. Seminar: Arabic Literature. Lecture, two hours. Prerequisite: consent of instructor. Selected topics from Arabic literature. Readings of texts from manuscript. May be repeated for a maximum of 24 units.

251. Seminar: Modern Arabic Literature. Seminar, three hours. Prerequisite: course 141 or consent of instructor. 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 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Related Courses in Another Department

History 106A-106B-106C. Survey of the Middle East from 500 to the Present
204A-204B. Seminars: Near and Middle Eastern History

Armenian

Upper Division Courses

101A-101B-101C. Elementary Modern Armenian. Armenian grammar, conversation, and exercises.

102A-102B-102C. Intermediate Modern Armenian. Prerequisites: courses 101A-101B-101C or equivalent. Reading of selected texts, composition, and conversation.

103. Advanced Modern Armenian. Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent. Readings in advanced modern Armenian texts. May be repeated twice for credit.

130A-130B. Elementary Classical Armenian. Lecture, three hours. Grammar of classical Armenian language and readings of selected texts.

131A-131B. Intermediate Classical Armenian. Lecture, three hours. Prerequisites: courses 130A-130B or equivalent. Reading of selected texts.

132A-132B. Advanced Classical Armenian. Lecture, three hours. Prerequisites: courses 131A-131B or equivalent. Readings in advanced classical Armenian texts.

150A-150B. Survey of Armenian Literature in English. Lecture, three hours. Knowledge of Armenian not required. Each course may be taken independently for credit.

160A-160B. Armenian Literature of the 19th and 20th Centuries. Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent. 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 units). Prerequisite: consent of instructor.

Graduate Courses

207. Armenian Intellectual History. Lecture, three hours. Intellectual and cultural trends reflected in Armenian literature, historiography, religious and philosophical thought.

210. History of the Armenian Language. Lecture, three hours. Prerequisite: consent of instructor. Development of the Armenian language in its various stages: classical, middle, and modern.

220. Armenian Literature of the Golden Age (A.D. 5th Century). Lecture, three hours. Prerequisites: courses 131A-131B or equivalent. Readings of texts and discussion of literary genres; original works and those translated from Greek and Syriac.

250A-250B. Seminars: Armenian Literature. Seminar, three hours. Prerequisite: consent of instructor. Selected topics from various periods of Armenian literature. May be repeated for credit.

290. Seminar: Armenian Paleography. Seminar, three hours. Prerequisite: consent of instructor. Discussion of a variety of Armenian scripts and training in use of manuscripts.

596. Directed Individual Study (2 to 8 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Related Courses in Other Departments

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
Indo-European Studies M150. Introduction to Indo-European Linguistics

Berber

Upper Division Courses

101A-101B-101C. Elementary Berber. Lecture, three hours; laboratory, two hours. Development of oral proficiency and analysis of basic grammatical structure.

102A-102B-102C. Advanced Berber. Prerequisites: courses 101A-101B-101C or consent of instructor. Advanced study of Berber. Regional and stylistic variants in folk literature.

130. The Berbers. 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 units). Prerequisite: consent of instructor. Studies based on requirements of individual students.

Related Courses in Other Departments

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. 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 will not receive credit for 1A; those with credit for course 10B will not receive credit for 1B and/or 1C.

10A-10B-10C. Accelerated Elementary Hebrew. 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 will not receive credit for 10A; those with credit for course 1B and/or 1C will not receive credit for 10B.

20A-20B. Introduction to Biblical Hebrew. 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

102A-102B-102C. Intermediate Hebrew. Lecture, five hours. Prerequisites: courses 1A-1B-1C or equivalent. Amplification of grammar; reading of texts from modern literature.

103A-103B-103C. Advanced Hebrew. Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent. Introduction to modern Hebrew literary texts.

120. Biblical Texts. Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent. Translations and analysis of Old Testament texts, with special attention to texts of primary literary and historical importance. May be repeated for credit.

125. Hebrew Bible with Medieval Commentaries. Lecture, three hours. Prerequisite: course 103C. Hebrew Bible with the commentaries of Rashī, Ibn Ezra, and/or Nahmanides. May be repeated for a maximum of 16 units.

130. Rabbinic Texts. Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. Readings in Mishnah, Talmud, and/or Midrash. May be repeated for credit.

135. Medieval Hebrew Texts. Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. Readings in medieval Hebrew prose and poetry. May be repeated for a maximum of 16 units.

140. Modern Hebrew Poetry and Prose. Lecture, three hours. Prerequisites: courses 103A-103B-103C, consent of instructor. 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. Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. 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. Lecture, three hours; outside study, nine hours. Prerequisites: courses 102A-102B-102C, 120, or equivalent. 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. Lecture, three hours. Prerequisites: courses 102A-102B-102C or consent of instructor. 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 units). Prerequisite: consent of instructor.

Graduate Courses

210. History of the Hebrew Language. Prerequisites: courses 103A-103B-103C or consent of instructor. Development of Hebrew language in its various stages: biblical, Mishnaic, medieval, modern, and Israeli; differences in vocabulary, morphology, syntax, and influence of other languages; problems of language expansion in Israeli Hebrew.

220. Studies in Hebrew Biblical Literature. Lecture, three hours. Critical study of Hebrew text in relation to major versions; philological, comparative, literary, and historical study of various biblical books. May be repeated for credit.

230. Seminar: Medieval Hebrew Literature. Seminar, three hours. May be repeated for credit.

231. Texts in Judeo-Arabic. Prerequisite: reading knowledge of Hebrew and Arabic. Reading of philosophical texts in Judeo-Arabic.

241. Studies in Modern Hebrew Prose Fiction. 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. Studies in specific problems and trends in Hebrew poetry of the last two centuries.

596. Directed Individual Study (2 to 8 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Iranian

Lower Division Courses

1A-1B-1C. Elementary Persian. Lecture, four hours; laboratory, two hours.

10A-10B-10C. Persian Conversation (2 units each). Lecture, three hours. Systematic and structured Persian conversation.

20A-20B-20C. Accelerated Elementary Persian (6 units each). 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. Lecture, three hours; laboratory, three hours. Prerequisites: courses 1A-1B-1C or equivalent.

103A-103B-103C. Advanced Persian. Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent.

111A-111B-111C. Elementary Kurdish. Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. A 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. Lecture, two hours; discussion, one hour. Prerequisite: 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. Contemporary Persian Belles Lettres. Lecture, three hours. Prerequisites: courses 103A-103B-103C or equivalent, consent of instructor. Study of major Persian poets and prose writers of the 20th century: prose — Jamalzadeh, Hedayat, Chubuk, Al Ahmad, Sa'edi, Golestan; poetry — Nima, Shamlu, Farrokhzad, Akhavan.

141. Contemporary Persian Analytical Prose. Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent, consent of instructor. Study of selected modern Persian analytical and expository prose texts, with emphasis on social sciences, literary criticism, and history.

142. Persian Popular Ethics. Prerequisites: courses 102A-102B-102C or consent of instructor. Study of major Persian works on popular ethics which have helped shape normative social, cultural, and political values in Iranian civilization. P/NP or letter grading.

150A-150B. Survey of Persian Literature in English. Lecture, three hours. Knowledge of Persian not required. Each course may be taken independently for credit.

169. Civilization of Pre-Islamic Iran. Survey of Iranian culture from the beginning through Sasanian period.

170. Religion in Ancient Iran. History of religion in Iran from the beginning to the Mohammedan conquest; Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism.

180A-180B. Iranian Civilization. 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. Lecture, three hours. Prerequisites: courses 1A-1B-1C or equivalent. Survey of Iranian languages. Comparative and historical grammar.

199. Special Studies in Iranian (2 to 8 units). Prerequisite: consent of instructor.

Graduate Courses

220A-220B. Classical Persian Texts. Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. Study of selected classical Persian texts. Each course may be taken independently for credit.

221. Rumi, Mystic Poet of Islam. Seminar, three hours. Prerequisites: course 220A or 220B or equivalent, consent of instructor. 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. (Same as Indic M222A-M222B.) Lecture, three hours. Prerequisite: 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. Prerequisite: consent of instructor. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course 230B may be repeated for credit.

231A-231B. Middle Iranian. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisites: courses 103A-103B-103C and 199, or consent of instructor. May be repeated twice for credit.

251. Seminar: Contemporary Persian Literature. Seminar, three hours. Prerequisites: course 140 or equivalent, consent of instructor. 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 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Related Courses in Other Departments

Art History 104A. Western Islamic Art

104B. Eastern Islamic Art

C104C. Problems in Islamic Art

213. Advanced Studies in Islamic Art

Ethnomusicology and Systematic Musicology 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

Islamic

Upper Division Course

110. Introduction to Islam. 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.

Graduate Courses

596. Directed Individual Study (2 to 8 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

598. M.A. Thesis Research and Preparation (2 to 8 units).

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Related Courses in Another Department

History 107A-107B. Islamic Civilization

Jewish Studies

Lower Division Course

10. Social, Cultural, and Religious Institutions of Judaism. 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

M111E. Ethnic Groups and Their Bibliographies: Jewish History and Culture. (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. 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. 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. 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. 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. (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. Lecture, three hours. Each course may be taken independently for credit. **M150A.** Literary Traditions of Ancient Israel: Bible and Apocrypha. (Same as Humanities 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. 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. 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.

M187. The Holocaust in Literature. (Same as Humanities M165.) Lecture, three hours. Prerequisite: History 191E, 191F, or 191G or equivalent. 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. 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. (Same as History M191A-M191B.) 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. (Same as History M191C-M191D.) 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. (Same as History M192A-M192B.) **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. 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 units). Limited to Jewish studies majors.

Near Eastern Languages

Lower Division Courses

50A-50B-50C. Introduction to Near Eastern Languages and Cultures. Lecture, three hours. Three-term sequence designed both as an introduction for undergraduates and as a 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. Lecture, two hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Folklore M241.) Prerequisite: Folklore 101 or equivalent.

290. Seminar: Paleography. Seminar, three hours. Provides students with ability to cope with varieties of manuscripts.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: 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 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Semitics

Upper Division Courses

110. Neo-Aramaic. 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. Lecture, two hours. Morphology and syntax of Syriac language, introductory reading.

130. Biblical Aramaic. Lecture, three hours. Prerequisites: Hebrew 102A-102B-102C or consent of instructor. Grammar of biblical Aramaic and reading of texts.

140A-140B. Elementary Akkadian. Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian.

141. Advanced Akkadian. Lecture, three hours. Prerequisite: consent of instructor. Old Babylonian syntax; reading of basic Old Babylonian texts.

142. Akkadian Literary Texts. Lecture, three hours. Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor.

Graduate Courses

210. Ancient Aramaic. Lecture, two hours. Prerequisite: course 130 or consent of instructor. Reading of surviving inscriptions and papyri. May be repeated for credit.

215B. Syriac. 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. Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C or consent of instructor. Study of Ugaritic language and literature. Only course 220B may be repeated for credit.

225. Phoenician. Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C or consent of instructor. Study of Phoenician language and inscriptions. May be repeated for credit.

230. Seminar: Northwest Semitic Languages and Literatures. Seminar, two hours. Prerequisite: consent of instructor. May be repeated for credit.

240. Seminar: Akkadian Language. Seminar, two hours. Prerequisite: consent of instructor. 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 unit). Seminar, two hours. Prerequisite: consent of instructor. 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. Seminar, two hours. Prerequisite: consent of instructor. 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 unit). Seminar, two hours. Prerequisite: consent of instructor. 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. Seminar, two hours.

596. Directed Individual Study (2 to 8 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Turkic Languages

Upper Division Courses

101A-101B-101C. Elementary Turkish. Lecture, five hours. Grammar, reading, conversation, and elementary composition drills.

102A-102B-102C. Advanced Turkish. Lecture, five hours. Prerequisites: courses 101A-101B-101C or equivalent. Continuing study of grammar, conversation, and composition. Readings in modern literature and social science texts.

111A-111B-111C. Elementary Uzbek. Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. Elementary grammar, reading, and composition exercises; elementary conversation.

112A-112B-112C. Advanced Uzbek. Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.

114A-114B-114C. Bashkir. Lecture, three hours. Prerequisite: course 102A or consent of instructor. Grammar, reading of literary and folkloric texts.

115A-115B-115C. Elementary Azeri. Prerequisite: consent of instructor. 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. Prerequisite: 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.

160. Cultural History of the Turks. Lecture, three hours. Prerequisite: consent of instructor. Survey of cultural history of the Turks, as seen primarily through their literature, from their early history to the present.

170. Turco-Mongolian Nomadic Empires. Lecture, three hours. Prerequisite: consent of instructor. 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, Hsienspi, Juan-Juan, T'u-Chueh, Uyghur, Khitan, Karakhanid, Seljuq, Kara-Khitay, Khorazmian, Jengiz-Khanite).

180. Modern Turkic Languages and Peoples. Lecture, three hours. Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor.

Graduate Courses

210A-210B-210C. Introduction to Ottoman. Lecture, three hours. Prerequisite: consent of instructor. 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 Diplomatics. Lecture, three hours. Prerequisites: courses 210A-210B-210C or equivalent. 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). Lecture, three hours. Prerequisites: courses 101A-101B-101C or 111A-111B-111C or Iranian 102A-102B-102C or Arabic 102A-102B-102C or Hebrew 102A-102B-102C or consent of instructor. 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. Lecture, three hours. Prerequisites: course 180, consent of instructor. 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. Lecture, three hours. Prerequisite: 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, Mamiuk-Kipchak, and Old Anatolian. Lecture, three hours. Prerequisites: course 180, consent of instructor. Survey of Middle Turkic documents. Textual and linguistic analysis of Middle Turkic texts from various literary genres.

240A-240B-240C. Advanced Ottoman. Lecture, three hours. Prerequisites: courses 210A-210B-210C or equivalent or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 220A-220B-220C or consent of instructor. 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. Seminar, two hours. Prerequisites: course 102B or equivalent, consent of instructor. 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. Lecture, two hours. Prerequisites: courses 210A-210B-210C and/or 220A-220B-220C, consent of instructor. 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 units). May be repeated for credit.

597. Examination Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

599. Ph.D. Dissertation Research and Preparation (2 to 8 units). Prerequisite: consent of department or instructor. S/U grading.

Related Courses in Other Departments

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*

UCLA
10286 Bunche Hall
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Los Angeles, CA 90095-1480
(310) 825-1181

Professors

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, Ph.D. (*Near Eastern Languages and Cultures*)
Donald A. Preziosi, Ph.D. (*Art History*)
A. Jihad Racy, Ph.D. (*Ethnomusicology and Systematic Musicology*)
Yona Sabar, Ph.D. (*Near Eastern Languages and Cultures*)
Stanford J. Shaw, Ph.D. (*History*)

Associate Professors

Irene A. Bierman, Ph.D. (*Art History*), Chair
Michael G. Morony, Ph.D. (*History*)
Hossein Ziai, Ph.D. (*Near Eastern Languages and Cultures*)

Assistant Professors

David N. Myers, Ph.D. (*History*)
Daniel C. Polz, Ph.D. (*Near Eastern Languages and Cultures*)
Claudia Rapp, D.Phil. (*History*)
Barbara Zeitler, Ph.D. (*Art History*)

Adjunct Associate Professor

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 chapter.

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 will 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.

Bachelor of Arts Degree

Preparation for the Major

Required: The first-year course in Arabic, Armenian, Hebrew, Persian, or Turkish. You must also obtain reading proficiency in French, German, Italian, Russian, or Spanish as demonstrated by completing six quarter courses or their equivalent in the language of your choice. You may substitute for the European language requirement Program in Computing 1 and one course from Economics 40, Political Science 6, Psychology 41, Sociology 18, or Statistics 50, plus one course from Economics 141, Geography 171, Political Science 102, Psychology M142, or Sociology 112. 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 and Systematic Musicology 20B, 130, Geography 187, 188, Political Science 132A, 132B, 164, Sociology 187. This program may be modified in exceptional cases with consent of the adviser.

For further information, contact Irene A. Bierman at the program address.

NEUROBIOLOGY

School of Medicine

UCLA
73-235 Center for the Health Sciences
Box 951763
Los Angeles, CA 90095-1763
(310) 825-9555

Professors

George W. Bernard, D.D.S., Ph.D.
Dean Bok, Ph.D. (*Dolly Green Professor of Ophthalmology*), Vice Chair
Nicholas C. Brecha, Ph.D., in Residence
Nathaniel A. Buchwald, Ph.D., in Residence
Carmine D. Clemente, Ph.D.
Edwin L. Cooper, Ph.D.
Jean S. de Vellis, Ph.D., in Residence
Ellen R. Dirksen, Ph.D.
Jerome Engel, M.D., Ph.D.
Robin S. Fisher, Ph.D., in Residence
Roger A. Gorski, Ph.D.
Ronald M. Harper, Ph.D.
Lawrence Kruger, Ph.D.
John K. Lu, Ph.D.
Paul E Micevych, Ph.D., *Interim Chair*
Arnold B. Scheibel, M.D.
John D. Schlag, M.D.
M.B. Sterman, Ph.D., in Residence
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

Emilio E. Decima, M.D.
Earl Eldred, M.D.
Daniel C. Pease, Ph.D.
Charles H. Sawyer, Ph.D.
José P. Segundo, M.D.
Bernard Towers, M.D.
Richard W. Young, Ph.D.
Emery G. Zimmermann, M.D., Ph.D.

Associate Professors

Anthony M. Adinolfi, Ph.D.
John H. Campbell, Ph.D.
Carolyn R. Houser, Ph.D., in Residence

Assistant Professors

Philip S. LaPolt, Ph.D.
Jorge R. Mancillas, Ph.D.
Erik S. Schweitzer, M.D., Ph.D.

Adjunct Professors

James F. McGinnis, Ph.D.
Margaret N. Shouse, Ph.D.

Adjunct and Clinical Associate Professors

Earle E. Crandall, M.D., Ph.D., F.A.C.S., *Clinical*
M. Cristina Kenney, M.D., Ph.D., *Adjunct*
Carlos A.E. Lemmi, Ph.D., *Adjunct*
Anselmo R. Pineda, M.D., *Clinical*

Adjunct Assistant Professor

Robert B. Trelease, Ph.D.

Scope and Objectives

The Department of Neurobiology offers advanced training leading to the Ph.D. degree.

The great majority of students graduating with a doctoral degree in anatomy and cell biology 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. An informational brochure may be obtained by writing to the Vice Chair, Department of Neurobiology, 73-235 CHS, UCLA, Los Angeles, CA 90095-1763.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

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 degree; 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 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 and Cellular Life Sciences, 172 MBI, UCLA, 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), 209B, 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 student is 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.

The student submits 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. A student 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 additional 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.

Lower Division Course

88. Lower Division Seminar: Special Topics in Neurobiology. 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 units). (Formerly numbered Anatomy 104.) Lecture, four hours; laboratory, six hours. Prerequisite: dental student standing or consent of course chair. 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. (Formerly numbered Anatomy 106.) Lecture/laboratory, three two-hour sessions. Prerequisite: dental student standing or consent of instructor. Lectures, demonstrations, and laboratories dealing with structure and functional organization of nervous system.

199. Individual Special Studies (2 to 8 units). (Formerly numbered Anatomy 199.) Prerequisite: consent of instructor. 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. S/U or letter grading.

Graduate Courses

201. Microscopic Anatomy and Cell Biology (7 units). (Formerly numbered Anatomy 201.) Lecture/laboratory, two to three three-hour sessions (16-week semester). Prerequisite: medical student standing or consent of instructor. 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. (Formerly numbered Anatomy M202.) (Same as Neuroscience M201.) Lecture, three hours; laboratory, three hours. Prerequisites: Biology 166 or 171 or equivalent, consent of instructor. 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. Basic Neurology. (Formerly numbered Anatomy M203A-M203B.) (Same as Physiology M203A-M203B.) Prerequisites: medical student standing or enrollment in qualified graduate program, consent of instructor. Runs throughout School of Medicine's second semester. Lectures, conferences, demonstrations, and laboratory procedures necessary to understand functions of nervous system. To receive credit, both courses must be taken together in same academic year. In Progress grading.

M204. Cellular and Molecular Developmental Neurobiology. (Formerly numbered Anatomy M204.) (Same as Neuroscience M204, Physiology M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Prerequisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A-201B, or consent of instructor. 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 units). (Formerly numbered Anatomy M209A.) (Same as Biology CM220 and Physiology M209A.) Prerequisite: consent of instructor; for undergraduates: Biology 100A or Life Sciences 3, Chemistry 153A, consent of instructor. Not open for credit to students with credit for Biology 100B or M140 or former Biology 143. 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.

209B. Cellular and Molecular Neurobiology (6 units). (Formerly numbered Anatomy 209B.) Lecture, four hours; discussion, one hour; laboratory, one hour. Prerequisite: graduate standing. 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 units). (Formerly numbered Anatomy 211.) Lecture/discussion, one two-hour session; laboratory, to be arranged. Prerequisites: microscopic anatomy, mammalian physiology. Anatomy and physiology of cerebral processes in alerting, learning, focusing attention, and memory.

M221. Cellular and Molecular Neurochemistry. (Formerly numbered Anatomy M221.) (Same as Biological Chemistry M221, Neuroscience M240, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Prerequisite: 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.

227. Cellular, Molecular, and Functional Aspects of Reproductive System. (Formerly numbered Anatomy 227.) Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. (Formerly numbered Anatomy M229.) (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 units). (Formerly numbered Anatomy 234.) (Same as Oral Biology M234.) Prerequisite: graduate standing or consent of instructor. 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 units). (Formerly numbered Anatomy M235.) (Same as Medicine M235 and Neuroscience M246.) Prerequisite: consent of instructor. 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 units). (Formerly numbered Anatomy 251.) Prerequisite: consent of instructor. Review of current literature emphasizing early development and evolution of immune competence.

254. Structure and Function of Cells and Tissues (2 units). (Formerly numbered Anatomy 254.) Lecture, one hour; discussion, one hour. Prerequisites or corequisites: course 104, consent of instructor. 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 units). (Formerly numbered Anatomy M255A-M255D.) (Same as Physiological Science M255 and Psychology M294.) Lecture, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of 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 units). (Formerly numbered Anatomy 258.) Prerequisite: basic neurology. Topics of current interest or ongoing research projects; examination of both content and method of presentation. May be repeated for credit.

M261. Neuronal Circuit Analysis (2 units). (Formerly numbered Anatomy M261.) (Same as Neuroscience M261.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. 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 units). (Formerly numbered Anatomy 265.) Prerequisite: consent of instructor. 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 units each). (Formerly numbered Anatomy M270A-M270B-M270C.) (Same as Physiology M270A-M270B-M270C.) Lecture, one hour; discussion, one hour. Prerequisite: graduate standing or consent of instructor(s). 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 units). (Formerly numbered Anatomy 290.) Tutorial, one hour. Prerequisite: consent of instructor. 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 units each). (Formerly numbered Anatomy 390A-390B.) Prerequisite: advancement to candidacy in integrative or systems biology or consent of instructor. 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 units each). (Formerly numbered Anatomy 495A-495F.) Prerequisites: graduate standing, consent of vice chair and instructor. 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 units). (Formerly numbered Anatomy 501.) Prerequisite: 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 units). (Formerly numbered Anatomy 596.)

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 12 units). (Formerly numbered Anatomy 597.)

598. Thesis Research for M.S. Candidates (2 to 12 units). (Formerly numbered Anatomy 598.)

599. Dissertation Research for Ph.D. Candidates (2 to 12 units). (Formerly numbered Anatomy 599.)

Medical History Division

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. (Formerly numbered Anatomy/Medical History 107A-107B.) 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. (Formerly numbered Anatomy/Medical History M108A-M108B.) (Same as History M195F-M195G.) Lecture, three hours. **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. (Formerly numbered Anatomy/Medical History 120.) 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. (Formerly numbered Anatomy/Medical History 135.) 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 units each). (Formerly numbered Anatomy/Medical History 240A-240B.) Lecture, one hour. Survey of development of scientific and medical thought from ancient times to the present.

246. History of Neurophysiology: Its Impact on Psychology and Medicine (2 to 4 units). (Formerly numbered Anatomy/Medical History 246.) Lecture, one hour; seminar, two hours. Development of experimental neurophysiology from its scientific roots in the 17th century through recognition of the excitability of nervous system, to use of this characteristic in revealing functions of central nervous system. Discussion of interaction of neurophysiological ideas with contemporary philosophy and medicine. Lectures may be taken independently.

250. History of Medical Psychology (2 units). (Formerly numbered Anatomy/Medical History 250.) 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 units). (Formerly numbered Anatomy/Medical History 596.) 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

Chair

Robert C. Collins, M.D. (*Frances Stark Professor of Neurology*)

Vice Chairs

John C. Mazziotta, M.D., Ph.D.
Mark A. Goldberg, M.D., Ph.D., *in Residence*
(*Harbor-UCLA*)
Wallace W. Tourtellotte, M.D., Ph.D., *in Residence*
(*Wadsworth VA*)
Claude G. Wasterlain, M.D., *in Residence*
(*Sepluveda 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*.

Upper Division Course

199. Special Studies (2 to 8 units). Discussion, one to two hours; laboratory, four to six hours. Prerequisite: consent of instructor. 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

73-364 Brain Research Institute
Box 951761
Los Angeles, CA 90095-1761
(310) 206-2349

Professors

Arthur P. Arnold, Ph.D. (*Physiological Science*)
Jackson Beatty, Ph.D. (*Psychology*)
Larry L. Butcher, Ph.D. (*Psychology*)
Scott H. Chandler, Ph.D. (*Physiological Science*)
Michael H. Chase, Ph.D., *in Residence* (*Physiology*)
V. Reggie Edgerton, Ph.D. (*Physiological Science*)
Gaylord D. Ellison, Ph.D. (*Psychology*)
Gordon L. Fain, Ph.D. (*Physiological Science, Ophthalmology*)
Debora B. Farber, Ph.D., *in Residence*
(*Ophthalmology*)
Jack L. Feldman, Ph.D. (*Physiological Science*), *Chair*
Joaquin M. Fuster, M.D., Ph.D., *in Residence*
(*Psychiatry and Biobehavioral Sciences*)
C.R. Gallistel, Ph.D. (*Psychology*)
Carlos V. Grijalva, Ph.D. (*Psychology*)
Alan D. Grinnell, Ph.D. (*Physiology*)

Franklin B. Krasne, Ph.D. (*Psychology*)
 Michael S. Levine, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 John C. Liebeskind, Ph.D. (*Psychology*)
 Wendy B. Macklin, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Michael T. McGuire, M.D. (*Psychiatry and Biobehavioral Sciences*)
 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*)
 Judith L. Smith, Ph.D. (*Physiological Science*)
 James P. Thomas, Ph.D. (*Psychology*)
 Allan J. Tobin, Ph.D. (*Physiological Science, Neurology*)
 Jaime R. Villablanca, M.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Eran Zaidel, Ph.D. (*Psychology*)

Associate Professors

Cameron B. Gundersen, Ph.D. (*Molecular and Medical Pharmacology*)
 Diane M. Papazian, Ph.D. (*Physiology*)
 Stanley J. Schein, Ph.D., M.D. (*Psychology*)

Assistant Professors

Utpal Banerjee, Ph.D. (*Biology*)
 David L. Glanzman, Ph.D. (*Physiological Science*)
 Volker Hartenstein, Ph.D. (*Biology*)
 Larry Hoffman, Ph.D., in *Residence (Surgery)*
 Patricia E. Phelps, Ph.D. (*Physiological Science*)
 Barney A. Schlinger, Ph.D. (*Physiological Science*)
 Dwayne D. Simmons, Ph.D. (*Physiological Science*)
 James A. Waschek, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Joseph B. Watson, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Nancy L. Wayne, Ph.D. (*Physiology*)

Adjunct Associate Professor

Charles L. Wilson, Ph.D. (*Neurology*)

Adjunct Assistant Professor

Alan Garfinkel, Ph.D. (*Medicine, Physiological Science*)

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, and behavioral.

Bachelor of Science Degree

Preparation for the Major

Life Sciences Core Curriculum (effective Fall Quarter 1995) — *Required:* Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL.

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. You 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, you are encouraged to select courses that complement the major; Psychology 10 is recommended as a social sciences elective. You are also encouraged to take a statistics course (e.g., Psychology 41, Statistics 50, or approved lower or upper division equivalent).

Transfer students with 80 or more units should complete the following courses prior to admission to UCLA: one biology course (equivalent to Life Sciences 1), one year of general chemistry with laboratory, and one year of calculus. Two calculus-based physics courses or two organic chemistry courses are recommended.

The Major

The following courses are required for the neuroscience major. Consult respective departmental or program listings for course descriptions:

(1) Neuroscience M101A-M101B-M101C, Chemistry and Biochemistry 153A, 153L.

(2) Three four-unit area electives as follows:

One *behavioral and cognitive neuroscience* course from Biology 129, 132, Computer Science 161, M196B, Neuroscience 197, Psychology 110, 111, 116, 118, 119A, 119B, 119D, 119E, 119G, 119I, M119J, 119M, 120, 186A, 186B.

One *cellular, developmental, and molecular neuroscience* course from Biology 100B, 138, 153, CM156, 158, C174A through C174F (two units each), M185A, CM185B, Chemistry and Biochemistry 132C, 153C, Neuroscience 151, 197, Physiological Science 147.

One *systems and integrative neuroscience* course from Biology 166, 167, M173, Neuroscience M130, M132, 197, Physiological Science 111B, C125, 138, 142, C143, C144, C145, Psychology 119F.

(3) One four-unit research-related course from Neuroscience 191A through 191Z, 199, 199HA, 199HB.

(4) Three additional elective courses from the area list in item 2, Neuroscience 191A through 191Z, 197A through 197Z, 199, 199HA, 199HB.

Biology 171 or Psychology 115 cannot be substituted for Neuroscience M101A; however, Physiological Science 111A can be substituted.

No more than eight courses may be from any one department. A maximum of eight units of Neuroscience 191, 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 students with the opportunity to do research culminating in an honors thesis. Requirements for admission include a 3.2 overall grade-point average. Two upper division courses used to satisfy major requirements must be contracted for honors, and an honors thesis (Neuroscience 199HA-199HB) is required. After completion of all requirements and with the recommendation of the faculty 199H sponsor, faculty members may confer departmental honors or highest honors at graduation. Graduation with honors requires a 3.4 grade-point average in the major and a 3.2 overall, while highest honors are awarded to majors who have a GPA of 3.5 overall and a 3.7 in the major.

Lower Division Courses

88A-88Z. Lower Division Seminars. Lecture, three hours. Limited to freshmen/sophomores. Seminars on current topics in neuroscience.

Upper Division Courses

M101A-M101B-M101C. Neuroscience: From Molecules to Mind (5 units each). (Same as 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. Prerequisites: Chemistry 132A, Life Sciences 2 or equivalent, Physics 6B or 8C. Not open for credit to students with credit for Physiological Science 111A. Students with credit for Biology 171 may enroll on a P/NP basis; course 171 may not be taken concurrently with this course. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement.

M101B. Molecular and Developmental Neuroscience. Prerequisites: course M101A (or Biology M175A or Physiological Science M180A or Psychology M117A) or Biology 171 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.

M101C. Behavioral and Cognitive Neuroscience. Prerequisite: course M101B (or Biology M175B or Physiological Science M180B or Psychology M117B) or Biology 171 or Physiological Science 111A or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition.

103. Neuroscience for Physicists, Mathematicians, and Engineers. 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.

M130. Biological Bases of Psychiatric Disorders. (Same as Biology M191, Physiological Science M181, Psychiatry M191, and Psychology M117J.) Prerequisite: course M101A or Biology 171 or Physiological Science 111A or Psychology 115 or consent of instructor. 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.

M132. Structure and Function of Nervous System. (Same as Psychology M117K.) Lecture, three hours. Prerequisites: course M101A or Biology 171 or Physiological Science 111A or Psychology 115 and junior standing, or consent of instructor. 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.

151. Transgenic Models and Gene Transfer Technology in Understanding and Treatment of Neuropsychiatric Disease. (Formerly numbered 197.) Prerequisites: course M101A or Biology 171 or Physiological Science 111A or Psychology 115 and junior standing, or consent of instructor. 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.

191A-191Z. Proseminars: Neuroscience. Lecture, three hours. Prerequisites: courses M101A-M101B-M101C or consent of instructor. Advanced studies on current research issues in neuroscience; term paper and oral report required.

197A-197Z. Special Topics in Neuroscience. Lecture, three hours. Prerequisites: courses M101A-M101B-M101C or consent of instructor. Topics on one or more aspects of neuroscience.

199. Independent Research in Neuroscience (4 to 8 units). Prerequisites: courses M101A-M101B-M101C with grades of B (3.0) or better, senior standing in neuroscience. Directed independent research with a faculty member.

199HA. Honors Thesis in Neuroscience (6 units). Prerequisite: neuroscience honors program standing. 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 199HB).

199HB. Honors Thesis in Neuroscience (6 units). Prerequisite: course 199HA. Continued reading and research that culminate in final honors thesis. Maximum of eight units of course 199/199H may be applied toward elective requirements for the major.

Neuroscience Course List

Biology 100B. Introduction to Cell Biology

129. Animal Behavior

132. Field Behavioral Ecology

138. Developmental Biology

153. Cellular Physiology: Functional Histology

CM156. Human Genetics

158. Cell Biology

166. Animal Physiology

167. Regulatory Physiology

M173. Anatomy and Physiology of Sense Organs

C174A-C174F. Advanced Topics in Cell and Molecular Biology

M185A. Immunology

CM185B. Intermediate Immunology

Chemistry and Biochemistry 132C. Organic Chemistry

153C. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation

Computer Science 161. Fundamentals of Artificial Intelligence

M196B. Modeling and Simulation of Biological Systems

Physiological Science 111B. Foundations in Physiological Science

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

111. Learning Laboratory

116. Behavioral Neuroscience Laboratory

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

119I. Psychophysiology of Motivation

M119J. Ethology: Physiology of Behavior and Learning in Animals

119M. Physiological Psychology of Learning

120. Cognitive Psychology

186A. Cognitive Science Laboratory: Introduction to Theory and Simulation

186B. Cognitive Science Laboratory: Neural Networks

NEUROSCIENCE

*Interdepartmental Graduate Program
School of Medicine*

UCLA

73-360 Center for the Health Sciences

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Professors

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Arthur P. Arnold, Ph.D. (*Physiological Science*), *Chair*

Thomas L. Babb, Ph.D., *in Residence (Neurology)*

Donald P. Becker, M.D. (*Surgery*)

Francisco J. Bezanilla, Ph.D. (*Physiology*)

Keith L. Black, M.D., *in Residence (Surgery)*

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Nicholas C. Brecha, Ph.D., *in Residence*

(*Neurobiology*)

Larry L. Butcher, Ph.D. (*Psychology*)

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)*

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Jerome Engel, M.D., Ph.D. (*Neurology*)

Christopher D. Evans, Ph.D., *in Residence (Psychiatry*

and Biobehavioral Sciences)

Gordon L. Fain, Ph.D. (*Ophthalmology, Physiological*

** Science)*

Debora B. Farber, Ph.D., *in Residence*

(*Ophthalmology*)

Jack L. Feldman, Ph.D. (*Physiological Science*)

Robin S. Fisher, Ph.D., *in Residence (Neurobiology)*

Joaquin M. Fuster, M.D., Ph.D., *in Residence*

(*Psychiatry and Biobehavioral Sciences*)

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Alan D. Grinnell, Ph.D. (*Physiology*)

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Vincente Honrubia, M.D. (*Surgery*)

Bruce D. Howard, M.D. (*Biological Chemistry*)

Donald J. Jenden, Ph.D. (*Molecular and Medical*

Pharmacology)

Franklin B. Krasne, Ph.D. (*Psychology*)

Lawrence Kruger, Ph.D. (*Neurobiology*)

Michael S. Letinsky, Ph.D. (*Physiology*)

Michael S. Levine, Ph.D., *in Residence (Psychiatry*

and Biobehavioral Sciences)

John C. Liebeskind, Ph.D. (*Psychology*)

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Sciences)

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Pharmacology)

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Michael J. Raleigh, Ph.D., *in Residence (Psychiatry*

and Biobehavioral Sciences)

Leonard H. Rome, Ph.D. (*Biological Chemistry*)

Arnold B. Scheibel, M.D. (*Neurobiology, Brain*

Research Institute)

John D. Schlag, M.D. (*Neurobiology*)

W. Donald Shields, M.D. (*Neurology, Pediatrics*)

Jerome M. Siegel, Ph.D., *in Residence (Psychiatry*

and Biobehavioral Sciences)

Judith L. Smith, Ph.D. (*Physiological Science*)

Allan J. Tobin, Ph.D. (*Physiological Science*)

Arthur W. Toga, Ph.D. (*Neurology*)

Harry V. Vinters, M.D. (*Pathology and Laboratory*

Medicine)

John H. Walsh, M.D. (*Medicine*)

Claude G. Wasterlain, M.D., *in Residence*

(*Neurology*)

Charles D. Woody, M.D., *in Residence (Psychiatry*

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Eran Zaidel, Ph.D. (*Psychology*)

S. Larry Zipursky, Ph.D. (*Biological Chemistry*)

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Samuel Eiduson, Ph.D., *Emeritus (Psychiatry and*

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Associate Professors

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Medical Pharmacology)

Eric Halgren, Ph.D., *in Residence (Psychiatry and*

Biobehavioral Sciences)

Carolyn R. Houser, Ph.D., *in Residence*

(*Neurobiology*)

David Hovda, Ph.D. (*Surgery*)

Sherrel G. Howard, Ph.D. (*Molecular and Medical*

Pharmacology, Psychiatry and Biobehavioral

Sciences)

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Stanley J. Schein, M.D., Ph.D. (*Psychology*)

Assistant Professors

Utpal Banerjee, Ph.D. (*Biology*)

Itzhak Fried, M.D., Ph.D., *in Residence (Psychiatry*

and Biobehavioral Sciences, Surgery)

David L. Glangzman, Ph.D. (*Physiological Science*)

Volker Hartenstein, Ph.D. (*Biology*)

Nigel Maidment, Ph.D., *in Residence (Psychiatry*

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Jorge R. Mancillas, Ph.D. (*Neurobiology*)

Barney A. Schlinger, Ph.D. (*Physiological Science*)

Erik S. Schweitzer, M.D., Ph.D. (*Neurobiology*)

Dwayne D. Simmons, Ph.D. (*Physiological Science*)

James A. Waschek, Ph.D., *in Residence (Psychiatry*

and Biobehavioral Sciences)

Joseph B. Watson, Ph.D. (*Psychiatry and*

Biobehavioral Sciences)

Nancy L. Wayne, Ph.D. (*Physiology*)

Adjunct Professors

James F. McGinnis, Ph.D. (*Neurobiology*)
Dennis J. McGinty, Ph.D. (*Psychology*)

Adjunct Associate Professors

Robert F. Ackermann, Ph.D. (*Neurology, Radiological Sciences*)
Catia Sternini, M.D. (*Medicine*)
Charles L. Wilson, Ph.D. (*Neurology*)

Adjunct Assistant Professors

Timothy G. Hales, Ph.D. (*Anesthesiology*)
Helen Raybould, Ph.D. (*Medicine, Physiology*)

Scope and Objectives

The goal of the interdepartmental 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 the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

None.

Doctoral Degree**Admission**

Successful applicants 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, physics, and basic biology. Three letters of recommendation are required.

Information regarding the program may be obtained by writing to the address given at the beginning of this listing.

Major Fields or Subdisciplines

Molecular, cellular, systems, behavioral, clinical neuroscience.

Course Requirements

Each first-year student takes a five-course sequence (Neuroscience M201, M202, M203, M204, M205) and participates in at least two

laboratory rotations. Each student also attends a "Meet the Professors" presentation series and enrolls in a three-quarter seminar series, Neuroscience 210A-210B-210C.

Each second-year student takes at least one quarter of biomathematics (either Biomathematics 170A, 170B, or Psychology 250A), as well as three courses from a menu of advanced neuroscience courses. In the second or third year, each student takes an additional three quarters of the seminar series Neuroscience 211A-211B-211C.

Written and Oral Qualifying Examinations

A written qualifying examination is required following completion of the core requirements, generally by the end of the second year. The objective of this 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, each student, in consultation with the adviser, chooses the doctoral committee to administer the University Oral Qualifying Examination.

Graduate Courses

M201. Neuroanatomy: Structure and Function of Nervous System. (Same as Neurobiology M202.) Lecture, three hours; laboratory, three hours. Prerequisites: Biology 166 or 171 or equivalent, consent of instructor. 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. (Formerly numbered 202.) (Same as Physiological Science M202.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 166 or 171 or equivalent, Physiological Science 111A or M180A or Physics 6B or equivalent. 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. (Same as Psychiatry M203.) Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 201A-201B or equivalent, basic biochemistry, consent of instructor. 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. (Same as Neurobiology M204, Physiology M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Prerequisites: courses M201, M202, and M203, or Biological Chemistry 201A-201B, or consent of instructor. 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. (Same as Physiological Science M205 and Psychology M205Z.) Lecture, three hours. Prerequisites: courses M201, M202, M203, and M204, or consent of instructor. 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.

210A-210B-210C. Introduction to Current Literature in Neuroscience (2 units each). 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 units each). Prerequisites: courses M201, M202, M203, M204, and M205, or consent of instructor. Advanced critical analysis of current research in neuroscience. S/U grading.

215. Seminar: Neuroscience (2 units). Topics of current importance presented for discussion. S/U grading.

M230. Molecular and Cellular Mechanisms of Neural Integration (5 units). (Same as Physiological Science M210 and Physiology M210.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Prerequisite: 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 units). (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. (Same as Biological Chemistry M221, Neurobiology M221, Pharmacology M221, and Psychiatry M221.) Lecture, three hours; discussion, one hour. Prerequisite: 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.

M246. Neuroactive Peptides: Molecular Biology to Function (2 units). (Same as Medicine M235 and Neurobiology M235.) Prerequisite: consent of instructor. 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 Cardiorespiratory Function. (Same as Physiological Science M247.) Lecture, two hours; discussion, two hours. Prerequisites: Physiological Science 111A, 111B or 133 or 142 or M180A, M180B or equivalent. 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 units). 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 lecturer; new information in depth from students in fields closely related to subject discussed. S/U grading.

M255. Functional Organization of Behavior (2 units). (Same as Psychiatry M255.) Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. 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.

M258. Functional Neuropsychology (2 units). (Same as Psychiatry M258.) Lecture, two hours; discussion, one hour. Prerequisites: graduate standing, consent of instructor. Interdisciplinary course integrating current research publications in neuroanatomy, molecular neurobiology, synaptic neurophysiology, event-related potentials, neuropsychology of amnesia, and cognitive psychology of normal memory into a realistic model. S/U or letter grading.

M259. Neurobiology of Sleep (3 units). (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. (Same as Physiological Science M260.) Prerequisite: Physiological Science 138 or consent of instructor. 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 units). (Same as Neurobiology M261.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. 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. (Same as Physiological Science M240.) Prerequisite: Physiological Science C143 or consent of instructor. 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. (Same as Physiological Science M263.) Prerequisite: Physiological Science C145 or consent of instructor. 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.

M265A-M265B-M265C. Seminars: Neural Control of Movement (2 to 4 units each). (Same as Physiological Science M294A-M294B-M294C.) Prerequisite: course M247 or M262 or M263 or consent of instructor. Selected topics on neural determinants of movement behavior. Students required to present two-hour seminar.

M266A-M266B-M266C. Seminars: Cellular Neuroscience (2 to 4 units each). (Same as Physiological Science M295A-M295B-M295C.) Prerequisite: course M202 or consent of instructor. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar.

271. Neurobiology of Disease (2 units). Analysis of clinical neurological and psychiatric disorders from perspective of basic neuroscience.

M272. Neuroimaging and Brain Mapping. (Same as Physiological Science M272 and Psychology M213.) Lecture, three hours; outside study, nine hours. Prerequisites: courses M201, M202. Recommended: mathematics and computer background. 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. (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. Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: 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 units). Lecture, one hour; laboratory, one hour. Prerequisites: 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 units). Prerequisite: 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 12 units). Prerequisite: consent of instructor.

597. Preparation for Ph.D. Qualifying Examinations (2 to 12 units). Prerequisite: consent of instructor.

599. Dissertation Research for Ph.D. Candidates (4 to 12 units). Designed for students requiring special instruction or time to work on dissertation.

Harriet C. Moidel, R.N., M.A., *Emerita*
Sharon J. Reeder, R.N., Ph.D., F.A.A.N., *Emerita*
Maria W. Seraydarian, Ph.D., *Emerita*

Associate Professors

Susan M. Ludington, R.N., C.N.M., Ph.D.
Adeline M. Nyamathi, R.N., Ph.D., F.A.A.N.
Donna F. Ver Steeg, R.N., Ph.D., F.A.A.N.
Agnes A. O'Leary, R.N., M.P.H., *Emerita*
Phyllis A. Putnam, R.N., Ph.D., *Emerita*

Assistant Professors

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Lynn V. Doering, R.N., D.N.Sc.
Linda K. Glazner, R.N., Dr.P.H.
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Mary A. Woo, R.N., D.N.Sc.
Anne K. Wuerker, R.N., Ph.D.
Lina K. Zahr, R.N., D.N.Sc.
Olive Y. Burner, R.N., Ph.D., *Emerita*
Barbara A. Davis, R.N., Ed.D., F.A.A.N., *Emerita*

Lecturers

Katherine G. Baker, R.N., M.N.
Feryl C. Barnett, R.N., Ph.D.
Frances Blayney, R.N., M.S.
Nancy J. Bush, R.N., M.N.
Sandra M. Cano, R.N., M.N.
Patricia A. Carter, R.N., M.N.
Ernestine B. Currier, R.N., M.S.
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Cynthia G. Johnson, R.N., M.S.N.
Eric J. McLaughlin, Ph.D.
Donna K. McNeese-Smith, R.N., Ed.D.
Ronda D. Mintz-Binder, R.N., M.N.
Maryann F. Pranulis, R.N., D.N.Sc.
Dawn S. Stone, R.N., M.N.
Elizabeth W. Thom, R.N., M.N.

Adjunct Professor

Frances M. Wiley, R.N., M.N.

The UCLA School of Nursing gives direction to interested potential applicants through monthly open counseling sessions. If you are interested in the academic programs offered, you 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 1965 the Master of Nursing 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 degree program in 1986, and in Fall Quarter 1987 the first doctoral students were admitted.

NURSING

School of Nursing

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Professors

Betty L. Chang, R.N., D.N.Sc., F.A.A.N.
Kathleen A. Dracup, R.N., D.N.Sc., F.A.A.N.
Jacquelyn H. Flaskerud, R.N., Ph.D., F.A.A.N.,
Associate Dean for Academic Affairs
Deborah Koniak-Griffin, R.N., Ed.D.
Charles E. Lewis, M.D., Sc.D.
Mary A. Lewis, R.N., Dr.P.H., F.A.A.N.
Geraldine V. Padilla, Ph.D., *Associate Dean for Research*
Gwen M. van Servellen, R.N., Ph.D., F.A.A.N.
Donna L. Vredevoe, Ph.D., *Acting Dean*
Dorothy E. Johnson, R.N., M.P.H., *Emerita*

The baccalaureate program has been continuously approved by the California Board of Registered Nursing since 1949. 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 Accrediting Service of the National League for Nursing has granted full accreditation to the programs since 1954.

Bachelor of Science Degree

Note: Admission to the undergraduate program will be suspended for the 1996-97 academic year.

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.

Credit by examination is available to qualified students on review of previous education.

Admission

The School of Nursing strives to attain a culturally and ethnically diverse student population. Admission, beginning in the junior year, is based on scholarship, diverse life experiences, and disadvantage. You must have completed a minimum of 84 quarter units, with grades of C or better in prerequisite courses and an overall grade-point average of 2.8 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 your potential in 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.

You can find a discussion of the prenursing curriculum and prehealth advising in Preparing for a Professional School in the College of Letters and Science section.

Degree Requirements

The Bachelor of Science degree is granted on fulfillment of the following requirements:

(1) You must complete 44 required courses (191 quarter units; unit value of courses ranges from two to eight units) of college work and satisfy the general University requirements.

(2) Of the required 44 courses, at least 20 courses must be in general education, including the courses listed under the Prenursing Curriculum in the College of Letters and Science section.

(3) You must complete at least 24 courses (107 quarter units) of upper division coursework toward the degree, including Nursing 101, 104A, 104B, 105, 109, M115, 120A through 120E, 120G, 184, 190C, 190F, 192, 193, 195, four electives, Biostatistics 100A, Epidemiology 100.

(4) You must maintain an overall grade-point average of C (2.0) or better in all courses taken while a student in the School of Nursing.

(5) You must complete all required nursing courses in the school and receive grades of C or better in the following courses: Nursing 101, 105, 109, M115, 120A through 120E, 120G, 190C, 190F.

(6) You must be enrolled in the School of Nursing during your final three terms in residence; the last nine courses must be completed while so enrolled.

Study Lists — You may not enroll in more than four courses per term unless a petition is approved in advance by the assistant dean.

Honors

Dean's Honors

Dean's Honors are awarded annually to undergraduate students completing the academic year with distinction. To be eligible you 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 3.787; *magna cum laude*, 3.685; *cum laude*, 3.526. To be eligible you must have completed at least 98 University of California units for a letter grade.

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. For a complete outline of degree requirements,

see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The following is required of applicants to the Master of Nursing 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 later, 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 is required.

(7) A satisfactory scholarship record is required.

(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 550 or higher.

(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 Nursing program must file two applications: (1) *Application for Graduate Admission* and (2) *Application for Admission to the School of*

Nursing. The application deadline for Fall Quarter is March 15. Both applications may be obtained from the Student Affairs Office at the address given at the beginning of this listing.

M.B.A./M.N. Concurrent Degree Program

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.

Areas of Study

The School of Nursing offers graduate studies in the following areas:

- (1) Acute care.
- (2) Administration: nursing administration.
- (3) Chronic care: gerontology/chronic care, oncology.
- (4) Primary care: family, nurse-midwifery, occupational health, pediatric.

Students may choose to 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, 220, and 264 (students in nurse-midwifery take Nursing 236). Additional core courses for all options except nursing administration: Nursing 200, 225, 230 (Nursing 200 and 230 are not required for nurse-midwifery).

Clinical Specialty Theory Courses. Nursing 210, 211, 213, 214, 215, 216, 217, 219A, 219B, 232, 233, 234, 235. Course requirements vary for each specialty area; not all courses are required in each specialty.

Advanced Practice Theory Courses. Nursing 218A, 218B, 218C, 237A, 237B, 237C, 237E, 238A, 238B, 238C, 239A, 239B, 239C.

Clinical Practicum/Residency Courses. Nursing 418A through 418D, 437A through 437F, 438A through 438D, 439A through 439D.

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. Graduate 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 200, 204, 216, 217, 220, 230, 239A, 239B, 239C, 264, 439A, 439B, 439C, and four units of theory elective. Additional required courses for the acute care nurse practitioner include Nursing 210, 211, 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 200, 204, 220, 210, 211, 230, 239A, 239B, 239C, 264, 439A, 439B, 439C, 439D, and four units of theory elective. An elective experience in the clinical nurse specialist role is also available.

Gerontology/Chronic Care Specialty. The gerontology/chronic care specialty prepares advanced practice nurses 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 200, 204, 210, 211, 220, 225, 230, 232, 233, 239A, 239B, 239C, 264, 439A, 439B, 439C, 439D, and four units of theory elective. An elective experience in the clinical nurse specialist role is also available.

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 peri-

ods. 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 204, 220, 225, 234, 235, 236, 237A, 237B, 237C, 237E, 437A, 437B, 437C, 437D, 437E, 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, 220, 264, 418A, 418B, 418C, 418D, and a minimum of 16 units of theory electives including a course in organizational theory and human resource management.

Occupational Health Specialty. The occupational health specialty integrates principles of occupational health assessment and care with primary ambulatory care of the adult. Practitioners evaluate the individual as seen within the work setting as well as within the family 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 health care services. Required courses include Nursing 200, 204, 210, 211, 213, 220, 230, 239A, 239B, 239C, 264, 439A, 439B, 439C, 439D, Environmental Health Sciences 250, 251, and Epidemiology 100 or equivalent. An elective experience in the clinical nurse specialist role is also available.

Oncology Specialty. The oncology nursing specialty is designed to train 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 people with cancer and their families in a variety of settings and across the health/illness continuum (prevention, diagnosis, treatment, rehabilitation, palliative care). The student is

given intensive individualized preparation in either the role of nurse practitioner or clinical nurse specialist. Required courses include Nursing 200, 204, 214, 215, 220, 230, 239A, 239B, 239C, 264, 439A, 439B, 439C, and four units of theory elective. Additional courses for the oncology nurse practitioner include Nursing 210, 211, 225, 439D.

Pediatric Speciality. 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 200, 204, 212, 220, 223, 225, 230, 238A, 238B, 238C, 264, 438A, 438B, 438C, 438D, and four units of theory elective. An elective experience in the clinical nurse specialist role is also available.

Comprehensive Examination Plan

The comprehensive examination is given in written form and is scheduled each quarter. Students are eligible to take the examination during the quarter in which they are advanced to candidacy and may repeat the examination, in its entirety or in part, twice. 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 Doctor of Nursing Science (D.N.Sc.) program 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 non-nursing field are required to make up clinical specialty deficiencies by taking clinical courses in one of the current master's clinical specialty 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 prerequisite to entry into doctoral courses.

Applicants to the Doctor of Nursing degree 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 non-nursing 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

is required, 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) 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, 100D, or Biomathematics 170A.

(5) A graduate-level nursing research course with content equivalent to Nursing 205.

(6) A graduate-level nursing theory course.

(7) A minimum score of 550 on the Test of English as a Foreign Language (TOEFL) is required of 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, which must be submitted by international applicants who are not licensed as a registered nurse in the U.S., prior to consideration for admission.

(9) 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.

(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 Doctor of Nursing Science 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 UCLA School of Nursing at the address given at the beginning of this listing. 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 three areas: sociocultural diversity, psychophysical environment, or health/illness continuum.

The following are examples of possible areas of study within each focus and are not meant to limit the creativity of doctoral students. Students who choose sociocultural diversity might focus their research and theory development on the impact of varying social or cultural beliefs of clients on a health outcome within a

particular clinical area. Students who choose the psychophysical environment focus might study the effects of the external physical environment (e.g., the setting for health care) on health outcomes for the client or focus their research on manipulation of the client's internal environment (physiological or psychological adaptation) to produce outcome benefits. Students who choose the health/illness continuum might focus their research on developing, implementing, and evaluating anticipatory guidance programs, screening programs, consultation programs, or crisis intervention programs, or could focus on testing specific interventions related to the rehabilitation of the chronically ill or on monitoring and supporting the acutely ill.

Course Requirements

Core Requirements. The following courses are required of all students in the Doctor of Nursing Science program.

(1) Nursing science: Nursing 202, 206A-206B.

(2) Nursing research: Nursing 207, 208, 299A, 299B-299C, 299D.

(3) One statistics sequence: Biostatistics 251, or Psychology 252A and 253, or Sociology 210A-210B, or equivalent, subject to approval of the faculty adviser and doctoral program committee chair.

(4) One major area of study course: Nursing 226 or 227 or 228.

Cognate Requirements. A minimum of 24 units of cognate courses relevant to the major area of study (sociocultural diversity, psychophysical environment, health/illness continuum) is required and must be approved by the adviser and doctoral program committee.

Written and Oral Qualifying Examinations

Written Qualifying Examination. The written qualifying examination must be taken 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 selected 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 Graduate Study section of the current *UCLA General Catalog*. 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 the committee is submitted for the approval of the dean of the Graduate Division.

Upper Division Courses

101. Introduction to Art and Science of Nursing (8 units). Lecture, four hours; laboratory, 12 hours; autotutorial laboratory, variable. Introduction to nursing theory and practice. Content includes the following modules: nursing process, pharmacology, interpersonal and technical skills. Methodology includes laboratory, lectures, autotutorial laboratory, and clinical application.

104A. Behavior of Man in Health and Illness (2 units). Prerequisite: consent of instructor. Limited to nursing students. Examination of health/illness continuum from framework of social and biological sciences. Content includes role theory, developmental theory, transcultural communication theory, and other theories relevant to nursing practice.

104B. Behavior of Man in Health and Illness. Lecture, two hours; discussion, two hours. Prerequisite: course 104A. Examination of health/illness continuum from framework of illness as a stressor and possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss, and other responses relevant to nursing practice.

105. Human Physiology. Lecture, four hours; discussion, one hour. Prerequisite: nursing student standing or consent of instructor. Required of third-year nursing students. Lecture and discussion, with emphasis on a correlative approach to anatomy and physiology of human body.

109. Communication in Health Care (3 units). Lecture, two hours; laboratory, three hours. Prerequisite for non-nursing students: consent of instructor. Study of basic communication and group process theory and its application to practice. Laboratory experience, with emphasis on development of each individual's ability to communicate effectively in a dyad and in a small group.

M115. Introduction to Pharmacology and Therapeutics (2 units). (Same as Pharmacology M115.) Prerequisite for non-nursing students: consent of instructor. Systematic review of major drug groups used therapeutically, the most commonly used members in each group, differences among them, and their mechanisms of action.

120A. Child and Family Nursing (5 units). Lecture, two hours (10 weeks); laboratory, 18 hours (five weeks). Prerequisites: courses 101, 105, 109, 120C-120D, 120G. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of theoretical concepts of growth and development related to nursing care of the child and its family.

120B. Maternity Nursing (5 units). Lecture, two hours (10 weeks); laboratory, 18 hours (five weeks). Prerequisites: courses 101, 105, 109, 120C-120D, 120G. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of theoretical concepts of reproduction to nursing care of the family.

120C-120D. Medical-Surgical Nursing of Adults and Older Adults (6 units each). Lecture, three hours (10 weeks); laboratory, 18 hours (five weeks). Prerequisites: courses 101, 105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of theoretical content, including aging process, related to medical-surgical nursing care of the adult/older adult patient.

120E. Psychiatric/Mental Health Nursing (5 units). Lecture, two hours (10 weeks); laboratory, 18 hours (five weeks). Prerequisites: courses 101, 105, 109, 120C-120D. Corequisite: course 120G. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of mental health content related to nursing care of individuals, groups, or communities.

120G. Medical-Surgical Nursing of Adults and Older Adults (5 units). Lecture, two hours (10 weeks); laboratory, 18 hours (five weeks). Prerequisites: courses 101, 105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of theoretical content, including aging process, related to medical-surgical nursing care of the adult/older adult patient.

M158. Health in Culture and Society. (Same as Anthropology M168.) Prerequisite: upper division standing. Examination of theories and methods of medical anthropology in relation to cross-cultural health systems, role networks, attitude and belief systems of the participants. Emphasis on interaction networks in health care systems.

184. Evolution and Dynamics of the Nursing Profession (3 units). Study of evolution of nursing, focusing on historical, ethical, moral, legal, and institutional ramifications of nursing practice. In addition, rights, obligations, and societal and institutional expectations of the professional nurse.

189. Human Sexuality. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Lectures, discussions, and case presentations considering human sexuality, its joys and pleasures, pitfalls and problems. Interdisciplinary approach encompassing anatomic, physiologic, psychologic, and social aspects of heterosexual and homosexual relationships, including development of gender identity, intercourse, pregnancy, abortion, contraception, and venereal disease.

190A. Advanced Child and Family Nursing (7 units). Lecture, two hours; laboratory, 15 hours. Prerequisites: courses 101, 104A, 104B, 120A through 120E, 120G. Clinical concentration in nursing care of the child and its family. Theoretical content integrates concepts related to management of pediatric client care in acute and ambulatory settings. Application of theoretical concepts of growth and development of the child and family.

190B. Advanced Maternity Nursing (7 units). Lecture, two hours; laboratory, 15 hours. Prerequisites: courses 101, 104A, 104B, 120A through 120E, 120G. Clinical concentration in nursing care of the childbearing family. Theoretical content further refines theories, concepts, and nursing practice related to the childbearing family. Application of theoretical concepts of reproduction to nursing care of the family.

190C. Critical Care Nursing across Life Span (7 units). Lecture, two hours; laboratory, 15 hours. Prerequisites: courses 101, 104A, 104B, 120A through 120E, 120G. Clinical concentration related to nursing in the critical care setting. Theoretical content includes pathophysiology, pharmacology, advanced nursing skills, and treatment modalities in selected clinical situations. Application of theoretical content related to nursing care of the acutely ill medical and surgical pediatric or adult patient in emergent and critical phases of illness.

190D. Perioperative Nursing (7 units). Lecture, two hours; laboratory, 15 hours. Prerequisites: courses 101, 104A, 104B, 120A through 120E, 120G. Clinical concentration related to nursing in the operating room setting. Theoretical content further refines theories, concepts, and practice of perioperative nursing. Application of theoretical content related to nursing care of the patient undergoing surgical intervention.

190E. Advanced Psychiatric/Mental Health Nursing (7 units). Lecture, two hours; laboratory, 15 hours. Prerequisites: courses 101, 104A, 104B, 120A through 120E, 120G. Clinical concentration in area of mental health nursing. Theoretical concepts and application related to mental health of the adult, geriatric, child, or adolescent client. Experiences include those in inpatient psychiatric nursing, outpatient day treatment programs, individual and child therapy, hospice programs, and crisis intervention units.

190F. Community Health Nursing (7 units). Lecture, two hours; laboratory, 15 hours. Prerequisites: courses 101, 104A, 104B, 120A through 120E, 120G. Clinical concentration in community health nursing settings: home health, public health, 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 psychophysical environment.

192. Physical Assessment. Lecture, three hours; laboratory, three hours. Prerequisites: courses 101, 105, 109. 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 the required text are mandatory.

193. Introduction to Research. 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.

194. Computer Systems in Health Care. Lecture, three hours; laboratory, three hours; field trips. Introductory course in review and evaluation of computer systems in nursing administration, education, and practice.

195. Nursing Management (3 units). Lecture, two hours; field study, three hours. Corequisite: one course in 190 series. Management theory applied to nursing practice. Acquisition of basic knowledge of management concepts and skills as practiced in a health care setting.

196. Issues in Providing Health Care to Culturally Diverse Populations. Lecture, three hours; discussion, one hour. Prerequisite for non-nursing students: 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.

199. Special Studies in Nursing (2 to 16 units). Prerequisites: senior standing and/or consent of instructor. 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

200. Biobehavioral Theoretical Foundations of Health Assessment. Lecture, three hours; field study, three hours. Prerequisite: course 192 or approved physical assessment course. 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.

201. Health-Related Quality of Life (2 units). 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.

202. Philosophical Foundations of Science of Nursing. Prerequisite: doctoral standing or consent of instructor. Designed 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.

203. History of Nursing Thought (2 units). (Not the same as course 203 prior to Winter Quarter 1995.) Analysis and evaluation of contextual forces which influenced development of discipline of nursing. Examination of nursing's historical influence on sociopolitical environment.

204. Research Design and Critique. (Not the same as course 204 prior to Winter Quarter 1995.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: 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.

205. Advanced Research Methods. (Not the same as course 205A prior to Fall Quarter 1994.) Prerequisites: courses 193, 204, or equivalent, one statistics course. 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.

206A-206B. Nursing Theory Development. Lecture/seminar, three hours. Prerequisites: course 202 or philosophy of science course (may be taken concurrently), 203 or equivalent. Focus on major issues involved in development of nursing knowledge, including content and methods of developing nursing theory. In Progress grading.

207. Research in Nursing: Measurement of Clinical Variables. Lecture, two hours; discussion, two hours. Prerequisites: courses 204, and 205 or equivalent. 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.

208. Research in Nursing: Measurement of Outcomes. Discussion, 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.

209. Human Diversity in Health and Illness (2 units). (Not the same as course 209A prior to Winter Quarter 1995.) 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.

210. Theoretical Foundations of Family Nursing (2 units). (Not the same as course 210 prior to Fall Quarter 1994.) 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.

211. Theoretical Foundations of Family Nursing (2 units). (Not the same as course 211 prior to Fall Quarter 1994.) Prerequisite: course 210. Continuation of course 210.

212. Health-Related Family Theory (2 units). (Not the same as course 212 prior to Winter Quarter 1995.) 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.

213. Theoretical Foundations of Occupational Health Nursing. Lecture, three hours; field study, three hours (six weeks). Current environmental and system theories and concepts in occupational health, presented within a nursing framework. Analysis of elements of worksite health programs and discussion of nursing's leadership role in ensuring a safe and healthful workplace.

214. Human Responses to Cancer (2 units). (Not the same as course 214 prior to Fall Quarter 1994.) 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.

215. Human Responses to Cancer (2 units). (Not the same as course 215 prior to Fall Quarter 1994.) 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.

216. Human Responses to Critical Illness (2 units). (Not the same as course 216 prior to Winter Quarter 1995.) Biobehavioral theories and research of critical illness. Nursing aspects of selected dysfunctions and implications for critical care advanced practice nurses.

217. Human Responses to Critical Illness (2 units). (Not the same as course 217 prior to Fall Quarter 1994.) Prerequisite: course 216. Builds on pathophysiologic 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.

218A. Nursing Administration Theory. Prerequisite: one organizational theory course. 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.

218B. Nursing Administration Theory. Prerequisites: course 218A, one human resource management course, one finance course. Focus on synthesizing organizational and management theories in relation to health economics and finance, quality of care, resource management, informatics, law, policy, and ethics.

218C. Nursing Administration Theory. Prerequisite: course 218B or consent of instructor. 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.

219A. Essentials of Accounting and Budgeting in Health Care Organizations. (Not the same as course 219 prior to Winter Quarter 1995.) Prerequisite: graduate standing in nursing administration program or consent of instructor. Highly desirable: functional competency in use of an electronic spreadsheet (e.g., LOTUS or EXCEL). 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.

219B. Operations Planning and Control for Nursing Administrators. Prerequisites: course 219A or consent of instructor, functional competency in use of integrated spreadsheet/database/graphics software (e.g., LOTUS or EXCEL). 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.

220. Theories of Instruction and Learning in Nursing (2 units). (Not the same as course 220A prior to Fall Quarter 1995.) 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.

222. Immunosuppression and Patient Care (2 units). Research related to immunosuppression, its causes, clinical manifestations, and modifiers. Special emphasis on physiologic and pathophysiologic mechanisms of immunosuppression as a basis for information used in patient education and clinical decisions, and supportive treatments and modifiers.

223. Childhood Development: Research and Application to Nursing (2 units). (Not the same as course 223 prior to Fall Quarter 1994.) 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.

224. Health-Related Problems of Vulnerable Populations (2 units). 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.

225. Pharmacology for Advanced Practice Nurses. (Not the same as course 225 prior to Fall Quarter 1994.) Knowledge of and skills in pharmacology necessary for advanced practice nurses who have clients/patients with stable acute or chronic conditions.

226. Psychophysical Environmental Influences on Health/Illness Behaviors and Health Outcomes. Lecture, two hours; discussion, two hours. Prerequisites: courses 206A-206B. Study of theory and research on stress and coping, adverse physical aspects of the environment, personal space and privacy, territoriality and crowding, and perception and cognition, with emphasis on health outcomes of nursing interventions.

227. Nursing's Role in Health/Illness Continuum. Lecture, three hours; discussion, one hour. Prerequisites: courses 206A-206B. Application of theory/research to health/illness-related phenomena of behaviors occurring as health status changes, self-definition as healthy or ill, regimen compliance, sick-role, and societal influences on sick-role.

228. Sociocultural Variations in Health and Illness. Lecture, two hours; discussion, two hours. Prerequisites: courses 206A-206B. Relationship of sociocultural factors to health systems and diagnosis and treatment of illness, ethnomedical systems, and integration of sociocultural variables into clinical nursing research.

229. Biologic/Psychologic Interface in Health and Illness (2 units). Interaction of physiologic, behavioral, and psychosocial factors in illness, and theory and research underlying these factors, including differential influence of gender, ethnicity, and culture.

230. Human Physiology. Prerequisites: graduate standing in nursing, course 105 or equivalent within past five years or 70 percent score on proficiency examination, consent of instructor. Operative mechanisms and control of major portions of human organ systems (i.e., normal human physiology).

231. Special Topics in Cellular Physiology (2 units). Prerequisites: graduate standing in nursing, course 230. Functional organization and genetic control of human cell.

232. Human Responses to Aging and Chronic Illness (2 units). (Not the same as course 232 prior to Winter Quarter 1995.) Theories and research related to wellness, prevention, illness, and aging. Exploration of current theory and research findings within framework of advanced practice nursing. Emphasis on maintenance of optimal functional independence, self-care, and quality of life.

233. Human Responses to Aging and Chronic Illness (2 units). (Not the same as course 233 prior to Fall Quarter 1994.) Prerequisite: course 232. Bio-psychosocial 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.

234. Theoretical Foundations of Health Assessment of Women (3 units). Lecture, two hours; laboratory, three hours. Prerequisite: course 192 or equivalent or consent of instructor. Theoretical basis for health assessment and changes in women during life cycle, with focus on physiologic, psychosocial, and behavioral factors underlying these changes and on theoretical components of nurse-midwifery management process.

235. Reproductive Endocrinology (3 units). Lecture, two hours; seminar, one hour. Current theory and research related to systematic evaluation of normal physiology discussed in reference to physiologic dynamic model. Highlights physiology and pathophysiology of menstrual cycle, puberty, menopause, parturition, postpartum, lactation, and placenta.

236. Professional and Legal Issues in Nurse-Midwifery (2 units). Prerequisite: graduate standing in advanced practice in nurse-midwifery option of master's program or consent of instructor. 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.

237A. Primary Care of Women: Antepartum Management (3 units). Prerequisite: course 234. Presentation of current theory and relevant research on assessment and management of women during pregnancy, with emphasis on systematic evaluation of current nursing conceptual models in independent and collaborative care of these families. Review of management of normal pregnancy and health and social complications.

237B. Primary Care of Women: Postpartum and Newborn Management (2 units). Prerequisite: course 234. Presentation of current theory and relevant research on assessment and management of women during postpartum period and infants during first month of life. Emphasis on systematic evaluation of current nursing conceptual models in independent and collaborative care of these women and their newborns.

237C. Primary Care of Women: Intrapartum Management. Prerequisite: course 234. Critical analysis of theory, research, and knowledge related to primary and independent/collaborative care of intrapartum families. Management of spontaneous and assisted labors, births, and pain reduction, promotion of normal processes and management of complications.

237E. Primary Care of Women: Family Planning and Gynecology Management. Prerequisite: course 234 or consent of instructor. 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.

238A. Theoretical Foundations of Nursing of Children: Assessment and Health Guidance. Prerequisite: course 200. 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.

238B. Theoretical Foundations of Nursing of Children: Common Illnesses and Problems. Prerequisite: 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.

238C. Theoretical Foundations of Nursing of Children: Complex Health Problems. Prerequisite: 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.

239A. Biobehavioral Foundations of Acuity and Chronicity in Illness. Prerequisite: course 200. Organ systems approach 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.

239B. Biobehavioral Foundations of Acuity and Chronicity in Illness. Prerequisite: course 239A. Organ systems approach 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.

239C. Biobehavioral Foundations of Acuity and Chronicity in Illness. Prerequisite: 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.

264. Professional Issues in Nursing (3 units). (Not the same as course 264 prior to Fall Quarter 1994.) Prerequisite: course 418A or 438A or 439A. Concepts of collegial practice, interprofessional and intraprofessional relationships, legal issues, and socioeconomic aspects of health care delivery.

M273. Advanced Seminar: Medical Anthropology. (Same as Anthropology M263Q, Community Health Sciences M244, and Psychiatry M273.) Seminar, three hours. Prerequisite: consent of instructor. 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.

M290A-M290B-M290C. Child Abuse and Neglect (2 units, 2 units, 1 unit). (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.) Course M290A is prerequisite to M290B, which is prerequisite 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. Seminar, three hours. Prerequisites: courses 206A-206B, 207, 208, one cognate area course. 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 units each). Lecture, one hour; discussion, one to four hours. Prerequisites: courses 206A-206B, 207, 208, statistics sequence in cognate area. 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 units). Lecture, one hour; discussion, one to four hours. Prerequisites: courses 206A-206B, 207, 208, 220 or equivalent, statistics sequence in cognate area. 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 units). Prerequisite: 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.

M410A. Nursing Care of Children with Developmental Disabilities. (Same as Psychiatry M472A.) Lecture, one hour; discussion, one to two hours; laboratory, 10 hours minimum. Prerequisite: consent of instructor. Study of disability conditions of childhood and their effects on the child and family. Content based on normative developmental models with consideration for sociocultural diversity. Emphasis on prevention, systematic assessment, and planning of care for the individual and family. Introduction to implementation of intervention strategies. Series of three courses integrates didactic material and clinical experience.

M410B. Nursing Care of Children with Developmental Disabilities. (Same as Psychiatry M472B.) Lecture, one hour; discussion, one to two hours; laboratory, 10 hours minimum. Prerequisites: course M410A and/or consent of instructor. Study of philosophical and conceptual models affecting care delivery for persons with developmental disabilities. Emphasis on intervention strategies necessary for primary, secondary, and tertiary prevention.

M410C. Nursing Care of Children with Developmental Disabilities. (Same as Psychiatry M472C.) Lecture, one hour; discussion, one to two hours; laboratory, 10 hours minimum. Prerequisites: course M410B and/or consent of instructor. Exploration and participation in assessment, planning, and delivery of health care to children with developmental disabilities in a variety of settings. Emphasis on expanded role of the nurse.

418A. Nursing Administration Practicum (2 units). 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.

418B. Nursing Administration Practicum (2 units). 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.

418C. Nursing Administration Practicum (2 units). 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.

418D. Nursing Administration Residency (10 units). Seminar, two hours; practicum, 32 hours. Prerequisite: 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.

437A. Primary Care of Women: Antepartum Clinical Management. Clinical, 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.

437B. Primary Care of Women: Postpartum and Newborn Clinical Management (3 units). Clinical, eight hours; clinical conference, one hour. Corequisite: course 237B. 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.

437C. Primary Care of Women: Intrapartum Clinical Management. Clinical, 12 hours. Corequisite: course 237C. Intrapartum management for clients through screening, assessment, diagnosis, and care that promotes health and prevents complications. Supervised experience in episiotomies and emergency situations provided.

437D. Primary Care of Women: Intrapartum Clinical Management. Clinical, 11 hours; clinical conference, one hour. Prerequisite: course 437C. Synthesizing previous work, students continue to learn assessment and management of intrapartum family. Special emphasis on utilization and interpretation of ultrasonography in low-risk labor and delivery and refinement of delivery skills.

437E. Primary Care of Women: Family Planning and Gynecology Clinical Management. Clinical, 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.

437F. Primary Care of Women: Nurse-Midwifery Integration (8 units). Clinical, 24 hours (10 weeks) or 40 hours (six weeks). Prerequisite: course 437E. Students assume management responsibility for full scope of nurse-midwifery practice, providing continuity and comprehensive obstetric care to the child-bearing 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).

438A. Advanced Practice Nursing in Care of Children: Wellness Care (2 units). Clinical practicum, six hours. Prerequisite: 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.

438B. Advanced Practice Nursing in Care of Children: Management of Common Illnesses. Clinical practicum, 12 hours. Prerequisite: 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.

438C. Advanced Practice Nursing in Care of Children: Management of Complex Health Problems. Clinical practicum, 12 hours. Prerequisite: 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.

438D. Pediatric Primary Care: Residency (8 units). Clinical practicum, 24 hours. Prerequisites: 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.

439A. Advanced Practice Nursing: Clinical Practicum (2 units). Clinical 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.

439B. Advanced Practice Nursing: Clinical Practicum. Clinical 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.

439C. Advanced Practice Nursing: Clinical Practicum. Clinical 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.

439D. Advanced Practice Nursing: Residency (8 units). Clinical practicum, 24 hours. Prerequisites: 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 the theory, research, and clinical knowledge in advanced practice role.

501. Cooperative Program (2 to 8 units). Prerequisite: 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.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 units). Prerequisite: consent of instructor. Opportunity for individual graduate students in nursing 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 units). May be repeated once for credit, but only four units may be applied toward M.N. degree requirements. S/U grading.

599. Research for and Preparation of D.N.Sc. Dissertation (2 to 8 units). Individualized faculty supervision of doctoral dissertation research by student's chair. May be repeated for credit, but only eight units may be applied toward doctoral degree requirements. S/U grading.

OBSTETRICS AND GYNECOLOGY

School of Medicine

UCLA
27-117A Center for the Health Sciences
Box 951740
Los Angeles, CA 90095-1740
(310) 206-2056

Chairs

Gautum Chaudhuri, M.D., Ph.D., *Interim Chair*
Jonathan S. Berek, M.D., *Vice Chair, UCLA Medical Center*
Charles R. Brinkman III, M.D., *Chair, Harbor-UCLA*
Ezra C. Davidson, M.D., *Chair, King/Drew*
Howard L. Judd, M.D., *Chair, Olive View-UCLA*
Lawrence Platt, M.D., *Chair, Cedars-Sinai*

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 Stein Eye Institute
Box 957008
Los Angeles CA 90095-7008
(310) 825-5053

Chair

Bartly J. Mondino, M.D. (*Wasserman Professor of Ophthalmology*)

Vice Chairs

Sherwin J. Isenberg, M.D. (*Harbor-UCLA*)
Arthur L. Rosenbaum, M.D.

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

Professors

George W. Bernard, D.D.S., Ph.D., *Chair*
Douglas Junge, Ph.D.
No-Hee Park, D.M.D., Ph.D.
Lawrence E. Wolinsky, D.D.S., Ph.D.
John A. Yagiela, D.D.S., Ph.D.

Colin K. Franker, Ph.D., *Emeritus*
Louis J. Goldberg, D.D.S., Ph.D., *Emeritus*

Associate Professors

Francesco Chiappelli, Ph.D.
Jacob Fleischmann, M.D.

Assistant Professors

Susan A. Kinder, D.M.D., M.D.S., Ph.D.
Kenneth T. Miyasaki, D.D.S., M.S., Ph.D.
Igor Spigelman, Ph.D.

Adjunct Professor

Bernard G. Samat, M.D., M.S., D.D.S.

Adjunct Associate Professor

Carol A. Bibb, Ph.D., D.D.S.

Adjunct Assistant Professors

Jaime Bulkacz, D.D.S., Dr.Odont., Ph.D.
Christine L. Quinn, D.D.S., M.S.

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to meeting the general admission requirements set by the Graduate Division, applicants to the Master of Science 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., advanced certificate training/M.S., or advanced certificate training/Ph.D. by making simultaneous application for graduate study in Oral Biology and for admission to the School of Dentistry and to the certificate programs. A

separate application must be submitted to Graduate Admissions. 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. Seven core courses (Oral Biology 201A-201B-201C, 202, 260, Biology 100A, and Biomathematics 170A) are required. These 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, the student 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 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., advanced certificate training/M.S., or advanced certificate training/Ph.D. by making simultaneous application for graduate study in Oral Biology and for admission to the School of Dentistry and to the certificate programs. A separate application must be submitted to Graduate Admissions. Applicants must be

accepted by both of the concerned units in order to participate in a combined program.

Course Requirements

In the first year Oral Biology 201A-201B-201C, Biology 100A, and Biomathematics 170A 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

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 followed by a question and answer period on general topics related to oral biology is performed.

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.

Graduate Courses

201A-201B-201C. Advanced Oral Biology (3 units each). Prerequisite: consent of instructor.

201A. Ontogenesis. 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.

201B. Homeostasis in Oral Systems. Normal regulatory functions of various oral systems. Topics include immune systems, mechanisms of salivary secretion and nonspecific salivary protective mechanisms, integrated behavior of sensory and motor systems, mechanisms of deposition and resorption of bone, dentin, and enamel, ionic and hormonal influences on bone regulation.

201C. Pathobiology. 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.

202. Principles and Methods of Research. Discussion, two hours. Prerequisite: consent of instructor. Examination and discussion of various approaches to research methodology, from formation of hypotheses to experimental testing and analysis and interpretation of data. Library work to be studied from standpoint of obtaining background information and writing a paper. Hypotheses based on class members' interests to be critiqued and elaborated into research proposals. Research faculty to speak informally on their individual approaches to scientific investigation.

M203. Oral Embryology and Histology. (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 units). (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.

211. Biology of the Temporomandibular Joint (2 units). 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.

226A-226B. Craniofacial Growth and Development (2 units each). Prerequisite: 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 units). 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 units). 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 units). (Same as Neurobiology M234.) Prerequisite: graduate standing or consent of instructor. 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 units). 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.

M293. Major Concepts in Oncology. (Same as Microbiology and Immunology M293 and Pathology M293.) Lecture, three hours. Prerequisite: graduate standing or consent of instructor. 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 units). S/U grading.

597. Preparation for Ph.D. Qualifying Examinations (4 to 8 units). S/U grading.

598. Thesis Research and Preparation (2 to 8 units). S/U grading.

599. Research for and Preparation of Ph.D. Dissertation (4 to 8 units). 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

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.

Special Undergraduate Program

You may elect to combine this program 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 beginning of Chapter 5.

If you have a departmental major, you should seek advising in your major department. If you are interested in the individual major, 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 18 and 104 or equivalent.

Upper Division

Required: Nine upper division courses, including (1) at least three courses outside your 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 your 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 your 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

Chair

Joseph M. Lane, M.D.

Scope and Objectives

The medical student program in orthopedic 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 orthopedic 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, orthopedic

oncology, metabolic bone disorders, hand and foot surgery, and spinal surgery.

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*.

Upper Division Course

102. Gross Anatomy of the Human Body (8 units). (Formerly numbered Anatomy 102.) Lecture, three hours; laboratory, nine hours. Prerequisites: dental or graduate student standing, consent of instructor. 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 units each). (Formerly numbered Anatomy 205A-205B.) Lecture/laboratory, three four-hour sessions (16 weeks beginning in August). Prerequisites: medical student standing, consent of instructor for nonanatomy majors. 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 units). (Formerly numbered Anatomy 207.) Lecture/laboratory, three four-hour sessions (16-week semester). Prerequisite: consent of instructor. 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
1P-109D Center for the Health Sciences
Box 951732
Los Angeles, CA 90095-1732
(310) 825-5719

Professors

Judith A. Berliner, Ph.D., *in Residence*
Alistair J. Cochran, M.D., *in Residence*
Rita B. Effros, Ph.D., *in Residence*
Richard A. Gatti, M.D., *in Residence*
Oliver Hankinson, Ph.D., *in Residence*
*Faramarz Naeim, M.D., *in Residence*
Donald E. Paglia, M.D.
Lawrence D. Petz, M.D., *in Residence*
David D. Porter, M.D., *Vice Chair*
Denis O. Rodgerson, Ph.D., *in Residence*
George S. Smith, M.D., *Interim Chair*
Harry V. Vinters, M.D.
Marcel A. Baluda, Ph.D., *Emeritus*
Pasquale A. Cancilla, M.D., *Emeritus*
Julien L. Van Lancker, M.D., *Emeritus*
M. Anthony Verity, M.D., *Emeritus*
Roy L. Walford, M.D., *Emeritus*

Associate Professors

Sanford H. Barsky, M.D.
Jonathan Braun, M.D., Ph.D.
Thomas A. Drake, M.D., *in Residence*

Wayne W. Grody, M.D., Ph.D., *in Residence*
Nir Kossovsky, M.D.
James H. McBride, Ph.D., *in Residence*

Assistant Professors

Linda G. Baum, M.D., Ph.D.
Elizabeth A. Wagar, M.D.

Adjunct Associate Professor

Neil Sidell, Ph.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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

Students are only accepted into the program for the purpose of obtaining a Ph.D. in Experimental Pathology. However, the department also awards a Master of Science degree in Experimental Pathology in cases where a student was 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 experimen-

tal 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 this 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. This project 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 and Cellular Life Sciences. Information may be obtained from UCLA ACCESS, 172 MBI, UCLA, 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 taped course and the seminar.)

Winter Quarter: Six units from Pathology and Laboratory Medicine 234A, 234B, 234C, 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.

Upper Division Course

199. Special Studies (2 to 6 units). Supervised laboratory research, 10 hours minimum. Prerequisite: consent of instructor. 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 units). Lecture, 90 minutes; laboratory, three hours. Prerequisite: consent of instructor. Fundamental causes of disease processes, using as examples selected lesions or diseases of major organ systems.

M215. Interdepartmental Course: Tropical Medicine (2 units). (Same as Medicine M215, Microbiology and Immunology M215, and Pediatrics M215.) Lecture, two and one-half hours. Prerequisites: 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 units). Lecture, two hours; discussion, six hours; laboratory, four hours; other, six hours. Prerequisites: graduate standing, completion of curriculum satisfying basic requirements for study of human pathology. 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 units each). Prerequisites: course 200A, graduate standing, completion of curriculum satisfying basic requirements for study of human pathology. 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.

232. Topics in Vertebrate Neurobiology (2 units). Introduction to cell biology of vertebrate central nervous system, with special reference to its development, structure, and potential disease processes.

233. General Pathology Seminar (3 units). Lecture, two hours; discussion, one hour. Corequisite: course 231A. Designed to provide students with in-depth understanding of topics in course 231A. Reading and discussion of current publications pertaining to general pathology, with emphasis on cell injury/cell death and inflammation/fibrosis.

234A-234F. Molecular and Cellular Foundations of Disease (2 units each). Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: graduate standing, background in biochemistry, molecular biology, and genetics. Investigation of the disease process. Two topics (four weeks each) offered per term; topics include genetic and metabolic disorders, infectious diseases, oncology, immunology, and nutritional diseases.

M237. Molecular and Cellular Foundations of Disease. (Same as Biological Chemistry M237.) Lecture, two hours; discussion, two hours. Prerequisites: 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.

245. Environmental Pathology. Prerequisites: graduate standing, consent of instructor. Designed to explore interrelationships of man with his total environment. Presentation of series of special topics to discuss effect on man of changes in compositions of air, water, soil, and other materials. S/U grading.

250A-250B-250C. Pathology Graduate Student Seminars (2 units each). Limited to and required of all students in experimental pathology. Review and discussion of current literature and research in special topics of experimental pathology.

254. Seminar: Experimental Neuropathology (1 unit). Prerequisite: consent of instructor. Weekly seminar series presented by experts working at forefront of research on diseases of nervous system. New experimental approaches and laboratory model systems for studying diseases such as Alzheimer's and Huntington's diseases, epilepsy, neuroblastoma, and multiple sclerosis. S/U grading.

255. Mapping the Human Genome (3 units). Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: consent of instructor. 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 units). (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. (Same as Pharmacology M257.) Prerequisite: Pharmacology 241 or consent of instructor. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems.

M258. Pathologic Changes in Toxicology. (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).

262. Biology of Aging. Lecture, two hours; discussion, two hours. Prerequisite: graduate standing. Introduction to biology of aging, with emphasis on mammalian and cellular aging—survival curves, biochemical, immunological, immunogenetic, and neuroendocrine alterations over the life cycle, accelerated aging, life-extension strategies; major theories of aging. S/U or letter grading.

M293. Major Concepts in Oncology. (Same as Microbiology and Immunology M293 and Oral Biology M293.) Lecture, three hours. Prerequisite: graduate standing or consent of instructor. 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 (4 to 12 units). 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 units). Prerequisite: one year of pathology coursework. Individual study for qualifying examinations. S/U grading.

599. Preparation of Ph.D. Dissertation (2 to 8 units). Prerequisite: 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
Los Angeles, CA 90095-1752
(310) 825-4128

Chairs

Edward R.B. McCabe, M.D., Ph.D., *Executive Chair*
Stephen A. Feig, M.D., *Executive Vice Chair*
Robert B. Ettenger, M.D., *Vice Chair, Clinical Affairs, UCLA Medical Center*
E. Richard Stiehm, M.D., *Vice Chair, Academic Affairs, UCLA Medical Center*
S. Douglas Frasier, M.D., *Chair, Olive View-UCLA*
Rosemary D. Leake, M.D., *Chair, Harbor-UCLA*
David L. Rimoin, M.D., Ph.D., *Chair, Cedars-Sinai*
Betti Jo Warren, M.D., *Interim Chair, King/Drew*

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*.

Lower Division Course

88. Lower Division Seminar: Special Topics in Pediatrics. 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.

PHILOSOPHY

College of Letters and Science

UCLA
321 Dodd Hall
Box 951451
Los Angeles, CA 90095-1451
(310) 825-4641

Professors

Tyler Burge, Ph.D.
Brian P. Copenhaver, Ph.D.
Kit Fine, Ph.D.
Barbara Herman, Ph.D. (*Gloria and Paul Griffin Professor of Philosophy*), Chair
David Kaplan, Ph.D.
D. Anthony Martin

Professors Emeriti

Marilyn McCord Adams, Ph.D.
Robert Merrihew Adams, Ph.D.
Rogers Albritton, Ph.D.
Alonzo Church, 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 Professors

Joseph Almog, Ph.D.
John Carriero, Ph.D.
Gavin Lawrence, Ph.D.

Assistant Professors

Andrew Hsu, Ph.D.
Marc Lange, Ph.D.
Michael Otsuka, D.Phil.
Seana Shiffrin, D.Phil.

Adjunct Professors

Sandra G. Harding, Ph.D.
Richard Popkin, Ph.D.

Adjunct Assistant Professor

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 five 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 in philosophy 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.

Bachelor of Arts Degree

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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

It is the policy of the department to admit only those who plan to earn the Ph.D. degree. For admission requirements, see Doctoral Degree below.

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), excluding 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 this 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 UCLA as a graduate student 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 one official transcript 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 address given at the beginning of this listing.

Areas of Study

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 here 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 sched-

ule 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 the student is 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.

Lower Division Courses

1. Beginnings of Western Philosophy. 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. 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. 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. 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. 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. 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. 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. 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. 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, Leibniz, Berkeley, or Hume.

22. Introduction to Ethical Theory. 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. 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. Lecture, three hours; discussion, one hour. Enforced requisite: course 31 (preferably in preceding term). Symbolic logic: extension of systematic development of course 31. Quantifiers, identity, definite descriptions.

97. Freshman Seminar. 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Survey of origins of Greek metaphysics from pre-Socratics through Plato and Aristotle.

100B. Medieval and Early Modern Philosophy. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Strongly recommended: 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course. Strongly recommended: 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. (Formerly numbered 101A.) (Same as Classics M146A.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: one philosophy course or consent of instructor. Study of selected topics in early and middle dialogues of Plato.

M101B. Plato — Later Dialogues. (Formerly numbered 101B.) (Same as Classics M146B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: course M101A. Study of selected topics in middle and later dialogues of Plato.

M102. Aristotle. (Formerly numbered 102.) (Same as Classics M147.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: one philosophy course or consent of instructor. Study of selected works of Aristotle.

M103A. Ancient Greek and Roman Philosophy. (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. (Same as Classics M145B.) Lecture, three hours; outside study, nine hours. Prerequisite: one course from 1, 100A, M101B, M102, or M103A, or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. Metaphysics, theory of knowledge, and theology of Aquinas, Duns Scotus, and Ockham, with less full discussion of other authors from the 13th through early 15th century. Selected texts read in English translation.

107. Topics in Medieval Philosophy. Prerequisite: one philosophy course. Recommended: 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C208.

C109. Descartes. Prerequisites: course 21 or two philosophy courses or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: course 21 or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: course 21 or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. Selected topics from metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214.

115. Kant. Lecture, three hours; discussion, one hour. Prerequisite: course 21 or 22 or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Selected topics in 19th-century thought.

117. Late 19th- and Early 20th-Century Philosophy. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Selected topics in work of one or more of following philosophers: Bolzano, Frege, Husserl, Meinong, G. Moore, early Russell, and Wittgenstein. May be repeated for credit with consent of instructor.

118. Kierkegaard. Prerequisite: one philosophy course or consent of instructor. Philosophical study of some major works of Kierkegaard, with emphasis on interpretation of the texts.

C119. Topics in Modern Philosophy. Prerequisite: one philosophy course or consent of instructor. 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. (Formerly numbered 126A.) Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. 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. (Formerly numbered 126B.) Lecture, three hours; discussion, one hour. Prerequisite: course 31 or 124 or consent of instructor. 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. (Formerly numbered 126C.) Lecture, three hours; discussion, one hour. Prerequisites: two philosophy courses or consent of instructor. 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. Prerequisite: course 31 or consent of instructor. 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. Prerequisite: course 31 or consent of instructor. Course 127A is not prerequisite 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. Prerequisites: 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. Prerequisite: course 128A or consent of instructor. Intuitionism of Brouwer, Heyting, and later Weyl; proof theory of Hilbert.

129. Philosophy of Psychology. Lecture, three hours; discussion, one hour. Prerequisites: 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. Lecture, three hours; discussion, one hour. Prerequisites: two philosophy courses or one philosophy course and one physics course, or consent of instructor. Selected philosophical problems concerning nature of space and time. Philosophical implications of space-time theories, such as those of Newton and Einstein. Topics may include nature of geometry, conventionalism, absolutist versus relationist views of space and time, philosophical impact of relativity theory.

131. Science and Metaphysics. Prerequisites: two philosophy courses or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: course 32. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics.

M134. Introduction to Set Theory. (Formerly numbered 134.) (Same as Mathematics M112A.) Lecture, three hours; discussion, one hour. Prerequisite: course 32 or Mathematics 31B or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: course 32 or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisite: course 135A or equivalent. 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. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisite: course 22 or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: two philosophy courses or consent of instructor. Course 151A is not prerequisite to 151B, which is not prerequisite 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. Prerequisite: course 22 or consent of instructor. 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. Prerequisite: course 22 or consent of instructor. 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. Prerequisite: course 6 or 7 or 22 or consent of instructor. 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. Examination of philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation.

156. Topics in Political Philosophy. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisites: two philosophy courses or consent of instructor. Recommended: course 6 or 22. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor.

157A-157B. History of Political Philosophy. Lecture, three hours; discussion, one hour. Prerequisites: two philosophy courses or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: two relevant philosophy courses or consent of instructor. 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. Prerequisites: two relevant philosophy or linguistics courses or consent of instructor. 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. (Same as Teaching English as a Second Language M189.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: Linguistics 1 or equivalent or consent of instructor. 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.

175. Topics in Philosophy of Religion. Lecture, three hours; discussion, one hour. Prerequisite: course 21 or 22 or consent of instructor. 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. Prerequisites: 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 model 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. Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: two philosophy courses or consent of instructor. 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. 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. Lecture, three hours; discussion, one hour. Prerequisite: course 21 or consent of instructor. Study of basic metaphysical questions; nature of physical world, of minds, and of universals; and answers provided by alternative systems (e.g., phenomenism, materialism, dualism).

183. Theory of Knowledge. Prerequisite: course 21 or consent of instructor. Analysis of concept of empirical knowledge. May be repeated for credit with consent of instructor.

184. Topics in Metaphysics. Prerequisite: course 21 or consent of instructor. 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. Prerequisite: course 182 or 183 or consent of instructor. 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. Prerequisites: two philosophy courses or consent of instructor. 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. Prerequisites: two philosophy courses or consent of instructor. Critical study of main philosophical theories of perception and arguments used to establish them.

189. Major Philosophers of the 20th Century. Prerequisites: two philosophy courses or consent of instructor. 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. (Same as Women's Studies M110D.) Lecture, three hours. Prerequisite for women's studies majors: Women's Studies 10; for other students: one philosophy course or consent of instructor. 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. 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. 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. Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. 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. Limited to and required of all first-year graduate students in philosophy. Selected topics in metaphysics and epistemology, history of philosophy, and ethics.

Group I. History of Philosophy

201. Plato. Prerequisite: consent of instructor. Study of later dialogues.

202. Aristotle. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. Selected problems and philosophers. May be repeated for credit with consent of instructor.

206. Topics in Medieval Philosophy. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. Selected problems and philosophers. May be repeated for credit with consent of instructor.

C208. Hobbes. (Formerly numbered 208.) Lecture, three hours; discussion, one hour. Prerequisite: one philosophy course or consent of instructor. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C108.

C209. Descartes. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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. Prerequisite: one philosophy course or consent of instructor. 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. Prerequisite: consent of instructor. Selected topics in philosophy of Hume. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C114.

215. Kant. Prerequisite: consent of instructor. Intensive study of selected writings of Immanuel Kant.

216. 19th-Century Philosophy. Prerequisite: consent of instructor. Topics in 19th-century philosophy. May be repeated for credit with consent of instructor.

C219. Topics in Modern Philosophy. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. Selected problems and philosophers which may be found on different periods. May be repeated for credit with consent of instructor.

Group II. Logic, Semantics, and Philosophy of Science

221A. Topics in Set Theory. Prerequisite: Mathematics M112A or consent of instructor. 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. (Formerly numbered 221C.) Prerequisite: consent of instructor. 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. **222A.** Prerequisites: 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.** Prerequisite: course 222A. Second-order arithmetic. Second in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222C.** Prerequisite: course 222B. Gödel numbering and Gödel theory. Final course in Gödel theory series.

224. Philosophy of Physics. Prerequisite: consent of instructor. 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. Prerequisites: course M134, or Mathematics M112A and 112B, or consent of instructor. Topics may include interpretations of probability, Bayesian and non-Bayesian confirmation theory, paradoxes of confirmation, coherence, and conditioning.

226. Topics in Mathematical Logic. Prerequisite: consent of instructor. Content varies from term to term. May be repeated for credit with consent of instructor.

227. Philosophy of Social Science. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

231. Seminar: Intensional Logic. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. Selected topics in philosophy of science. May be repeated for credit with consent of instructor.

233. Seminar: Philosophy of Physics. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

Group III. Ethics and Value Theory

241. Topics in Political Philosophy. Prerequisites: course 150 or 156 or 157A or 157B or any two philosophy courses or consent of instructor. 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. Prerequisite: consent of instructor. Selected topics. May be repeated for credit with consent of instructor.

246. Seminar: Ethical Theory. Prerequisite: consent of instructor. Selected topics. Content varies from term to term. May be repeated for credit with consent of instructor.

247. Seminar: Political Theory. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

248. Problems in Moral Philosophy. Prerequisite: consent of instructor. Intensive study of some leading current problems in moral philosophy. May be repeated for credit with consent of instructor.

255. Seminar: Aesthetic Theory. Prerequisite: consent of instructor. Selected topics. May be repeated for credit with consent of instructor.

M256. Topics in Legal Philosophy. (Same as Law M217.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Law M524.) Lecture, three hours. Prerequisite: consent of instructor. 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. Discussion, three hours. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

275. Human Action. Prerequisites: two upper division philosophy courses or consent of instructor. 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. Prerequisite: consent of instructor. Selected topics in 20th-century continental European philosophy. May be repeated for credit with consent of instructor.

281. Seminar: Philosophy of Mind. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

282. Seminar: Metaphysics. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

283. Seminar: Theory of Knowledge. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

284. Seminar: Philosophy of Perception. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

285. Philosophy of Psychoanalysis. Prerequisite: consent of instructor. 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. 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. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

288. Seminar: Wittgenstein. Seminar, three hours. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

289. Seminar: Philosophy of Religion. Prerequisite: consent of instructor. May be repeated for credit with consent of instructor.

290. Workshop: Philosophy of Language. Seminar, two hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: advancement to candidacy or consent of instructor. 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 units). Prerequisite: 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: 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 units). (Formerly numbered 596A-596B.) 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 units). Preparation for M.A. comprehensive examination or Ph.D. oral qualifying examinations. S/U grading.

599. Research for Ph.D. Dissertation (2 to 8 units). Prerequisite: advancement to Ph.D. candidacy. May be repeated for credit. S/U grading.

PHYSICS AND ASTRONOMY

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Sudip Chakravarty, Ph.D.
David B. Cline, Ph.D.
Ferdinand V. Coroniti, Ph.D., *Chair*
Robert D. Cousins, Ph.D.
John M. Dawson, Ph.D.
Eric D'Hoker, Ph.D.
Shechao Feng, Ph.D.
Sergio Ferrara, Ph.D.
Christian Fronsdal, Ph.D.
Walter N. Gekelman, Ph.D.
Graciela Gelmini, Ph.D.
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C. Kumar N. Patel, Ph.D.
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Claudio Pellegrini, Ph.D.
Seth J. Putterman, Ph.D.
Joseph Rudnick, Ph.D.
Peter E. Schlein, Ph.D.
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Reiner L. Stenzel, Ph.D.
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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

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Lawrence H. Aller, Ph.D.
Hans E. Bommel, Ph.D.
Rubin Braunstein, Ph.D.
Nina Byers, Ph.D.
Marvin Chester, Ph.D.
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 J. Reginald Richardson, Ph.D.
 Isadore Rudnick, Ph.D.
 Robert A. Satten, Ph.D.
 David S. Saxon, Ph.D. (*University President Emeritus*)
 Donald H. Stork, Ph.D.
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Associate Professors

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 Stuart Brown, Ph.D.
 Jay Hauser, Ph.D.
 Hong-Wen Jiang, Ph.D.
 Thomas Müller, Ph.D.
 Jean L. Turner, Ph.D.

Assistant Professors

Zvi Bern, Ph.D.
 Steven Cowley, Ph.D.
 Douglas Durian, Ph.D.
 Andrea Ghez, Ph.D.
 James Rosenzweig, Ph.D.
 Hidenori Sonoda, 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.

By recently consolidating the former Department of Physics and the Department of Astronomy into the new joint Department of Physics

and Astronomy, faculty members and students at UCLA 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 either major must be taken for a letter grade.

Bachelor of Science in Astrophysics

Preparation for the Major

Required: Astronomy 81, 82, Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, 8E, Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 3 or 10A. *Recommended:* Astronomy 3H, Chemistry and Biochemistry 11A. 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, 112, 123, 124, 132.

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, you must complete two terms of Astronomy 199. To receive honors and highest honors at graduation, your grade-point average must remain at 3.4 or better, and your work in course 199 must reflect original research and be accepted by the departmental honors committee.

Bachelor of Science in Physics

This major should be taken if you intend to continue toward the Ph.D. in Physics.

Preparation for the Major

Required: Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, 8E; Chemistry and Biochemistry 11A, 11B/11BL; 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 your course of study consists of a plan, to be worked out by you in consultation with your designated departmental adviser, that details which courses you take to complete the

degree. There are four overall requirements: (1) the plan must be worked out five terms before you expect to graduate; (2) the plan must include at least two courses from the Physics 180 series; (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 will 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. Preapproved plans of study are available from the undergraduate advisers. A C average is required in all courses taken to satisfy the major requirements.

If you are preparing for graduate school, you should take additional courses in physics and mathematics. Physics M122, 123, 124, 126, 132, and 140 are recommended.

Transfer Students — Junior transfer students should preferably have completed (1) a two-year calculus/analytic geometry sequence or equivalent and (2) the calculus-based physics course at their previous college, but in no case should less than three semesters or four quarters of the mathematics and one year of the physics sequence be completed before transferring to UCLA. Each mathematics and physics course must be passed with a grade of C or better.

Honors Programs

The department offers three honors programs leading to graduation with honors or highest honors in physics. You 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.

Bachelor of Arts in General Physics

The major is intended to provide the necessary flexibility for fields in which a strong background of knowledge in physics would be helpful. If you intend to continue work toward the Ph.D. in Physics, you are advised to work for the B.S. in Physics as described earlier.

Preparation for the Major

Required: Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, 8E; Chemistry and Biochemistry 11A, 11B/11BL; 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

185 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

You 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 Graduate School of Education and Information Studies, 1009 Moore Hall, (310) 825-8328, for information.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Astronomy

Master's Degrees

The department offers the Master of Science degree, the Master of Arts in Teaching, and the Ph.D. degree in Astronomy; however, the department is not admitting students to the Master of Arts in Teaching program at this time.

Master of Science

Admission

The basic requirement for admission to the Master of Science 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. For further information, write to the address given at the beginning of this listing.

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

Contact 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 apply 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 program at this time.

Areas of Study

Consult the department.

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 (excluding Astronomy 200), mathematics, or physics, or 100- or 200-series courses in education required for the instructional credential. The B segments of the graduate multiple-term courses (Astronomy 204B, 208B, 217B, 219B, 227B, 230B) count as 1.5 courses each for the purpose of receiving degree credit. 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.

Doctoral Degree

Admission

The basic requirement for admission to the Ph.D. program 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 Graduate Record Examination (GRE) General Test and Subject Test in Physics. For further information, write to the address given at the beginning of this listing.

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 their 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 this 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 this 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, the Master of Arts in Teaching, and the Ph.D. degrees in Physics.

Master of Science

Admission

Applicants to the Master of Science 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.

Application materials may be obtained by writing to the address given at the beginning of this listing.

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 letter 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 following 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 Master of Arts in Teaching (M.A.T.) program, direct inquiries to the Director of the Master of Arts in Teaching Program, Department of Physics and Astronomy, 3-164 Knudsen Hall, UCLA, 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 12½ 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 100A-100B, 112, 312, 315A-315B, 330B, 330C, Community Health Sciences 187, 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 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.

Application materials may be obtained by writing to the address given at the beginning of this listing.

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 for 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 these five courses are the student's main course load in the first year of graduate study.

All students must fulfill a breadth requirement by passing one of the following with a 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. These 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. This 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; (3) fail.

This 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).

This 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 this 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 this 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 this 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

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. You 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. If you had an astronomical introductory course in high school, you 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 bet-

ter 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 8 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.

2A-2B. Introduction to the Physical Universe. 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. 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. 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. 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. 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. Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or 3H. Essentially non-mathematical exposition of our ideas about the structure and evolution of the universe. Historical development of ideas up to the present time. Problem of cosmic center and cosmic edge. Space and time. Curvature of space. General relativity. Black holes. Expanding universe and cosmological redshift. Early stages of the universe, Big Bang, current ideas of the inflationary universe.

81. Astrophysics I: Stars and Nebulae. Lecture, three hours; laboratory, one hour. Enforced requisites: Mathematics 31A, 31B, Physics 8A. 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.

82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology. Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B, Physics 8A. Recommended: course 81, Physics 8B, 8C. 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.

88A-88Z. Lower Division Seminars (2 units 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. Lecture, three hours. Prerequisites: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 8A, 8B, 8C, 8D. Particle distributions, partition functions, black body radiation, Saha equation, degeneracy. Applications to stellar atmospheres, stellar interiors, and the interstellar medium.

117. Radiation and Fluids in Astrophysics. Lecture, three hours. Prerequisites: course 115 or equivalent and junior standing in astrophysics or physics, or consent of instructor. 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. Lecture, three hours. Prerequisite: senior standing in astrophysics or physics or consent of instructor. Recommended: courses 115, 117. 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. Lecture, three hours. Prerequisite: senior standing in astrophysics or physics or consent of instructor. 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. Lecture, two hours; laboratory, four hours. Prerequisites: junior or senior standing in astrophysics, physics, or a related field, consent of instructor. 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 units). Prerequisites: senior standing in astrophysics or physics (with an outstanding record), consent of instructor. Special studies with an individual faculty member.

Graduate Courses

200. Introduction to Graduate Study of Astronomy. Required of all new graduate students. Survey of various fields of astronomy and astrophysics; first acquaintance with working methods and with department. Survey of basic astronomical nomenclature; background in physics and mathematics outlined as required in graduate courses.

204A-204B-204C. Observational Astronomy (4 units, 6 units, 10 units). Star catalogs and charts. Radiation measurements, photoelectric photometry, and solid-state detectors. Radio and infrared techniques. Spectroscopic observations. Includes laboratory work.

208A-208B-208C. Interstellar Medium (4 units, 6 units, 10 units). Dynamics and physics of interstellar gas and dust. Radio observations of interstellar medium. Diffuse and planetary nebulae. Magnetic fields in space. Star formation. Topics in high-energy astrophysics.

219C. Stellar Systems (10 units). Statistical astronomy. Distance determination. Stellar motions and populations. Stellar dynamics. Structure of the galaxy. Galaxies and clusters of galaxies. Distribution of matter in space. Cosmology.

230A-230B-230C. High-Energy Astrophysics (4 units, 6 units, 10 units). High-energy radiation processes. Observational techniques of X-ray and gamma ray astronomy. Theory and observational results of X-ray and gamma ray sources, pulsars, radio galaxies, and quasars.

240. Modern Problems in Astronomy and Astrophysics. Open to qualified graduate students in astronomy and in related fields (physics, atmospheric sciences, Earth and space sciences). Special topics offered by distinguished visiting professors. May be repeated for credit.

270. Fundamentals I: Fluids and Dynamics. 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. 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. (Formerly numbered 227A-227B-227C.) 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. (Formerly numbered 217A-217B-217C.) 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. (Formerly numbered 219A.) 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. (Formerly numbered 219B.) Lecture, three hours. Prerequisite: 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. 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 units each). Prerequisite: second-year graduate standing in astronomy. 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 units). 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 units). (Formerly numbered 250.) Astronomy and astrophysics colloquium with lectures on current research by local and visiting researchers. S/U grading.

M285. Origin and Evolution of Solar System. (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.

296A-296Z. Seminars: Research Topics in Astronomy (2 to 4 units each). Discussion, two hours. Prerequisite: consent of instructor. 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.

296A. Active Galactic Nuclei.

296B. Solar Physics.

296C. Infrared Instrumentation.

M297. Research Tutorial: Astroparticle Physics (2 or 4 units). (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 units). Prerequisite: 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.

The following courses may be repeated at the discretion of the department:

596A. Directed Individual Studies (4 to 10 units).

596L. Advanced Study and Research at Lick Observatory (4 to 12 units). Intended for graduate students who require observational experience, as well as those working on observational problems for their thesis.

599. Ph.D. Research and Writing (10 to 12 units).

Physics

Lower Division 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 either Physics 10 or 3A if only one course is to be taken, or 3A and 3B as a two-course sequence.

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 3A, 3B, 3C form a one-year sequence of courses in general physics (with laboratory). In this sequence only algebra and trigonometry are used in providing a mathematical description of physical phenomena; calculus is not used.

Physics 6A, 6B, 6C form a one-year sequence of courses in basic physics for students in the biological and health sciences. However, unlike Physics 3A, 3B, 3C, calculus is used throughout, and successful completion of basic calculus courses is a requisite for admission to this sequence.

Physics 8A, 8B, 8C, 8D, 8E form a sequence of courses in general physics for majors in physics.

The department takes into account prior preparation in physics. If you feel your background would permit acceleration, you may be exempted from one or more of courses 8A through 8E by taking the final examination with a class at the end of any term. These serve as placement examinations. 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. You should discuss such possibilities with your departmental adviser.

Physics 10 is a one-term, nonlaboratory course which surveys the whole field of physics. Any two or more courses from Physics 3A, 6A, 8A, and 10 are limited to six units credit.

1Q. Contemporary Physics (2 units). 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.

3A. General Physics: Mechanics of Solids and Fluids. 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. 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. 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.

6A. Physics for Life Sciences Majors: Mechanics. Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B, 3C (may be taken concurrently).

6B. Physics for Life Sciences Majors: Electricity and Magnetism. Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6A.

6C. Physics for Life Sciences Majors: Light and Modern Physics. Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: course 6B.

8A. Physics for Scientists and Engineers: Mechanics. Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 8AL (corequisite), Mathematics 31A, 31B (corequisite). Recommended: high school physics and chemistry. Motion, Newton laws, work, energy, linear and angular momentum, rotation, equilibrium, gravitation.

8AH. Physics for Scientists and Engineers: Mechanics (Honors). Lecture, four hours; discussion, one hour. Enforced requisite: Mathematics 31A. Introduction to classical mechanics for engineering and physical sciences students.

8AL. Physics Laboratory for Scientists and Engineers: Mechanics (1 unit). Laboratory, two hours. Enforced corequisite: course 8A.

8B. Physics for Scientists and Engineers: Waves, Sound, Heat. Lecture/demonstration, three hours; discussion, one hour. Enforced requisites: courses 8A, 8BL (corequisite), Mathematics 31B, 32A (corequisite). Harmonic oscillators, standing and traveling waves, fluid dynamics, sound, kinetic theory of gases, laws of thermodynamics.

8BH. Physics for Scientists and Engineers (Honors). Lecture/demonstration, three hours; discussion, one hour. Enforced requisites: course 8A (A or better), Mathematics 31B, 32A (corequisite). Same material as course 8B but in greater depth.

8BL. Physics Laboratory for Scientists and Engineers: Waves, Sound, Heat (1 unit). Laboratory, two hours. Enforced corequisite: course 8B.

8C. Physics for Scientists and Engineers: Electricity and Magnetism. Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: courses 8B, 8CL (corequisite), Mathematics 32A, 32B (corequisite). Electrostatics: electric field and potential, capacitors and dielectrics. Currents, DC circuits, transients in RC circuits. Magnetism: magnetic fields and forces. Ampere law, Faraday law, magnetic properties of matter. Maxwell equations in integral form. Inductance and transients in RL circuits.

8CH. Physics for Scientists and Engineers (Honors). Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 8BH (or 8B, A or better), Mathematics 32A, 32B (corequisite). Same material as course 8C but in greater depth.

8CL. Physics Laboratory for Scientists and Engineers: Electricity and Magnetism (1 unit). Laboratory, two hours. Enforced corequisite: course 8C.

8D. Physics for Scientists and Engineers: Electromagnetic Waves, Light, and Relativity. Lecture/demonstration, three hours; discussion, one hour. Enforced requisites: courses 8C, 8DL (corequisite), Mathematics 32B, 33A (corequisite). AC circuits, resonance. Maxwell equations in differential form. Electromagnetic waves. Light: reflection, refraction, interference, diffraction, polarization. Special theory of relativity.

8DH. Physics for Scientists and Engineers (Honors). Lecture/demonstration, three hours; discussion, one hour. Enforced requisites: course 8CH (or 8C, A or better), Mathematics 32B, 33A (corequisite). Same material as course 8D but in greater depth.

8DL. Physics Laboratory for Scientists and Engineers: Electromagnetic Waves, Light, and Relativity (1 unit). Laboratory, two hours. Enforced corequisite: course 8D.

8E. Physics for Scientists and Engineers: Modern Physics. Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: course 8D, Mathematics 33A, 33B (corequisite). Wave-particle duality, quantum theory, Schrödinger equation, hydrogen atom, exclusion principle.

10. Physics. Lecture/demonstration, three hours; quiz/discussion, one hour. Not open for credit to students with credit for course 3A or 6A or 8A or equivalent course in mechanics. 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 is placed in cultural and historical perspective.

88. Lower Division Seminar: Current Topics in Physics (2 units). 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. (Same as Biology M88H.) Lecture, three hours. Prerequisites: Chemistry 11A, 11B, Life Sciences 1, 3, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 6A, 6B, and 6C, or 8A, 8B, 8C, and 8D. 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.

Upper Division Courses

Prerequisites for all upper division courses (except Physics 105A, 116): Physics 8A through 8E, Mathematics 31A, 31B, 32A, 32B, 33A, and 33B, or consent of instructor. It is recommended that students take the 180 laboratories in their senior year.

105A. Analytic Mechanics. Lecture, three hours; discussion, one hour. Prerequisite: 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. Prerequisite: course 105A. Relativity with four vectors, noninertial reference frames, dynamics of rigid bodies, coupled oscillators, normal modes of oscillation, vibrating strings, and wave propagation.

108. Optical Physics. Prerequisite: course 110B. Interaction of light with matter; dispersion theory, oscillator strength, line widths, molecular scattering. Coherence theory, Kirchhoff formulation of diffraction theory, crystal optics, optical rotation, electro and magneto optical effects. Additional topics of fundamental or current interest.

110A. Electricity and Magnetism. Lecture, three hours. Prerequisite: course 131. Electrostatics and magnetostatics.

110B. Electricity and Magnetism. Prerequisite: course 110A. Faraday law and Maxwell equations. Propagation of electromagnetic radiation. Multipole radiation and radiation from an accelerated charge. Special theory of relativity.

112. Thermodynamics. Lecture, three hours; discussion, one hour. Prerequisite: course 115A or consent of instructor. Fundamentals of thermodynamics, including first, second, and third laws. Statistical mechanical point of view and its relation to thermodynamics. Some simple applications.

114. Mechanics of Wave Motion and Sound. Lecture, three hours. Prerequisites: courses 105A and 105B, or consent of instructor. 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.

115A. Elementary Quantum Mechanics. Lecture, three hours; discussion, one hour. Prerequisites: courses 8E, 105B (may be taken concurrently), 131. Classical background, basic ideas, formulation of quantum mechanics, one-dimensional problems, and methods of quantum mechanics.

115B. Elementary Quantum Mechanics. Lecture, three hours; discussion, one hour. Prerequisite: course 115A. Three-dimensional problems, angular momentum, Pauli exclusion principle, variational and perturbative methods of quantum mechanics.

116. Electronics. 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. Lecture, two hours; laboratory, four hours. Prerequisites: courses 8A, 8B, 8C, and 8D, or consent of instructor. 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. Plasma Physics. (Same as Electrical Engineering M185.) Lecture, four hours; outside study, eight hours. Prerequisite: course 110A or Electrical Engineering 101. Senior-level introductory course to physics of plasmas and ionized gases and fundamentals of controlled fusion. Particle motion in magnetic fields; fluid behavior, plasma waves; resistivity and transport; equilibrium and stability; kinetic effects. Discussion of illustrative laboratory experiments.

123. Atomic Structure. Prerequisite: course 115B. Theory of atomic structure. Interaction of radiation with matter.

124. Nuclear Physics. Lecture, three hours; discussion, one hour. Prerequisite: course 115B. Nuclear properties, nuclear forces, nuclear structure, nuclear decays, and nuclear reactions.

126. Elementary Particle Physics. Lecture, three hours; discussion, one hour. Prerequisite: course 115B. 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.

131. Mathematical Methods of Physics. Lecture, three hours; discussion, one hour. Vectors and fields in space, linear transformations, matrices, and operators; Fourier series and integrals.

132. Mathematical Methods of Physics. Lecture, three hours; discussion, one hour. Prerequisite: course 131. Functions of a complex variable, including Riemann surfaces, analytic functions, Cauchy theorem and formula, Taylor and Laurent series, calculus of residues, and Laplace transforms.

140. Introduction to Solid-State Physics. Prerequisite: course 115B or equivalent. 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.

150. Physics of Charged-Particle and Laser Beams. Lecture, three hours; discussion, one hour. Prerequisites: courses 110A, 110B, 115A, 115B. Physics of charged-particle and laser beams presented as a unified subject. Basic physics of charged-particle beams, covering relativistic particle motion in electromagnetic fields, transverse focusing, acceleration mechanisms, linear and circular accelerators, and advanced topics. Some fundamentals of laser physics, including gain and broadening mechanisms, linear light optics, laser resonators, and advanced topics and applications. P/NP or letter grading.

160. Numerical Analysis Techniques and Particle Simulations. Lecture, three hours; computer terminals, six hours. Prerequisites: courses 105A, 105B, 110A, 110B, minimum knowledge of computer programming (FORTRAN). 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.

180A. Nuclear Physics Laboratory.

180B. Physical Optics and Spectroscopy Laboratory.

180C. Solid-State Laboratory.

180D. Acoustics Laboratory.

180E. Plasma Physics Laboratory.

180F. Elementary Particle Laboratory.

185. Foundations of Physics. Prerequisite: senior standing in physics or consent of instructor. Historical development and philosophical sources of classical and modern physics.

199. Special Studies in Physics (2 to 4 units). 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 units). Review of modern physics research areas, with emphasis on those actively pursued at UCLA. S/U grading.

210A. Electromagnetic Theory. 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. Electromagnetic potentials and Hertz vectors. Cylindrical waves. Spherical waves. Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges.

213A. Advanced Atomic Structure. Group representation theory. Angular momentum and coupling schemes. Interaction of radiation with matter.

213B. Advanced Atomic Structure. N-j symbols, continuous groups, fractional parentage coefficients, n electron systems.

213C. Molecular Structure. 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. Propagation of waves in elastic and fluid media. Reflection, refraction, diffraction, and scattering of waves in fluids. Attenuation mechanisms in fluids.

214B. Advanced Acoustics. Propagation in nonhomogeneous 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. Thermodynamics and statistical mechanics with applications.

215B. Nonequilibrium Statistical Mechanics. 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. 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. 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. Lecture, three hours. **221A.** Fundamentals of quantum mechanics, operators and state vectors, equations of motion. **221B.** Prerequisite: 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. 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. Prerequisite: course 220. Topics such as nonlinear mechanics, ergodic theory, mechanics of continuous media.

224. Introduction to the Strong Interaction. 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. Prerequisites: 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 units each). Lecture, four hours. Prerequisites: courses 221A-221B-221C or equivalent and 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.** Lecture, three hours. Prerequisites: 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 units each).** Lecture, four hours. Prerequisites: courses 221A-221B-221C or equivalent or consent of instructor. Modern quantum field theory, including quantum electrodynamics and quantum chromodynamics, renormalization group methods, path-integral quantization, spontaneous symmetry breakdown, monopoles and other solitons.
- 231A. Methods of Mathematical Physics.** 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.** 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.** Not open for credit to students with credit for Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods.
- 232A-232B. Relativity.** Special and general theories, with applications to elementary particles and astrophysics.
- 232C. Special Topics in General Relativity.**
- 233. Introduction to High-Energy Astrophysics.** 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.** Prerequisite: course 221A. Group representation theory and applications to quantum mechanics of atoms, molecules, and solids.
- 241A. Solid-State Physics.** Prerequisites: 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.** Prerequisite: course 241A. Transport theory with applications, electron/electron interactions.
- 241C. Solid-State Physics.** Prerequisite: course 241B. Semiconductors, magnetism, phase transitions, superconductivity.
- 242A-242B. Advanced Solid-State Theory.** Prerequisites: courses 241A, 241B, and 241C (may be taken concurrently). Many body methods in solid-state physics.
- 243A-243K. Special Topics in Solid-State Physics.** **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.** Lecture, three hours. Prerequisites: 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.**
- 261. Seminar: Special Problems in Theoretical Physics.**
- 262. Seminar: Physics of the Solid State.**
- 264. Seminar: Advanced Physical Acoustics.**
- 266. Seminar: Propagation of Waves in Fluids.**
- 268. Seminar: Spectroscopy.**
- 269A. Seminar: Nuclear Physics (2 to 4 units).**
- 269B. Seminar: Elementary Particle Physics (2 to 4 units).**
- 269C. Seminar: Accelerator Physics (2 to 4 units).** 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.** Lecture, two hours; laboratory, four hours. Prerequisites: 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.
- 290. Research Tutorial: Plasma Physics (2 or 4 units).** 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 units).** Prerequisites: 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 units).** 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 units).** 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 units).** 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 units).** 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.
- 296A-296Z. Research Topics in Physics (2 units each).** Prerequisite: consent of instructor. 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.
- 296C. Condensed Matter/Low Temperature/Acoustics.**
- 296H. High-Energy and Intermediate-Energy Physics.**
- 296P. Plasma Physics.**
- 296T. Theoretical Elementary Particle Physics.**
- M297. Research Tutorial: Astroparticle Physics (2 or 4 units).** (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 units).** 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 units).** 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.** Prerequisite: consent of instructor. 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 units).** Prerequisite: 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 units).** Lecture/discussion (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 units).** May be repeated for credit. S/U grading.
- 597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations.** May be repeated twice for credit. S/U grading.
- 598. Master's Thesis Research and Writing.** May be repeated twice for credit.
- 599. Ph.D. Research and Writing (8 or 12 units).** May be repeated for a maximum of 18 units. S/U grading.

PHYSIOLOGICAL SCIENCE

College of Letters and Science

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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*), *Vice Chair*
Jack L. Feldman, Ph.D. (*Neurosciences*), *Chair*
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.
 Donald T. Handy, Ed.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.
 Laurence E. Morehouse, Ph.D.

Assistant Professors

Gayle C. Baldwin, Ph.D., *in Residence*
 (*Hematopoiesis and CNS*)
 David L. Glanzman, Ph.D. (*Neurosciences*)
 Scott A. Henderson, Ph.D. (*Cardiac Physiology*)
 Patricia E. Phelps, Ph.D. (*Developmental*
Neurobiology)
 Barney A. Schlinger, Ph.D. (*Neuroendocrine*
Physiology)
 Dwayne D. Simmons, Ph.D. (*Developmental*
Neurobiology)

Adjunct and Visiting Assistant Professors

Ronald H. Cooper, Ph.D., *Adjunct*
 Nasser A. Farahbakhsh, Ph.D., *Adjunct*
 Alan Garfinkel, Ph.D., *Adjunct*
 Karen Perell, Ph.D., *Adjunct*
 George J. Salem, Ph.D., *Adjunct*
 Eric Sternlicht, Ph.D., *Adjunct*
 Jack E. Turman, Jr., Ph.D., *Visiting*
 William C. Whiting, Ph.D., *Adjunct*

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.

Bachelor of Science Degree**Preparation for the Major**

Life Sciences Core Curriculum (effective Fall Quarter 1995) — *Required:* Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

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. If you receive a grade of D or F in two core curriculum courses, either in separate

courses or repetitions of the same course, you are subject to dismissal from the major.

Transfer students with 80 or more units must complete the following courses prior to admission to UCLA: Life Sciences 1, 2, 3, or equivalent, one year of general chemistry with laboratory, and at least two of the following: (1) one year of calculus, (2) one year of calculus-based physics, or (3) two organic chemistry courses with laboratory.

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 27, 111A (or M180A-M180B), 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 199 or 199H may be applied toward the elective requirement. Courses 193, 195, 196A-196B, 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree**Admission**

Applicants for graduate study in the Master of Science program are expected to have completed an undergraduate degree in 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 division

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 a master's student may enroll in course 597 or 598.

Comprehensive Examination Plan

If this plan is elected, the student must achieve a passing mark on a comprehensive examination. The general purpose of the plan is that students acquire a thorough understanding of a reasonably broad problem area, which must be specified in consultation with an adviser. The selection of courses in the department and the related field must be pertinent to the problem area, and justification is required with the petition for advancement to candidacy.

While a written examination is required, the committee may use additional means to evaluate the competency of the candidate.

Thesis Plan

If the thesis plan is elected, the student must report the results of an original research investigation. Under the guidance of the thesis committee, the student must propose a problem area or outline of study, conduct original research in a specific area, and report the results. With committee approval, the student may submit either a thesis manuscript or a manuscript suitable for publication.

Doctoral Degree

Admission

Doctoral students are expected to have completed the same admission requirements as outlined for the M.S. degree. In addition to the program through UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, 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. This 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 this deadline. If a student does not pass, the examination may be rescheduled once at the discretion of the doctoral committee.

Lower Division Courses

3. Introduction to Human Physiology. Lecture, three hours; discussion, one hour. 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. (Formerly numbered Kinesiology 5.) Lecture, three hours; discussion, one hour. 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. 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 (6 units). (Formerly numbered Kinesiology 13.) Lecture, four hours; laboratory, four 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.

27. Systems Anatomy. Lecture, three hours; laboratory, two hours. Enforced prerequisite: Life Sciences 2. Introduction to systems anatomy focusing primarily on human anatomy, with some emphasis on comparable anatomy systems in other vertebrates. Lecture and laboratory materials devoted to introduction of skeletomuscular, cardiorespiratory, reproductive, and renal systems, as well as neuroanatomy.

90. Introduction to Physiological Science (2 units). (Formerly numbered Kinesiology 90.) 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

100. Experimental Statistics. 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. P/NP or letter grading.

111A-111B-111C. Foundations in Physiological Science (6 units each). (Formerly numbered Kinesiology 111A-111B-111C.) Lecture, four hours; laboratory, two hours. **111A.** Prerequisites: course 27, Chemistry 132A, Life Sciences 1, 2, 3, 4, Physics 6B. 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.** Prerequisites: course 111A or M180A, Chemistry 132B. Principles of muscular, cardiovascular, and pulmonary physiology. **111C.** Prerequisites: course 111A or M180A, Chemistry 153A. Principles of gastrointestinal, renal, endocrine, and reproductive physiology.

111L. Physiological Science Laboratory (2 units). Laboratory, four hours; outside study, two hours. Prerequisites: 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. (Formerly numbered 198.) Lecture, two hours; discussion, two hours. Prerequisite: 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.

133. Exercise Physiology (5 units). (Formerly numbered Kinesiology 133.) Lecture, three hours; laboratory, two hours; outside study, 10 hours. Prerequisite: course 111C. Physiological responses and adaptations to acute and chronic exercise.

C135. Dynamical Systems Modeling of Physiological Processes (5 units). Lecture, four hours. Prerequisite: course 111B. 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 units). (Formerly numbered Kinesiology 136.) Lecture, four hours; outside study, 11 hours. Prerequisite: 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. (Formerly numbered 137.) Prerequisite: 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. (Formerly numbered Kinesiology 138.) Prerequisites: course 111B, Chemistry 153A. Cellular responses to acute and chronic exercise and environmental states of neuromuscular system.

142. Sensorimotor Physiology (5 units). (Formerly numbered Kinesiology 142.) Lecture, three hours; laboratory, two hours; outside study, 10 hours. Prerequisite: 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 units). (Formerly numbered Kinesiology C143.) Lecture, four hours; outside study, 11 hours. Prerequisite: 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 units). (Formerly numbered 144.) Lecture, four hours; outside study, 11 hours. Prerequisite: 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 units). (Formerly numbered Kinesiology 145.) Lecture, four hours; outside study, 11 hours. Prerequisite: 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 units). (Formerly numbered Kinesiology 147.) Lecture, four hours; research demonstration, one hour; outside study, 10 hours. Prerequisite: course 111A or M180A. Changes in central nervous system that accompany learning, with emphasis on cellular mechanisms.

150. Musculoskeletal Mechanics (5 units). Lecture, three hours; outside study, 12 hours. Prerequisite: 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 units). (Formerly numbered Kinesiology 151.) Lecture, three hours; laboratory, two hours; outside study, 10 hours. Prerequisite: course 150. Biomechanical analysis of human movement, with special emphasis on control of limb movements.

C152. Musculoskeletal Anatomy, Physiology, and Biomechanics (5 units). (Formerly numbered Kinesiology C152.) Lecture, three hours; outside study, 12 hours. Prerequisite: 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. (Formerly numbered Kinesiology 153.) Lecture, two hours; laboratory, six hours. Prerequisites: course 111B, departmental application. 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 Soft Tissue. (Formerly numbered Kinesiology 155.) Prerequisite: 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.

M173. Anatomy and Physiology of Sense Organs. (Same as Biology M173.) Lecture, three hours; discussion, one hour. Prerequisites: courses 111A (or Biology 171) or M180A-M180B (or Biology M175A-M175B) or equivalent. 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.

M180A-M180B-M180C. Neuroscience: From Molecules to Mind (5 units each). (Formerly numbered Kinesiology M180A-M180B-M180C.) (Same as 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. Prerequisites: Chemistry 132A, Life Sciences 2 or equivalent, Physics 6B or 8C. Not open for credit to students with credit for Physiological Science 111A. Students with credit for Biology 171 may enroll on a P/NP basis; course 171 may not be taken concurrently with this course. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement.

M180B. Molecular and Developmental Neuroscience. Prerequisites: course 111A (or Biology 171 or Psychology 115) or M180A (or Biology M175A or Neuroscience M101A or Psychology M117A), 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.

M180C. Behavioral and Cognitive Neuroscience. Prerequisite: course 111A (or Biology 171 or Psychology 115) or M180B (or Biology M175B or Neuroscience M101B or Psychology M117B). Neural mechanisms underlying motivation, learning, and cognition.

M181. Biological Bases of Psychiatric Disorders. (Same as Biology M191, Neuroscience M130, Psychiatry M191, and Psychology M117J.) Prerequisite: course 111A or Biology 171 or Neuroscience M101A or Psychology 115 or consent of instructor. 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.

191A-191Z. Proseminars: Physiological Science. (Formerly numbered Kinesiology 191A-191Z.) Prerequisite: upper division standing. Limited to 15 students. Advanced study of special topics. May be repeated for credit with topic change.

193. Field Studies in Physiological Science. (Formerly numbered Kinesiology 193.) Lecture, one hour; fieldwork, six to eight hours. Prerequisites: senior standing, departmental application. 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.

195. Research in Physiological Science (2 units). Lecture, one hour; discussion, one hour. Corequisite: course 199 or 199H 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.

196A-196B. Laboratory Practicum in Physiological Science (2 units each). (Formerly numbered Kinesiology 196A-196B.) Laboratory, four hours; outside study, eight hours. Prerequisites or corequisites: course 153, departmental application. Supervised practicum and training for advanced students who serve as undergraduate assistants in basic anatomy course in preparation of laboratory materials and innovative projects. May be repeated for credit but may not be applied toward elective requirements for the major.

197A-197Z. Variable Topics in Physiological Science. (Formerly numbered Kinesiology 197A-197Z.) Prerequisite: upper division standing. 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 units). (Formerly numbered Kinesiology 199.) Prerequisites: physiological science major with advanced junior standing and 3.0 GPA in the major, or senior standing, courses 111A-111B, consent of instructor and undergraduate affairs chair. 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 199/199H may be applied toward elective requirements for the major.

199HA. Honors Thesis. (Formerly numbered Kinesiology 199HA.) Prerequisites: courses 111A-111B, physiological science honors program standing. 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 199HB).

199HB. Honors Thesis. (Formerly numbered Kinesiology 199HB.) Prerequisite: course 199HA. Continued reading and research that culminate in final honors thesis. Only four units of course 199/199H may be applied toward elective requirements for the major.

199HC. Advanced Studies for Honors Thesis. Prerequisite: course 199HB. Not required for honors thesis. Additional course to provide further research opportunities for departmental honors students.

Graduate Courses

M202. Cellular Neurophysiology. (Same as Neuroscience M202.) Lecture, three hours; discussion, one hour. Prerequisites: course 111A or M180A or Physics 6B or equivalent, Biology 166 or 171 or equivalent. 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. (Same as Neuroscience M205 and Psychology M205Z.) Lecture, three hours. Prerequisites: Neuroscience M201, M202, M203, and M204, or consent of instructor. 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.

206. Metabolism of Organ Systems Affected by Exercise. (Formerly numbered Kinesiology 206.) Prerequisite: Chemistry 132B/132BL. Key regulatory mechanisms of metabolism involved in exercise response and adaptation.

M210. Molecular and Cellular Mechanisms of Neural Integration (5 units). (Same as Neuroscience M230 and Physiology M210.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Prerequisite: 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 preception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation.

211. Exercise Cardiovascular Physiology. (Formerly numbered Kinesiology 211.) Prerequisite: consent of instructor. Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

M212. Introduction to Cellular Physiology and Biophysics (6 units). (Same as Biology M237 and Physiology M212.) Lecture, five hours. Prerequisites: course 111A or Physiology M209A or equivalent, graduate standing; for upper division undergraduates: consent of instructor. 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 units). (Same as Physiology M213.) Lecture, four hours; discussion, two hours. Prerequisite: graduate standing; for upper division undergraduates: 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.

CM225. Comparative Endocrinology: Molecular to Behavioral. (Formerly numbered M225.) (Same as Physiology M225.) Lecture, two hours; discussion, two hours. Prerequisite: graduate standing. 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.

C235. Dynamical Systems Modeling of Physiological Processes (5 units). (Formerly numbered Kinesiology 235.) Lecture, four hours. Prerequisite: consent of instructor. 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. Prerequisite: 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. (Formerly numbered Kinesiology M240.) (Same as Neuroscience M262.) Prerequisite: course C143 or consent of instructor. 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 units). (Formerly numbered Kinesiology C243.) Lecture, four hours; outside study, 11 hours. Prerequisite: 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 units). Lecture, four hours; outside study, 11 hours. Prerequisite: 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 units). Lecture, four hours; outside study, 11 hours. Prerequisite: 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. (Formerly numbered Kinesiology M247.) (Same as Neuroscience M247.) Lecture, two hours; discussion, two hours. Prerequisites: courses 111A, 111B or 133 or 142 or M180A, M180B or equivalent. Cardiorespiratory 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. (Formerly numbered Kinesiology 250A.) Prerequisite: 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. (Formerly numbered Kinesiology 250B.) Prerequisites: 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 units). (Formerly numbered Kinesiology C252.) Lecture, three hours; outside study, 12 hours. Prerequisite: 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 units). (Formerly numbered M255A-M255D.) (Same as Neurobiology M255 and Psychology M294.) Lecture, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of 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. (Formerly numbered Kinesiology M260.) (Same as Neuroscience M260.) Prerequisite: course 138 or consent of instructor. 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. (Formerly numbered Kinesiology M263.) (Same as Neuroscience M263.) Prerequisite: course C145 or consent of instructor. 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. (Same as Neuroscience M272 and Psychology M213.) Lecture, three hours; outside study, nine hours. Prerequisites: course M202, Neuroscience M201. Recommended: mathematics and computer background. 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 units). (Same as Biology M290.) Seminar, two and one-half hours. Prerequisite: consent of instructor. 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 units each). (Formerly numbered Kinesiology 291A-291B-291C.) Prerequisite: consent of instructor. Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar.

293A-293B-293C. Seminars: Musculoskeletal Function and Adaptation (2 to 4 units each). (Formerly numbered Kinesiology 293A-293B-293C.) Prerequisites: courses 138 and M260, or consent of instructor. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar.

M294A-M294B-M294C. Seminars: Neural Control of Movement (2 to 4 units each). (Formerly numbered Kinesiology M294A-M294B-M294C.) (Same as Neuroscience M265A-M265B-M265C.) Prerequisite: course M240 or M247 or M263 or consent of instructor. Selected topics on neural determinants of movement behavior. Students required to present two-hour seminar.

M295A-M295B-M295C. Seminars: Cellular Neuroscience (2 to 4 units each). (Same as Neuroscience M266A-M266B-M266C.) Prerequisite: course M202 or consent of instructor. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar.

296AA-296ZZ. Research Seminars: Physiological Science (2 units each). Prerequisite: consent of instructor. 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.

297A-297B-297C. Seminars: Muscle Cell Biology (2 to 4 units each). Prerequisite: consent of instructor. Selected topics in muscle cell biology. Students required to present two-hour seminar.

375. Teaching Apprentice Practicum (1 to 4 units). (Formerly numbered Kinesiology 375.) Prerequisite: 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 units). (Formerly numbered Kinesiology 495.) Prerequisite: consent of instructor. 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 units). (Formerly numbered Kinesiology 501.) Prerequisite: 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 units). (Formerly numbered Kinesiology 596.) 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 units). (Formerly numbered Kinesiology 597.) To be arranged with faculty member serving as student's comprehensive examination chair or doctoral 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 units). (Formerly numbered Kinesiology 598.) 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 units). (Formerly numbered Kinesiology 599.) May not be applied toward Ph.D. course requirements. May be repeated as necessary. S/U grading.

PHYSIOLOGY

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H. Ronald Kaback, M.D.
Glenn A. Langer, M.D. (*Castera Professor of Cardiology*)
Michael S. Letinsky, Ph.D.
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*)
Oscar U. Scremin, M.D., *in Residence*
John McD. Tormey, M.D., *Vice Chair for Instruction*
Julio Vergara, Ph.D.
Ernest M. Wright, D.Sc., *Chair*

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.
Yoshiaki Kidokoro, M.D., Ph.D.
Donald B. Lindsay, Ph.D.
Gordon Ross, M.D.
Ralph R. Sonnenschein, M.D.
Bernice M. Wenzel, Ph.D.
Brian J. Whipp, Ph.D.

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Sally J. Krasne, Ph.D.
Emeran A. Mayer, M.D.
Diane M. Papazian, Ph.D.

Assistant Professors

Thomas J. O'Dell, Ph.D.
Nancy L. Wayne, Ph.D.
Hong Zhu, Ph.D., *in Residence*

Adjunct Professor

Arthur Peskoff, Ph.D.

Adjunct Associate Professors

Christopher Cooper, M.D.
Kenneth P. Roos, Ph.D.

Adjunct Assistant Professors

Kent K.C. Lloyd, D.V.M., Ph.D.
Helen Raybould, 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

A master's degree program is not a general objective of the department. However, the Master of Science degree may be awarded by comprehensive examination or thesis in special cases.

Doctoral Degree

Admission

All candidates for admission to graduate status in the Department of Physiology are expected to pursue the Ph.D. degree; the department does not admit candidates for the M.S. degree. In special cases, a terminal master's degree may be awarded on completion of suitable coursework and the completion of a comprehensive examination or submission of an acceptable thesis. 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 the ACCESS program.

In certain cases, at the discretion of the department, if an applicant lacks preparation in one of the above-mentioned courses but has a strong background in areas pertinent to physiology, the student 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.

An application packet and ACCESS brochure are available from UCLA ACCESS to Programs in Molecular and Cellular Life Sciences, 172 MBI, UCLA, 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 are encouraged to submit application prior to January 1 of the year of intended matriculation.

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 Neuroscience M205; Physiology M209A (Biological Chemistry CM267 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 260 or comparable courses in cell biology, neuroscience, molecular biology, chemis-

try, or biology) as governed by research interest. The specific courses are determined in consultation with the mentor and graduate program committee.

Three laboratory rotations must be taken during the first year. Two quarters of teaching assistantships are required during the second year of the program. 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 closed book and is taken on two consecutive half days. The examination is number coded and read by selected faculty. A pass/fail grade is assigned by the graduate program 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. This 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 midstream 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 this 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, one additional opportunity to pass the examination may be granted 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.

Lower Division Course

88. Lower Division Seminar: Special Topics in Physiology. 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 units). Prerequisite: dental student standing or consent of instructor. Primarily for first-year dental students. Major organic 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). Prerequisite: consent of instructor. 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 units each). Lecture, six hours; laboratory, three and one-half hours. Prerequisite: medical student standing or enrollment in qualified graduate program, consent of instructor. 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. Basic Neurology. (Same as Neurobiology M203A-M203B.) Prerequisites: medical student standing or enrollment in qualified graduate program, consent of instructor. Runs throughout School of Medicine's second semester. Lectures, conferences, demonstrations, and laboratory procedures necessary to understand functions of nervous system. To receive credit, both courses must be taken together in same academic year. In Progress grading.

M204. Cellular and Molecular Developmental Neurobiology. (Same as Neurobiology M204, Neuroscience M204, and Psychiatry M204.) Lecture, three hours; discussion, one hour. Prerequisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A-201B, or consent of instructor. 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 units). (Same as Biology CM220 and Neurobiology M209A.) Prerequisite: consent of instructor; for undergraduates: Biology 100A or Life Sciences 3, Chemistry 153A, consent of instructor. Not open for credit to students with credit for Biology 100B or M140 or former Biology 143. 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 units). (Same as Neuroscience M230 and Physiological Science M210.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Prerequisite: 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 units). (Same as Biology M237 and Physiological Science M212.) Lecture, five hours. Prerequisites: course M209A or Physiological Science 111A or equivalent, graduate standing; for upper division undergraduates: consent of instructor. 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 units). (Same as Physiological Science M213.) Lecture, four hours; discussion, two hours. Prerequisite: graduate standing; for upper division undergraduates: 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 units). Prerequisite: consent of instructor. 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 units). Prerequisite: course 220 or consent of instructor. In-depth coverage of general properties of excitable cells, linear cable properties, nonlinear conductance changes, and generation and propagation of the nerve impulse. Voltage gating and gating currents, as well as relationship between macroscopic conductance and single channel properties discussed in analytical detail using original publications.

222. Cell Physiology: Cellular Interaction. Prerequisite: consent of instructor. Simple and complex cellular interactions in nervous system. Study of synaptic transmission to higher-level cell-cell interactions, culminating in examination of mechanisms of central nervous system functions.

M223. Membrane Molecular Biology. (Same as Biological Chemistry M223.) Lecture, two hours; discussion, two hours. Prerequisite: Biological Chemistry CM253 or consent of instructor. 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.

224. Transport Systems in Cell Membranes. Prerequisite: consent of instructor. Properties of pumps and carriers in cell membranes and ion (Na, K, H, and Ca) transport across plasma membranes of single cells and epithelia.

M225. Comparative Endocrinology: Molecular to Behavioral. (Same as Physiological Science CM225.) Lecture, two hours; discussion, two hours. Prerequisite: graduate standing. 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.

227. Biochemistry and Mechanics of Muscle (2 to 6 units). Prerequisite: consent of instructor. Detailed study of biochemistry, energetics, and contractile mechanisms in muscle.

250A-250B-250C. Critical Topics in Physiology (2 to 8 units each). Prerequisite: consent of instructor. Advanced treatment of critical topics in physiology by staff for graduate and postdoctoral students in biomedical sciences.

260. Use of Laboratory Animals in Research. Prerequisite: consent of instructor. Introductory course for graduate students in medical and biological sciences, covering principles and practical problems in handling and use of common laboratory animal species.

M270A-M270B-M270C. Cell, Molecular, and Integrative Biology Seminars (2 units each). (Same as Neurobiology M270A-M270B-M270C.) Lecture, one hour; discussion, one hour. Prerequisite: graduate standing or consent of instructor(s). 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.

596. Directed Individual Study or Research (2 to 12 units). Prerequisite: consent of instructor.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 12 units). Prerequisite: consent of instructor.

598. Thesis Research for M.S. Candidates (2 to 12 units). Prerequisite: consent of instructor.

599. Dissertation Research for Ph.D. Candidates (2 to 12 units). Prerequisite: consent of instructor.

Edmond Keller, Ph.D.
Andrzej Korbonski, Ph.D.
Michael F. Lofchie, Ph.D.
Karen J. Orren, Ph.D.
Carole Pateman, D.Phil.
John R. Petrocik, Ph.D.
David C. Rapoport, Ph.D.
Ronald L. Rogowski, Ph.D.
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David O. Sears, Ph.D.
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Arthur A. Stein, Ph.D.
George Tsebelis, Ph.D.
Michael Wallerstein, Ph.D.
David O. Wilkinson, Ph.D.
James Q. Wilson, Ph.D.
E. Victor Wolfenstein, Ph.D.
Charles E. Young, Ph.D.
John Zaller, Ph.D.

Professors Emeriti

Hans H. Baerwald, Ph.D.
Irving Bernstein, Ph.D.
David T. Cattell, Ph.D.
Winston W. Crouch, Ph.D.
Mattei Dogan, Docteur ès Lettres
Ernest A. Engelbert, M.P.A., Ph.D.
David G. Farrelly, Ph.D.
Leonard Freedman, Ph.D.
Robert C. Fried, Ph.D.
Edward Gonzalez, Ph.D.
J.A.C. Grant, Ph.D., LL.D.
Douglas S. Hobbs, Ph.D.
Marvin Hoffenberg, M.A.
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Roman Kolkowicz, Ph.D.
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James Tong, Ph.D.

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Kathleen Bawn, Ph.D.
Donald Chisholm, Ph.D.
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POLICY STUDIES

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Archie Kleingartner, Ph.D.
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Melvin Oliver, Ph.D.
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POLITICAL SCIENCE

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Richard D. Baum, Ph.D.
Leonard Binder, Ph.D., *Chair*
L. Blair Campbell, Ph.D.
James DeNardo, Ph.D.
Jeffry A. Frieden, Ph.D.
Miriam A. Golden, Ph.D.
Arnold Horelick, Ph.D.
Shanto Iyengar, Ph.D.

Scope and Objectives

The undergraduate program in political science aims to provide understanding of basic political processes and institutions as these operate in 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.

Bachelor of Arts Degree

Students officially admitted to the political science major for Fall Quarter 1994 and thereafter are expected to fulfill the requirements listed below. Continuing students admitted prior to Fall Quarter 1994 should consult the 1993-94 *UCLA General Catalog*.

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, you 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 your concentration or distribution field. You must also take Political Science 6 or one of the following statistics courses: Anthropology 80, Economics 40, Geography 40, Psychology 41, Social Sciences 40, Sociology 18, Statistics 50.

You must complete all premajor courses with a 2.0 grade-point average by the time you 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. You 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. You 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.

In fulfilling the requirement of 10 upper division political science courses, you 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 prerequisite 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. Courses 115 and 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.

Undergraduate Seminars

Each term the department offers a series of seminars (Political Science C197A-C197F) in each field. The prerequisites 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. You should have substantial experience in writing research papers and take at least one seminar course in the Political Science C197 series before you 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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The department admits only those students whose degree objective is the Ph.D. degree. A Master of Arts degree may be earned as part of the process of completing requirements for the Ph.D.

Areas of Study

Consult the department.

Course Requirements

Students receive the M.A. degree on the successful completion of 12 of the 16 required courses with an average grade of 3.0 or more and a grade of qualified or qualified with distinction on one paper.

Comprehensive Examination Plan

Consult the department.

Doctoral Degree

Admission

In addition to University minimum requirements, 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 at the address given at the beginning of this listing. 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 these 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 Examination

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 graded by a standing committee drawn from all five fields on the following basis: not qualified, qualified, or qualified with distinction. This committee may solicit the opinions of nonmembers. 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.

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.

Lower Division Courses

6. Introduction to Quantitative Research. 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. Lecture, three hours; discussion, one hour. Exposition and analysis of selected political theorists and concepts from Plato to the present.

20. World Politics. 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. 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. 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. 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. (Formerly numbered 88A-88F.) 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

Prerequisite for all upper division courses: upper division standing or consent of instructor.

102. Statistical Analysis of Political Data. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 6. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 6. 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. (Same as Economics M135.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: Economics 11, any lower division political science course, and junior/senior standing, or consent of instructor. 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. (Same as Economics M136.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: Economics 11, any lower division political science course, and junior/senior standing, or consent of instructor. 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.

Field I: Political Theory

111A-111B-111C. History of Political Thought. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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.

112. Nature of the State. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Systematic analysis of modern concepts and problems of political association.

113. Problems in 20th-Century Political Theory. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Study and interpretation of theorists who have focused their analyses on social and political problems of the 20th century.

114A-114B. American Political Thought. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. **114A.** Exposition and critical analysis of American political thinkers from the Puritan period to 1865. **114B.** Prerequisite: course 114A or consent of instructor. Exposition and critical analysis of American political thinkers from 1865 to the present.

115. Theories of Political Change. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Critical examination of theories of political change, relation of political change to changes in economic and social systems, and relevance of such theories for experience of both Western and non-Western societies. May be applied toward either Field I or IV.

116. Marxism. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Critical analysis of origins, nature, and development of Marxist political theory.

117. Jurisprudence. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. May be applied toward either Field I or III.

118. Political Violence. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Examination of one or several different uses of violence in the revolutionary process: demonstrations, mass uprisings, coup d'état, assassination, and terrorism. May be applied toward either Field II or IV.

119A-119Z. Special Studies in Political Theory. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: course 10, one additional course in Field I, consent of instructor. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. Study of problems of the international system seen as a community capable of cooperation and development.

123A-123B. International Law. (Formerly numbered 175A-175B.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 40. Study of nature and place of international law in conduct of international relations. May be offered in consecutive terms or simultaneously. If offered consecutively, course 123A is prerequisite to 123B, and students may take 123A alone for four units credit. If offered simultaneously, student must take both courses for eight units. Maximum of four units may be applied toward Field II.

124. International Political Economy. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. Study of political aspects of international economic issues.

125. Arms Control and International Security. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. Theory and research on causes of war and conditions of peace.

127A-127B. Atlantic Area in World Politics. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. **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. Prerequisite: course 127A or consent of instructor. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: courses 20 and 128A, or consent of instructor. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Interaction of international and domestic factors in political and economic evolution of Latin America.

131. Latin American International Relations. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. Major problems of Latin American international relations and organization in recent decades.

132A-132B. International Relations of the Middle East. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours.

132A. Prerequisite: 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Contemporary regional issues and conflicts; foreign policies of African states; role of external powers.

134. Foreign Policy Decision Making and Tools of Statecraft. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 120 or consent of instructor. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 20. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. **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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: two courses in Field II, or course 20 and one course in Field II, and consent of instructor. 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 40. **140A.** Congress. (Formerly numbered 143.) Study of those factors which affect character of the legislative process and capacity of representative institutions to govern in contemporary society.

140B. The Presidency. (Formerly numbered 144.) 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. (Formerly numbered 70.) 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours:

M141A. Political Psychology. (Formerly numbered M140.) (Same as Psychology M138.) Prerequisite: 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. (Formerly numbered 141.) Prerequisite: 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. (Formerly numbered 146.) Prerequisites: 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. (Formerly numbered M148.) (Same as Communication Studies M161.) Prerequisite: 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 40. **142A.** Political Parties. (Formerly numbered 145.) 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. (Formerly numbered 142.) 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. (Formerly numbered 174.) 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. (Formerly numbered 183A-183B.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 40. **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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: course 40, and one 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology, or consent of instructor.

M144A. Chicano/Latino Politics. (Formerly numbered M147A.) (Same as Chicano 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. (Formerly numbered M147B.) (Same as Afro-American Studies M144.) Course M144A is not prerequisite 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. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 40:

145A. Anglo-American Legal System. (Formerly numbered 170.) 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. (Formerly numbered 172A.) Constitutional questions concerning separation of powers, federalism, and relationship between government and property.

145C. Constitutional Law — Civil Liberties. (Formerly numbered 172B.) Protection of civil and political rights and liberties under the constitution.

145D. Judicial Oversight of the Bureaucracy. (Formerly numbered 185.) Legal controls of administrative 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-146E. Organization Theory, Public Policy, and Administration. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours:

146A. Public Administration and Policy. (Formerly numbered 80.) Prerequisite: 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. (Formerly numbered 184.) Prerequisites: course 40, familiarity with American government. 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. (Formerly numbered 186.) Prerequisites: course 40, and junior standing or consent of instructor. 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. (Formerly numbered 180.) Prerequisite: 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. (Formerly numbered 182A-182D.) Prerequisite: 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.

149. Special Topics in American Government and Politics. (Formerly numbered 149A-149Z.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: course 40 and two courses in Field III, or consent of instructor. 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

151. Comparative Urban Government. (Formerly numbered 183C.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 50. Cross-national exploration of urban government performance in such areas as crime control, planning, and finance. Considerable emphasis on empirical analysis of comparative performance. P/NP or letter grading.

152. British Government. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Government and politics of the United Kingdom; British constitution, parliament, parties and elections, foreign policies, administrative problems, and local governments.

153. Governments of Western Europe. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Constitutional and political structure and development of France and other states of continental Western Europe, with particular attention to contemporary problems.

153A. Game-Theoretic Approach to West European Politics. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Course 153 is not prerequisite to 153A. 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 (West Germany). Consideration of current developments and comparisons with the U.S.

154. Governments of Central Europe. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Constitutional and political structure and development of Germany and other Central European states, with particular attention to contemporary problems.

155. Advanced Pluralist Democracies. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. 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. Government and Politics of Russia. (Formerly numbered 156.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Intensive study of institutions and political development in Russia, with special attention to legacy of the Soviet Union and impact of this legacy on prospects for a continuing transition to democracy and to the market. P/NP or letter grading.

156B. Government and Politics of Post-Soviet States. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Survey of institutions and political processes in successor states to the Soviet Union, including interactions among these states, with some discussion of Russia but particular attention to non-Russian states. P/NP or letter grading.

157. Governments of Eastern Europe. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Study of political and governmental organization of the Communist countries of Eastern and Central Europe (exclusive of the U.S.S.R.), with special reference to institutions, practices, and ideologies including interregional relations.

158A-158B. Socialism in Europe. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Origins as a mass movement, split into electoral and insurrectionary wings, development into social democracy in West Europe and into state socialism in Russia and East Europe, successes and failures of the welfare state, central planning and collapse of state socialism. P/NP or letter grading. **158A.** West European Socialism; **158B.** East European Socialism.

159. Chinese Government and Politics. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Organization and structure of Chinese government, with particular attention to policies, doctrines, and institutions of Chinese Communism; political problems of contemporary China.

160. Japanese Government and Politics. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Structure and operation of contemporary Japanese political system, with special attention to domestic political forces and problems.

163A-163B. Government and Politics in Latin America. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Comparative study of governmental and political development, organization, and practices. **163A.** States of Middle America; **163B.** States of South America.

164. Government and Politics in the Middle East. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Comparative study of government in the Arab States, Turkey, Israel, and Iran.

166A-166B-166C. Government and Politics in Sub-Saharan Africa. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Patterns of political change in Africa south of the Sahara, with special reference to nationalism, nation building, and problems of development. **166A.** Western Africa; **166B.** Eastern Africa; **166C.** Southern Africa.

166D. Special Topics in African Politics. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading.

167A. Ideology and Development in World Politics. (Formerly numbered 167.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 50. 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. (Formerly numbered 181.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 50. 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. (Formerly numbered 168L.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: two courses in Field IV, or course 50 and one course in Field IV. Required of all students concentrating in Field IV. Major approaches to study of comparative politics. Concepts and methodology of comparative analysis.

169A-169Z. Special Studies in Comparative Politics. Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisites: two courses in Field IV, consent of instructor. 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

195A-195B-195C. Honors Seminars and Thesis. Prerequisites: one course in C197 series, 3.5 GPA in upper division political science courses, eligibility for Letters and Science honors. Course 195A is prerequisite to 195B, which is prerequisite to 195C. 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. (Formerly numbered C197A-C197F.) Seminar, three hours. Prerequisites: political science major, upper division standing, 3.25 GPA in upper division political science courses, two upper division courses in field in which seminar is offered. 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.

M197G. Introduction to Development Studies: Political Economy of Development. (Same as Development Studies M100B.) Seminar, three hours. Prerequisite: some beginning experience in social sciences at college level. Seminar for undergraduates designed to examine concepts and issues arising from economic, social, and political change in the Third World.

197W. CAPP Washington Research Seminar (8 units). Seminar, three hours; laboratory, 24 hours. Prerequisite: admission to CAPP Program. 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 units). Prerequisites: upper division standing, 3.0 overall GPA, consent of instructor and department chair. 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. 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. Laboratory, three hours. Corequisite: course 200A.

200B. Statistical Methods II. Lecture, three hours. Prerequisites: courses 200A/200AL. Recommended: knowledge of elementary calculus. Applications of multiple regression in political science.

200C. Statistical Methods III. Lecture, three hours. Prerequisites: courses 200A/200AL, 200B, knowledge of elementary calculus. Statistical modeling of political processes. Topics include simultaneous equations models, discrete choice models, time-series models.

M200E. Advanced Regression Analysis. (Same as Psychology M256.) Seminar, three hours. Prerequisite: consent of instructor. 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. 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. Seminar, three hours. Recommended (but not prerequisite) for political science students: course 201A. Open to any student of politics, economics, philosophy, or mathematics with ability for deductive reasoning. Introduction to abstract, deductive study of voting systems and other collective-choice processes. Axiomatic method applied to politics and political economy, concept of rationality, and agenda control, choice-set or solution concepts.

202. Mathematics for Political Science. Lecture, three hours. Prerequisite: working knowledge of high school algebra. Survey of mathematical methods useful in political science. Topics include differential and integral calculus, differential equations, optimization, and linear algebra.

203A. Economic Theory and Methods for Political Science I. (Formerly numbered 203.) Discussion, three hours. Prerequisite: knowledge of elementary calculus. Introduction to techniques of economic analysis and survey of major topics in formal political economy. Investigation of models of regulation, trade protection, collective bargaining, and economic growth as time permits.

203B. Economic Theory and Methods for Political Science II. Discussion, three hours. Prerequisite: course 203A. Continuing survey of microeconomic techniques used in formal political science, with focus on market failures and on modeling individual choice in nonmarket situations. Specific topics include externalities, public goods and allocation mechanisms, collective action, spatial models, structure-induced equilibrium, and information asymmetries.

204. Game Theory in Politics. 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. (Same as Economics M214B and Mathematics M261.) Lecture, three hours. Prerequisite: graduate standing in mathematics or consent of instructor. 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. (Same as Economics M215.) Lecture, three hours. Prerequisites: calculus or introductory probability, and graduate standing in economics or consent of instructor. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

M208C. Large Economies. (Same as Economics M214C.) Lecture, three hours. Prerequisites: Economics 213A or suitable mathematics courses. Consideration of economics with a continuum of consumers and with a continuum of goods. Basic model applied to perfectly competitive equilibrium, the core, location models, and other models with nonconvex preferences and/or technology. S/U or letter grading.

M208D. Multivariate Analysis with Latent Variables. (Same as Psychology M257.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Economics M232A.) Lecture, three hours. Prerequisites: 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. Seminar, three hours.

Political Theory

210A-210B. Introduction to Political Theory. 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. (Same as Management M293B.) Lecture, three hours. Prerequisite: consent of instructor. 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. Discussion, three hours.

213. The Bible as Political Theory. Seminar, three hours. Examination of the Bible as a political document. Particular attention to concepts which have played an essential part in Western political thought (i.e., covenant, charisma, history, law, states of nature, human nature, and the state).

C217. Selected Texts in Political Theory. 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. Discussion, three hours. Critical examination of a major problem in political theory. May be concurrently scheduled with course C197A.

219. Workshop: Political Theory. Discussion, three hours.

International Relations

220. International Relations Theory. Discussion, three hours. Approaches to and central problems of international relations theory.

C221. Advanced International Relations Theory. Discussion, three hours. Introduction to contemporary problems in international relations theory. May be concurrently scheduled with course C197B.

222. Seminar: Strategic Interaction. 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. Seminar, three hours. Analysis of various national security problems in both their military/technical and political dimensions. Development in some depth of issues likely to be raised in course 138A (not prerequisite). May be concurrently scheduled with course C197B.

225. American Foreign Policy. 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. 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. Discussion, three hours. Prerequisites: courses 120 and 220, or consent of instructor. 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. Discussion, three hours. Survey of various theoretical approaches to international political economy.

231. Markets, States, and International Political Economy. Discussion, three hours. Interaction between international trade and investment and domestic political economics of both industrialized and industrializing societies.

232. Institutions, Information, and Participation in International Political Economy. 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 units, 0 units, 12 units). Discussion, two hours. Open only to graduate students who have successfully completed major field examinations. Workshop 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 grading.

234A-234B-234C. Workshops: National Security, Foreign Policy, and International Relations (0 units, 0 units, 12 units). Discussion, two hours. Course 234A is prerequisite to 234B, which is prerequisite to 234C. Courses must be taken in sequence. Open to graduate students who have successfully completed major examinations and intended for students preparing for or working on dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Major research paper required. In Progress grading.

C239. Selected Topics in International Relations. Discussion, three hours. May be concurrently scheduled with course C197B.

Comparative Politics

240. Comparative Politics. (Formerly numbered 240A-240B.) Discussion, three hours. Approaches to study of comparative politics and problems of comparative political analysis.

C241. African Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

C242. Chinese and East Asian Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

C243. Japanese and Western Pacific Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

C244. Latin American Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

C245. Middle Eastern Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

C247. Russian and Slavic Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

247A. Evolution of Soviet Politics. Discussion, three hours. Discussion seminar surveying principal scholarly controversies concerning transitions between various stages in political evolution of the Soviet Union.

C247B. Domestic Context of Soviet Foreign Policy. Discussion, three hours. Examination of domestic social, political, bureaucratic, and organizational sources of Soviet foreign and strategic policy, with emphasis on *Perestroika* and its implications. May be concurrently scheduled with course C197B.

C248. South Asian Studies. Discussion, three hours. May be concurrently scheduled with course C197D.

C250A. Western European Studies. Seminar, three hours. May be concurrently scheduled with course C197D.

250B. Political Development of Modern Europe. Discussion, three hours. Principal phases of political development from high feudalism to the present, together with theories of causation.

251. Political Economy of Structural Adjustment. 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.

252A. Parties and Party Systems. Discussion, three hours. Theories and practices of political parties, party systems, and elections in comparative perspective.

252B. Foundations of Representative Government. Discussion, three hours. Analysis of factors affecting development and functions of representative institutions in the U.S., Europe, and selected political systems of Africa, Asia, and Latin America. American politics or comparative politics field credit.

253. Political Change in Communist Systems. Discussion, three hours. Examination of political context and consequences of structural reform in Communist systems; theories of post-Leninist political pluralization and convergence.

254. Seminar: Social Class and Political Analysis. Discussion, three hours. Investigation of concept of social class as a tool of political analysis, with emphasis on current debates regarding definition and utility of class as an analytic category. S/U or letter grading.

255. Seminar: Political Change. Seminar, three hours. Interdisciplinary seminar directed toward comparative analysis of political development and modernization.

256. External Sources of Domestic Politics. 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. Discussion, three hours. Questions and topics on comparative labor and working-class politics.

258. Seminar: Political Violence. Seminar, three hours. Empirical theory and research on causes, processes, and outcomes of violent social conflict, including mass political protest, riot, revolt, terrorism, and revolution.

259. Selected Topics in Comparative Politics. 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. Discussion, three hours.

260B. Survey Course in American Politics: American Political Institutions. Discussion, three hours.

M261A. Proseminar: Political Psychology. (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. Discussion, three hours. Prerequisite: course 141B or 260A or consent of instructor. 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. Discussion, three hours. Broad survey of research bearing on role of mass media in the American political process. Topics include theories of persuasion, evolution of "media effects" research, reporting and advertising as determinants of election outcomes, adversarial versus deferential journalism, and analyses of media bias.

M261D. Seminar: Political Psychology. (Same as Psychology M228B.) Discussion, three hours. Prerequisite: course M261A or Psychology 220A or consent of instructor. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion.

M261E. Critical Problems in Political Psychology. (Same as Psychology M228C.) Discussion, three hours.

C262. Political Parties. 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.

C263. Political Recruitment. Discussion, three hours. Critical evaluation of literature concerned with backgrounds of public figures and with screening and sponsoring mechanisms affecting their careers and political perspectives. May be concurrently scheduled with course C197C.

C264. Politics and Society. Discussion, three hours. Application of selected classical and contemporary sociological theories to politics. May be concurrently scheduled with course C197C.

265. Politics and Economy. 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. 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. Seminar, three hours. Prerequisites: two graduate courses in politics.

269. Seminar: Political Behavior. Seminar, three hours.

C270. Legislative Behavior. 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. 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. 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. Discussion, three hours. National political institutions in historical perspective, theories of state building, state societal relations, political culture.

275. Seminar: American Political Institutions. Seminar, three hours.

C276. Public Law. Discussion, three hours. Systematic analysis of scope and nature of public law, with particular attention to its materials and methods as illustrated in concepts and doctrines from various of its subjective fields. May be concurrently scheduled with course C197C.

C277. Making of the Constitution. Discussion, three hours. Examination of development of constitutional law during selected periods of American history, such as founding, Marshall and Taney eras, and New Deal. Emphasis on both judicial and nonjudicial materials. May be concurrently scheduled with course C197C.

C278. Bill of Rights and the States. Discussion, three hours. Examination of problems surrounding application to the states of Amendments 1 through 9. May be concurrently scheduled with course C197C.

C279. Seminar: Public Law. Discussion, three hours. May be concurrently scheduled with course C197C.

C280. Organization Theory Approaches to Organizational Analysis. Discussion, three hours. Analysis of several major conceptual alternatives for study of organizations, with emphasis on public administrative organizations. Topics include structural/functional and systemic approaches to organization, rational-choice models, and social psychological analyses. Each alternative critically evaluated for its strengths and weaknesses as guide to understanding organizational analysis. May be concurrently scheduled with course C197C.

C281. Public Policy Studies. 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.

C282. Subnational Administrative Systems. Discussion, three hours. Analysis of state administrative systems, their local subsystems, and their outputs. May be concurrently scheduled with course C197C.

C283. Seminar: Public Organization and Policy. Seminar, three hours. May be concurrently scheduled with course C197C.

284. Seminar: Bureaucracy and Organization. Discussion, three hours. Prerequisite: consent of instructor. 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

With consent, credit may be applied toward any field.

290. Modern Political Economy. 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. (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. Discussion, three hours. **292A.** Problems of Scientific Inquiry and Normative Discourse; **292B.** Major Conceptual Frameworks and Approaches to Political Science. Prerequisite: course 292A or equivalent.

293. Terrorism. Discussion, three hours. Analysis of the concept, relationship of terrorism to other forms of violence, history of the phenomena, various forms, and costs.

294. Religion, Revolution, and Violence. Discussion, three hours. Critical examination of various accounts of religion as a revolutionary and conservative force. Special attention to millenarianism and revolution and to the revealed religions, Christianity, Judaism, and Islam.

295. Comparative Fundamentalism. Discussion, three hours. Study of political meaning of the fundamentalist phenomena in various religions, especially Christianity, Judaism, and Islam.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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. Workshop in teaching techniques, including evaluation of each student's own performance as a teaching assistant. Normally to be taken by all new teaching assistants in first term of their assistantships. May be taken only in term in which students are teaching assistants. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

501. Cooperative Program (2 to 8 units). Prerequisite: 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.

590A. Directed Reading for Ph.D. Dissertation Proposal (0 units). Required of all Ph.D. students. Must be taken under supervision of research adviser prior to term in which oral examination is taken. Research for proposed dissertation topic and submission of bibliographic essay on that topic. In Progress grading (credit to be given only on completion of course 590B).

590B. Directed Research for Ph.D. Dissertation Proposal (8 units). Prerequisite: course 590A. Required of all Ph.D. students. Must be taken under supervision of research adviser prior to or during term in which oral examination is taken. Development and writing of research design for Ph.D. dissertation. With consent of research adviser, courses 233A-233B-233C may, by petition, be accepted as equivalent to courses 590A and 590B.

596. Directed Individual Study or Research (2 to 4 units). 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 units). May be repeated. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation (2 to 12 units). May be repeated. S/U grading.

PSYCHIATRY AND BIOBEHAVIORAL SCIENCES

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 Robert E. Neshkes, M.D., *Clinical*
 Thomas F. Newton, M.D., *Clinical*
 Nancy L. Nowlin-Finch, M.D., *Clinical*
 Mary K. Oliveri, L.C.S.W., *Clinical*
 Sheryl S. Osato, Ph.D., *Clinical*
 Robert P. Rose, M.D., Ph.D., *Clinical*
 Todd F. Sadow, M.D., *Clinical*
 Jacob D. Samler, M.D., *Clinical*
 Joan F. Scheibel, M.D., Ph.D., *Clinical*
 J. Christine Schneider, M.D., *Clinical*
 Stephen B. Seager, M.D., *Clinical*
 Pranav V. Shah, M.D., *Clinical*
 Barbara Silver, M.D., *Clinical*
 Christine F. Skotzko, M.D., *Adjunct*
 Susan L. Smalley, Ph.D., *Adjunct*
 James Sparing, M.D., *Visiting*
 Paula Stoessel, Ph.D., *Clinical*
 David L. Sultzer, M.D., *Clinical*
 John W. Tsuang, M.D., *Clinical*
 Douglas Tucker, M.D., *Clinical*
 Jack E. Turman, Ph.D., *Clinical*
 Walter B. Van Vort, M.D., *Clinical*

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 — Field Studies Development (80 Powell Library) or the Psychology Undergraduate Advising Office (1531 Franz Hall).

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, 68-251 NPI&H (310-825-0122).

Information on clinical practicums which are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department office.

Lower Division Course

88. Lower Division Seminar: Special Topics in Psychiatry and Biobehavioral Sciences. 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. (Same as Anthropology M136Q.) Prerequisite: consent of instructor. 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.

M142. Advanced Statistical Methods in Psychology. (Same as Psychology M142.) Lecture, two hours; discussion, 90 minutes. Prerequisite: Psychology 41. Survey of statistical techniques commonly used in psychology, education, and behavioral and social sciences: correlational techniques, analysis variance, and multiple regression.

M180A. Contemporary Problems in Mental Retardation. (Same as Psychology M180A.) Prerequisites: Psychology 10, 41, and 127 or 130. Corequisites: courses M181A-M181B. 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.

M180B. Contemporary Issues in Mental Retardation. (Same as Psychology M180B.) Prerequisite: course M180A. Limited to Immersion Program students. Psychoeducational issues in mental retardation relating literature to ongoing field experiences through lectures, discussions, media, and six student papers.

M181A-M181B. Research in Contemporary Problems in Mental Retardation. (Same as Psychology M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress grading.

M190. Ethology: Physiology of Behavior and Learning in Animals. (Same as Psychology M119J.) Prerequisites: Psychology 115, junior standing. 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.

M191. Biological Bases of Psychiatric Disorders. (Formerly numbered 191.) (Same as Biology M191, Neuroscience M130, Physiological Science M181, and Psychology M117J.) Prerequisite: Biology 171 or Neuroscience M101A or Physiological Science 111A or Psychology 115 or consent of instructor. 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.

199. Special Studies in Psychiatry (2 to 4 units). Prerequisite: consent of instructor and department chair, based on 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.

199HA-199HB-199HC. Special Studies in Psychiatry. Research, 12 hours. Prerequisites: honors student standing, consent of instructor and department based on written proposal outlining course of study (to be structured by instructor and student at time of initial enrollment). In Progress grading.

Graduate Courses

M203. Molecular Neurobiology. (Same as Neuroscience M203.) Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 201A-201B or equivalent, basic biochemistry, consent of instructor. 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. (Same as Neurobiology M204, Neuroscience M204, and Physiology M204.) Lecture, three hours; discussion, one hour. Prerequisites: Neuroscience M201, M202, and M203, or Biological Chemistry 201A-201B, or consent of instructor. 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 units each). Prerequisite: psychology intern, psychiatry resident, member of (or trainee in) one of the licensed mental health professions, or consent of instructor. Experiential seminar intended to prepare mental health professionals for clinical applications, involving didactics, demonstration, practice, and feedback. Following training in inductions and development of classic hypnotic phenomena (e.g., age regression, hypnoanesthesia), focus on psychotherapeutic applications, including direct symptom removal, behavioral methods, and hypnoanalysis. Emphasis on developing skill for application in clinical practice. S/U grading.

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 programs for psychiatry interns and residents and for medical students (courses for medical students are listed in the *Announcement of the UCLA School of Medicine* and the *School of Medicine Handbook of Clinical Courses*).

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 prerequisites determined by specific educational programs. Additional information is available from the department office.

Programs

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 — 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

208A-208B-208C. Clinical Neuropsychology (2 units each). Lecture, 90 minutes. Prerequisites: graduate or postgraduate standing, consent of instructor. 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.

M210. Seminar: Psychocultural Studies. (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.

M213. The Individual in Culture. (Formerly numbered M213A-M213B.) (Same as Anthropology M235.) Seminar, three hours. Prerequisite: graduate standing.

M214. Cross-Cultural Studies of Socialization and Children. (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.

M215. Culture, Adaptation, and Intervention. (Same as Anthropology M235S.) Prerequisite: graduate standing. Role of ecological, social, and cultural influences on family adaptation, child competence, and interventions, including theory, empirical research, and applied/policy topics. Review and critique of current research in this field.

M221. Cellular and Molecular Neurochemistry. (Formerly numbered M221A.) (Same as Biological Chemistry M221, Neurobiology M221, Neuroscience M240, and Pharmacology M221.) Lecture, three hours; discussion, one hour. Prerequisite: 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. (Same as Anthropology M234P.) Lecture, three hours. Prerequisite: consent of instructor. 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.

223A-223B-223C. MMPI Seminars and Case Conferences (2 units each). Prerequisite: psychology intern, psychiatry resident, or consent of instructor. Seminar and case conference on interpretation of Minnesota Multiphasic Personality Inventory (MMPI) — theory, principles, and research into personality types.

226A-226B. Childhood Psychopathology Research Seminars (2 units each). Seminar, 90 minutes. Current research in causes and behavioral manifestations of childhood psychopathology. Discussion on diagnosis and etiology of childhood disturbances.

231. Hispanic Mental Health Issues and Treatment (2 units). Prerequisite: consent of instructor. 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.

M234. Affective Disorders (2 or 4 units). (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. (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 unit each). 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 unit). Lecture, one hour per month; discussion, 30 minutes per month. Series of lectures presented the second Wednesday of each month throughout academic year by invited speakers. S/U grading.

238. Survey Research Techniques in Psychocultural Studies. Seminar, three hours. Prerequisite: graduate standing. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

M240. Assessment and Treatment of Afro-American Families. (Formerly numbered 240.) (Same as Afro-American Studies M240.) Seminar, three hours. Designed for both mental health trainees and graduate students interested in developing and refining skills in assessment and treatment of African American families within a sociocultural context.

242. Parent and Child Psychotherapy Seminar (1 unit). Prerequisites: current experience in psychoanalytically oriented child psychotherapy, consent of instructor. 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 unit each). Lecture, 90 minutes. Prerequisite: consent of instructor. 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. (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 units). (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.

253. Seminar: Child Development (1 unit). Prerequisite: consent of instructor. 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.

254. Supporting Families of Children with Special Needs (2 units). Lecture, one hour; discussion, 30 minutes. 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 units). (Same as Neuroscience M255.) Prerequisite: consent of instructor. 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 unit). Prerequisite: consent of instructor. 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 units each). 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 postdoctoral students who plan to engage in clinical work and/or clinical research in which language disturbances of childhood and adulthood are relevant.

M258. Functional Neuropsychology (2 units). (Same as Neuroscience M258.) Lecture, two hours; discussion, one hour. Prerequisites: graduate standing, consent of instructor. Interdisciplinary course integrating current research publications in neuroanatomy, molecular neurobiology, synaptic neurophysiology, event-related potentials, neuropsychology of amnesia, and cognitive psychology of normal memory into a realistic model. S/U or letter grading.

259. Legal and Ethical Issues with Vulnerable Populations (3 units). 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.

260. The Chronically Medically Ill Child and Family. Lecture, three hours; seminar, one hour. Examination from a biopsychological perspective of ramifications of chronic illness affecting lifestyle and development of the child and family, including examination of relevant theoretical models and research. Clinical application to assessment and intervention strategies.

262A-262B-262C. Clinical Fieldwork in Developmental Disabilities and Chronic Illness (1 to 4 units each). Prerequisites or corequisites: courses 243A-243B-243C, consent of instructor. 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.

264. Biofeedback, Relaxation, and Stress Management in Behavioral Medicine. Seminar, three hours. Introduction to concepts and techniques of biofeedback, relaxation, stress management, and their applications, with emphasis on somatic disorders; hypertension and cardiovascular disorders, headache and other pain problems, gastrointestinal disorders, neuromuscular conditions, and cancer. Consideration of research and clinical issues.

266A-266B-266C. Psychophysiological Research (1 unit each). Seminar, 90 minutes. Prerequisite: consent of instructor. Advanced seminar and discussion of ongoing laboratory research, involving concepts, experimental design, measurement, and data analysis. Current topics include regulation of physiological and subjective reactions to stress, psychophysiological research on diabetes, discrimination and control of blood pressure, and behavioral regulation of postural hypotension.

M270. Neural Basis of Memory. (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. (Same as Anthropology M234Q.) Lecture, three hours. Prerequisite: consent of instructor. 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. (Same as Anthropology M263Q, Community Health Sciences M244, and Nursing M273.) Seminar, three hours. Prerequisite: consent of instructor. 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.

275A-275B. Sociobiology Seminar (2 units each). Prerequisite: consent of instructor. 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 grading.

276. Neurocognitive Plasticity in Adults (3 units). Critical examination at multiple levels of brain function changes with aging — from structural changes at cellular, neurochemical, neuroanatomical, and neurophysiological levels on one hand to functional changes in sensory, motor, mnemonic, and intellectual abilities at other. Evaluation of behavioral, pharmacological, and transplantation techniques to enhance or restore function.

M277. Cognitive Behavior Therapy with Children: Treatment and Systems of Care (2 or 4 units). (Same as Psychology M285.) Seminar, 90 minutes. Prerequisites: graduate standing, consent of instructor. 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.

M279A. Seminar: Human Behavioral Ecology. (Same as Anthropology M229A and Education M281A.) Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Examination of predictive models from animal behavioral ecology used to study human diet and subsistence; settlement patterns and territoriality; sharing and helping; reproduction and mortality. Comparison with other economic and ecological approaches in anthropology.

M279B. Seminar: Reproduction, Families, and Parenting. (Same as Anthropology M229B and Education M281B.) Prerequisite: consent of instructor. Guided forum for graduate students to discuss and broaden their studies of human reproduction and child rearing from varied viewpoints. Representation and debate of theories, questions, and methods from social and biological sciences.

M279C. Seminar: Selected Topics in Human Ethology. (Same as Anthropology M229C and Education M281C.) Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Consideration of appropriateness and contributions of using animal behavior methodology in study of human behavior. Analysis: describing and recording behavior; causation; development, especially longitudinal studies; adaptation; evolutionary origins.

M280. Politics of Reproduction. (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. Lecture, one hour; laboratory, six to 10 hours. Prerequisite: consent of instructor. Supervised experience in classroom working with exceptional children. Theoretical background furnished through one-hour weekly lecture.

M282. Anthropology of Human Body. (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.

295A-295B-295C. Advanced Seminars: Substance Issues in Substance Abuse I, II, III (2 units each). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor. 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 unit). Seminar, two hours; outside study, two hours. Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor and department chair (based on 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.

414. Emergency Treatment Attending Rounds (1 unit). Prerequisites: assignment to Emergency Treatment Unit, consent of instructor. Cases seen in emergency room during preceding night, reviewed by a consultant and emergency treatment staff. Exploration of assessment techniques, methods of intervention, and alternate modes of treatment.

416. Treatment Planning Meetings (1 unit). Prerequisite: consent of instructor. Treatment and management problems posed by inpatient psychiatry. Discussion of clinical psychopathology, treatment plans, and interdisciplinary skills. Emphasis on formulating accurate diagnostic assessments and planning effective treatment programs utilizing therapeutic methods of the milieu (somatic therapies, behavioral techniques, family therapy, group process, individual and dyadic treatment, etc.).

424. Ward Milieu Meeting (1 unit). Prerequisite: consent of instructor. Milieu course meetings designed to explore experientially and didactically multiple aspects of group process on a psychiatric inpatient unit.

425. Teaching Case Conference (1 unit). Prerequisite: consent of instructor. Review of diagnosis and treatment of full spectrum of disorders, with expert off-unit consultants.

429. Child Outpatient Team (1 unit). Prerequisite: consent of instructor. 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 units). Lecture, 90 minutes; discussion, one hour. Prerequisite: consent of instructor. Advanced clinical trainees learn behavioral techniques of assessment and treatment of parent/child problems. Lectures, case presentations, and workshops on various skills necessary.

462. School Intervention by Child Psychiatrists. Seminar, two hours. Prerequisite: consent of instructor. Knowledge of children in schools through (1) field experience, (2) a didactic program, (3) group supervision. Each trainee selects a local elementary or junior high school as site of field experience in consultation. Supervision focuses on assessing needs of the school and initiating the consultation. Seminars consider theories of consultation, systems theory as applied to schools, organization of school systems, professional roles represented in the school (e.g., teachers, counselors, principals, etc.), and their special problems. In Progress grading.

471. Grand Rounds (No credit). Prerequisite: second-year resident in Child Service, child psychiatry fellow, or consent of instructor. Each month one second-year child psychiatry fellow presents a major clinical problem. Senior faculty discussants preside. The 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.

M472A. Nursing Care of Children with Developmental Disabilities. (Same as Nursing M410A.) Lecture, one hour; discussion, one to two hours; laboratory, 10 hours minimum. Prerequisite: consent of instructor. Study of disability conditions of childhood and their effects on the child and family. Content based on normative developmental models with consideration for sociocultural diversity. Emphasis on prevention, systematic assessment, and planning of care for the individual and family. Introduction to implementation of intervention strategies. Series of three courses integrates didactic material and clinical experience.)

M472B. Nursing Care of Children with Developmental Disabilities. (Same as Nursing M410B.) Lecture, one hour; discussion, one to two hours; laboratory, 10 hours minimum. Prerequisites: course M472A and/or consent of instructor. Study of philosophical and conceptual models affecting care delivery for persons with developmental disabilities. Emphasis on intervention strategies necessary for primary, secondary, and tertiary prevention.

M472C. Nursing Care of Children with Developmental Disabilities. (Same as Nursing M410C.) Lecture, one hour; discussion, one to two hours; laboratory, 10 hours minimum. Prerequisites: course M472B and/or consent of instructor. Exploration and participation in assessment, planning, and delivery of health care to children with developmental disabilities in a variety of settings. Emphasis on expanded role of the nurse.

478. Clinical Genetics Rounds (No credit). Prerequisites: medical graduate, consent of instructor. 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). Prerequisite: consent of instructor. 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 unit). Prerequisite: consent of instructor. 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.

481. Chromatography Review (No credit). Prerequisites: premedical course or biochemistry, consent of instructor. Weekly session with presentation of amino acid chromatography carried out during preceding week. Interpretation of abnormal chromatograms together with technical aspects of tests used.

485. Medical Genetics Seminar (No credit). Prerequisites: introductory course, consent of instructor. 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 units). Prerequisite: consent of instructor and department chair, based on 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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Professors

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Bruce L. Baker, Ph.D.
Jackson Beatty, Ph.D. (*Neurosciences*)
Peter M. Bentler, Ph.D.
Elizabeth L. Bjork, Ph.D., *Undergraduate Affairs Vice Chair*

Robert A. Bjork, Ph.D.
Larry L. Butcher, Ph.D. (*Neurosciences*)
Andrew Christensen, Ph.D.
Barry E. Collins, Ph.D.
Jan de Leeuw, Ph.D.
Gaylord D. Ellison, Ph.D. (*Neurosciences*)
Michael S. Fanselow, Ph.D.
Seymour Feshbach, Ph.D.
Rosslyn Gaines, Ph.D., *in Residence*
C.R. Gallistel, Ph.D. (*Neurosciences*)
R. Edward Geiselman, Ph.D.
Rochel Gelman, Ph.D.
Michael J. Goldstein, Ph.D.
Patricia M. Greenfield, Ph.D.
Carlos V. Grijalva, Ph.D. (*Neurosciences*)
Constance L. Hammen, Ph.D.
Barbara A. Henker, Ph.D.
Nancy M. Henley, Ph.D.
Eric W. Holman, Ph.D.
Keith Holyoak, Ph.D.
Harry J. Jerison, Ph.D., *in Residence*
Philip Kellman, Ph.D.
Franklin B. Krasne, Ph.D. (*Neurosciences*)
John C. Liebeskind, Ph.D. (*Neurosciences*)
O. Ivar Lovaas, Ph.D., Litt.D.
Donald G. MacKay, Ph.D.
Neil M. Malamuth, Ph.D.
Irving Maltzman, Ph.D.
Vickie M. Mays, Ph.D.
Albert Mehrabian, Ph.D.
Hector F. Myers, Ph.D.
Donald Novin, Ph.D. (*Neurosciences*)
L. Anne Peplau, Ph.D.
Tara Scanlan, Ph.D.
Richard Schmidt, Ph.D.
David O. Sears, Ph.D.
James H. Sidanius, Ph.D.
Marion Sigman, Ph.D., *in Residence*
James W. Stigler, Ph.D.
Stanley Sue, Ph.D.
Shelley E. Taylor, Ph.D.
James P. Thomas, Ph.D.
Bernard Weiner, Ph.D., *Academic Personnel Affairs Vice Chair*
John R. Weisz, Ph.D.
Thomas D. Wickens, Ph.D., *Graduate Affairs Vice Chair*
J. Arthur Woodward, Ph.D., *Chair*
Eran Zaidel, Ph.D. (*Neurosciences*)

Professors Emeriti

Richard P. Barthol, Ph.D.
William E. Broen, Jr., Ph.D.
Edward C. Carterette, Ph.D.
James C. Coleman, Ph.D.
Andrew L. Comrey, Ph.D.
Morton P. Friedman, Ph.D.
John Garcia, Ph.D.
Joseph A. Gengerelli, Ph.D.
Harold B. Gerard, Ph.D.
Milton E. Hahn, Ph.D.
John P. Houston, Ph.D.
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Bertram H. Raven, Ph.D.
Eliot H. Rodnick, Ph.D.
David Shapiro, Ph.D.
Edwin S. Shneidman, Ph.D.
Gerald H. Shure, Ph.D.

Associate Professors

Terry K. Au, Ph.D.
Thomas N. Bradbury, Ph.D.
Patricia Cheng, Ph.D.
Michelle G. Craske, Ph.D.
Christine A. Dunkel-Schetter, Ph.D.
Patrice L. French, Ph.D.
Gerald M. Goodman, Ph.D.
Steven R. Lopez, Ph.D.

Thomas Minor, Ph.D.
Rena L. Repetti, Ph.D.
Stanley J. Schein, Ph.D., M.D.

Assistant Professors

David Boninger, Ph.D.
John Hummel, Ph.D.
Brett Pelham, Ph.D.
Cindy Yee-Bradbury, Ph.D.

Adjunct Professors

Joseph Bogen, Ph.D.
Marion Jacobs, Ph.D.
Claire Kopp, Ph.D.
Dennis McGinty, Ph.D.
Jill Waterman, Ph.D.

Adjunct Associate Professors

Jacqueline D. Goodchilds, Ph.D.
Nancy Woolf, Ph.D.

Adjunct Assistant Professors

William McCarthy, Ph.D.
Lynn A. Olzak, Ph.D.
Dahlia Zaidel, 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.

Bachelor of Arts in Psychology

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 you with a strong foundation for postgraduate education in psychology and can serve as excellent background to prepare you 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 you 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 this major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

You need to file a petition in the Undergraduate Advising Office to declare the prepsychology major. You are then identified as a prepsychology major until (1) you satisfy the preparation for the major requirements and (2) you 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 you 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 or 15; Biology 2 or Life Sciences 1 or Physiological Science 3; Chemistry and Biochemistry 2 (if you have completed one year of high school chemistry with a C or better, this requirement is waived) or 11A; Mathematics 2 or two terms of

calculus; Physics 10 or 3A or 6A or 8A/8AL; one course from Philosophy 1, 4, 6, 7, 8, 9, 21, 22; Psychology 10, 42; Psychology 41 (recommended) or Statistics 50. Psychology 41 and 42 should be taken early in your 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. You cannot take Psychology 42 until you have passed one of the statistics courses with a grade of C – or better.

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, finite mathematics (or seven and one-half quarter units of calculus), statistics, biology with laboratory, introductory physics with laboratory, introductory chemistry (or one year of high school chemistry with a C or better), and introductory philosophy.

The Major

After satisfying the preparation for the major requirements, you need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Core courses: Psychology 110, 115 or M117A, 120, 130, 135; (2) one laboratory/fieldwork course from 111, 113, 116, 121, 136A, 136B, 171A, 174, 186A, 186B; (3) four additional upper division elective courses (16 units) in psychology.

All upper division courses must be taken for a letter grade. Effective Fall Quarter 1992 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. You must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements.

Bachelor of Science in Cognitive Science

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 you plan to pursue graduate work in cognitive science or related fields; however, you 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 this major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

You need to file a petition in the Undergraduate Advising Office to declare the precognitive science major. You are then identified as a precognitive science major until (1) you satisfy the preparation for the major requirements and (2) you file a petition to declare the cognitive science major. The requirements listed below are effective Fall Quarter 1992 for all freshmen and new transfer students and for any students who did not declare the cognitive science major by Fall Quarter 1992. 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): Biology 2 or Life Sciences 1 or Physiological Science 3; Chemistry and Biochemistry 2 (if you have completed one year of high school chemistry with a C or better, this requirement is waived) or 11A; Mathematics 31A, 31B; Philosophy 7, 8, or 9; Physics 10 or 3A or 6A or 8A/8AL; Program in Computing 10A, 10B, 15; Psychology 10, 42, 85; Psychology 41 (recommended) or Statistics 50. Psychology 41 and 42 should be taken early in your 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. You cannot take Psychology 42 until you have passed one of the statistics courses with a grade of C – or better.

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, biology with laboratory, introductory physics with laboratory, 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, you need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Psychology 115 or M117A, 120, and one course from 124A through 124F; (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 119N, 123, 124A through 124F (if taken for the major, may not be applied as an elective), 130,

133B, 135, M142, 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 188 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 and Systematic Musicology 172A, Linguistics 103 through C185B, Mathematics 110A through 151, Philosophy 124 through 136, Statistics M152A through M153B; (4) two terms of Psychology 188 (may be fulfilled by taking any two courses from 188, 190C, or 199, provided content is approved by the Undergraduate Advising Office).

You must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements. With the exception of Psychology 188, each course must be taken for a letter grade.

Bachelor of Science in Psychobiology

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 you plan to pursue graduate work in any of the above fields; however, you 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 this major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

You need to file a petition in the Undergraduate Advising Office to declare the prepsychobiology major. You are then identified as a prepsychobiology major until (1) you satisfy the preparation for the major requirements and (2) you file a petition to declare the psychobiology major.

Life Sciences Core Curriculum (effective Fall Quarter 1995) — *Required:* Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 11A, 11B/11BL, 11CL, 132A, 132B/132BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 8A/8AL, 8B/8BL, 8C/8CL, and 8D/8DL.

Also required are Psychology 10, 42; Psychology 41 (recommended) or Statistics 50. Psychology 41 and 42 should be taken early in your 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. You cannot take Psychol-

ogy 42 until you have passed one of the statistics courses with a grade of C – or better.

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. If you receive a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, you are subject to dismissal from the major.

Students planning to transfer with 90 or more units should have completed the following courses prior to admission to UCLA: one year of general biology with laboratory; one year of general chemistry with laboratory for majors; one year of calculus; and one year of calculus-based physics, one year of organic chemistry, introductory psychology, and statistics.

The Major

After satisfying the preparation for the major requirements, you need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Biology 129 or Psychology 118 or Anthropology 128A and 128B, and Psychology 110, 115 or M117A, 116, 120; (2) one course from Psychology 127, 130, 135; (3) 16 units of graded elective courses from the following list: Biology 107, 112, 113A, 114 (no more than one from this group); Psychology M117A, M117B, M117C, M117J, M117K, 119A through 119N, 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), Biology 102, C104, 105, 106, 110, 111, 115, 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), 135, 138, 146, 153, CM156, 157, 158, 164, 166, 167, 168, 171, 179, M185A, Chemistry and Biochemistry 153A, 153L, Molecular and Medical Pharmacology 110, Physiological Science 142, M173.

You 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 188, 192, 193, 194, 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. You work for one year with a faculty sponsor on a research project that is the basis of a formal honors thesis. During that year you 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, you 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 your 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 students in psychology. The purpose of START is to encourage promising students of color 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, you 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 you 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 — 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 Field Studies Development, 80 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 (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; you must notify the department during the term you plan to graduate to receive your certificate. The concentration does not appear on your diploma or transcript.

If a psychology major earns the DDIP concentration, upper division elective credit for Psychology M180A, M180B, M181A-M181B does not apply.

For more information, contact the Undergraduate Advising Office (1531 Franz Hall) or Field Studies Development (80 Powell Library).

Specialization in Computing

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, M142, 150, 151, 186A, 186B, 199 (provided project has been preapproved by Undergraduate Affairs vice chair). A grade of C or better is required in each course. You graduate

with a bachelor's degree in your major and a specialization in computing. Consult the Undergraduate Advising Office if you plan to enter this specialization.

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 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.

National Research Center on Asian American Mental Health

The National Research Center on Asian American Mental Health (NRCAAMH) is one of several centers in the nation devoted to ethnic minority research, and the only one focusing on Asian Americans. NRCAAMH acts in a national multidisciplinary leadership role in the conduct and promotion of applied and basic research regarding the mental health of various Asian groups (e.g., Chinese, Japanese, Koreans, Filipinos, Southeast Asians, etc.) in the U.S. The center provides undergraduate and graduate students with opportunity to participate in research projects, publish scholarly articles, and collaborate with other researchers in the field.

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 ser-

vices to clients, 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 clinical research projects.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The Department of Psychology does not admit candidates for the Master of Arts degree 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 at the address given at the beginning of this listing.

Admission to the Ph.D. program 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 had courses equivalent to the following: (1) Psychology 41; (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.

These 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

The graduate program in psychology leads to the Ph.D. degree. Students are required to obtain a thorough background in research methodology and psychological theory. Major specialized training is available in the following areas of psychology: behavioral neuroscience, clinical, cognitive, developmental, learning and behavior, measurement and psy-

chometrics, or social psychology. With the exception of clinical, students may minor in any of the areas listed above, 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.

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 chosen 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 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 clinical courses from Psychology 272A through 298. A minimum of one of these courses must be numbered above 272A. Note that the 298 courses must be approved by the clinical area.

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.

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, 220C, 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. Courses taken to satisfy a student's minor area requirements cannot be chosen from among those that could satisfy that student's 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, 206, 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 numbered from 259 through 266: Psychology 259, 261, 262, 263, 265, 266, 268A through 268E, 269.

Developmental. Psychology 240A or 240B, plus two of the following: Psychology 242A through 242F, 243A, 243B, 244, M246, 299.

Experimental Psychopathology. Four courses approved by the clinical area.

Learning and Behavior. (1) Comparative option — Psychology 210, plus two of the following: Biology 120, C219, 274, Psychology 204E, Anthropology 128A, 128B; (2) Learning option — Psychology 200A, 200B, plus one of the following: Psychology 204B, 204C, 204D, 204E, 293.

Measurement and Psychometrics. Three of the following: 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 of the following: 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.

Lower Division Courses

10. Introductory Psychology. Not open to students with credit for former course 11. General introduction including topics in cognitive, experimental, personality, developmental, social, and clinical psychology; six hours of psychological research.

15. Introductory Psychobiology. 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.

41. Psychological Statistics. Lecture, five hours. Enforced requisites: course 10, Mathematics 2. Limited to prepsychology majors. Basic statistical procedures and their application to research and practice in various areas of psychology.

42. Research Methods in Psychology (6 units). Lecture, two hours; laboratory, four hours. Enforced requisites: courses 10 and (41 or Statistics 50, C- or better). Introduction to research methods and critical analysis in psychology. Lecture and laboratory topics include experimental and nonexperimental research methods, statistical design and analysis as applied to a broad range of basic and applied research issues.

85. Introduction to Cognitive Science. (Formerly numbered 97.) 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. (Formerly numbered 88.) 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. 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

M107. Asian American Personality and Mental Health. (Same as Asian American Studies M117.) Lecture, three hours. Prerequisite: 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. Lecture, three hours; discussion, one hour. Prerequisites: courses 10, 41, junior standing. 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.

111. Learning Laboratory. Lecture, two hours; laboratory, three hours. Prerequisites: courses 41, 42, 110 (may be taken concurrently), psychology major standing. Laboratory experience with techniques in study of learning, especially with animals.

112A. Basic Processes of Motivated Behavior. Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: courses 10, 41, 110, junior standing. 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.

112B. Psychobiology of Fear and Anxiety. Lecture, three hours; outside study, nine hours. Prerequisites: courses 10, 41, 110, junior standing. Recommended: course 115. 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.

112C. Principles of Skill Acquisition. Lecture, three hours. Prerequisites: course 110 or 120 (recommended), and psychology major standing or consent of instructor. 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. Discussion, two hours; laboratory, four hours. Prerequisites: courses 10, 41, 42. 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.

113H. Behavior and Alcohol Laboratory (Honors). Discussion, two hours; laboratory, four hours. Prerequisites: courses 10, 41, 42. Honors course parallel to course 113.

114. Alcoholism. Prerequisite: upper division standing. Theories and research on impact, causes, characteristics, and treatment of alcoholism considered from a biobehavioral point of view.

115. Principles of Behavioral Neuroscience. Lecture, three hours; discussion, one hour. Prerequisites for majors: course 41, Biology 2, junior standing; for nonmajors: Life Sciences 1 and 3, or consent of instructor. Nervous system anatomy, physiology, pharmacology, and their relationship to behavior. P/NP or letter grading.

116. Behavioral Neuroscience Laboratory. Lecture, one hour; laboratory, three hours. Prerequisites: courses 41, 42, 115 (may be taken concurrently), psychobiology or psychology major standing. Laboratory experience with various topics in behavioral neuroscience.

M117A-M117B-M117C. Neuroscience: From Molecules to Mind (5 units each). (Same as 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. Prerequisites: Chemistry 132A, Life Sciences 2 or equivalent, Physics 6B or 8C. Not open for credit to students with credit for Physiological Science 111A. Students with credit for Biology 171 may enroll on a P/NP basis; course 171 may not be taken concurrently with this course. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement.

M117B. Molecular and Developmental Neuroscience. Prerequisites: course 115 (or Biology 171 or Physiological Science 111A) or M117A (or Biology M175A or Neuroscience M101A or Physiological Science M180A), Life Science 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.

M117C. Behavioral and Cognitive Neuroscience. Prerequisite: course 115 (or Biology 171 or Physiological Science 111A) or M117B (or Biology M175B or Neuroscience M101B or Physiological Science M180B). Neural mechanisms underlying motivation, learning, and cognition.

M117J. Biological Bases of Psychiatric Disorders. (Same as Biology M191, Neuroscience M130, Physiological Science M181, and Psychiatry M191.) Prerequisite: course 115 or Biology 171 or Neuroscience M101A or Physiological Science 111A or consent of instructor. 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. Structure and Function of Nervous System. (Same as Neuroscience M132.) Lecture, three hours. Prerequisites: course 115 or Biology 171 or Neuroscience M101A or Physiological Science 111A and junior standing, or consent of instructor. 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.

118. Comparative Psychobiology. Prerequisites: course 115, junior psychology major standing. Survey of determinants of species-specific behavior, including genetic influences and learning.

119A. Neuropsychopharmacology. Lecture, three hours. Prerequisites: course 115, junior standing. Analysis of basic pharmacologic principles to include interaction of drugs with neurochemically significant substances in the brain.

119AH. Neuropsychopharmacology (Honors). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Honors course parallel to course 119A.

119B. Human Neurophysiology. Lecture, three hours. Prerequisites: course 115, junior standing. Exploration of biological basis of human cognitive processing, with emphasis on function of cerebral cortex.

119D. Behavioral Pharmacology. Prerequisites: course 115, junior standing. 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). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Experimental and theoretical treatment of drug-behavior relationships; pharmacological approaches to mood, aggression, learning, motivation; experimental studies of addiction.

119E. Stress and Bodily Disease. Lecture, three hours. Prerequisites: course 115, junior standing. 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. Prerequisites: course 115, Biology 171, and junior standing, or consent of instructor. 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. Lecture, three hours. Prerequisites: course 115 and senior standing, or consent of instructor. Lectures and discussions on neural mechanisms of pain and problem of chronic pain disease.

119I. Psychophysiology of Motivation. Lecture, three hours. Prerequisites: course 115, junior standing. 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.

M119J. Ethology: Physiology of Behavior and Learning in Animals. (Same as Psychiatry M190.) Prerequisites: course 115, junior standing. 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.

119L. Human Neuropsychology. Lecture, two hours. Prerequisites: courses 115, 120, consent of instructor. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions.

119M. Physiological Psychology of Learning. Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: course 115 and junior standing, or consent of instructor. Introduction to classical and current literature on mechanisms of learning, considering both cell-biological mechanisms and brain circuitry.

119N. The Visual System. Lecture, three hours. Prerequisite: junior standing. 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.

120. Cognitive Psychology. Lecture, three hours; discussion, one hour. Prerequisites: courses 10, 41, junior standing. 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.

121. Laboratory in Cognitive Psychology. Prerequisites: courses 10, 41, 42, 120 (may be taken concurrently), psychology or cognitive science major standing. Laboratory experience with methods and phenomena from research on human perception, memory, and cognition.

122. Language and Communication. Lecture, three hours. Prerequisite: 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. Prerequisite: junior standing. 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. Lecture, three hours. Prerequisites: courses 10, 41, 120, junior standing. Contemporary research and theory about visual and auditory perception. Topics include physiological mechanisms, psychophysical studies and models, and computational approaches.

124AH. Sensation and Perception (Honors). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Honors course parallel to course 124A.

124B. Visual Information Processing. Lecture, two hours; discussion, one hour. Prerequisites: courses 10, 41, and 120, or consent of instructor. 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.

124C. Human Memory. Lecture, two hours; discussion, one hour. Prerequisites: course 120, junior standing. 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. Prerequisite: psychology major standing or consent of instructor. 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. Lecture, three hours; outside study, nine hours. Prerequisites: courses 10, 120, and junior standing, or consent of instructor. 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. Lecture, three hours. Prerequisite: course 120. Analysis of experimental studies of human categorization, reasonings, decision making, problem solving, creativity, and related topics.

127. Abnormal Psychology. Lecture, three hours. Prerequisite: 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). Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisites: courses 10, 41. 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.

129B. Introduction to Psychoanalysis. Lecture, three hours. Prerequisites: courses 10, 41. 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.

129C. Culture and Mental Health. Lecture, two hours; discussion, one hour; outside study, nine hours. Prerequisites: courses 10, 41. 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).

129D. Personality. Lecture, three hours. Prerequisite: course 10. Not open to students with credit for former course 125 prior to Fall Quarter 1993. 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. Lecture, three hours. Prerequisite: senior psychology major standing. 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.

130. Developmental Psychology. Lecture, three hours; discussion, one hour. Prerequisites: courses 10, 41, junior standing. Elaboration of developmental aspects of physical, mental, social, and emotional growth from birth to adolescence.

131. Research in Developmental Psychology. Discussion, one hour; laboratory, three hours; outside study, eight hours. Prerequisites: courses 10, 41, 42, 130, psychology or cognitive science major standing. 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.

132. Learning Disabilities in Perspective. Lecture, three hours. Prerequisite: upper division standing. 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. Lecture, three hours. Prerequisite: course 130. Examination of cognitive, social, physical, and physiological development of the adolescent.

133B. Seminar: Cognitive Development. Seminar, three hours. Prerequisite: course 10, 41, 120, or 130. 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.

133BH. Seminar: Cognitive Development (Honors). Seminar, three hours. Prerequisite: consent of instructor. Honors course parallel to course 133B.

133C. Language Development. Lecture, three hours. Prerequisites: courses 10, 41, 130. 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.

133D. Social and Personality Development. Lecture, two hours; discussion, one hour. Prerequisites: courses 10, 41, 130. Advanced course that surveys 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.

134. Psychology and Education. Lecture, three hours. Prerequisites: courses 10, 130. 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.

135. Social Psychology. Lecture, three hours; discussion, one hour. Prerequisites: courses 10, 41, junior standing. 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.

136A. Social Psychology Laboratory. Lecture, one hour; laboratory, four hours. Prerequisites: courses 41, 42, 135 (may be taken concurrently), psychology major standing. Introduction to research designs and methods used to test social psychological hypothesis, including experiments, observation, content analysis, and/or questionnaires.

136B. Nonexperimental Methods in Social Psychology. Lecture, two hours; laboratory, two hours. Prerequisites: courses 41, 42, psychology major standing. Research experience with experimental methods for study of social attitudes or behavior, including fieldwork with survey research, naturalistic observation, or questionnaires.

136C. Survey Methods in Psychology. Lecture, two hours; laboratory, three hours. Prerequisites: courses 41 (or Statistics 50), 42, psychology major standing. 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.

137A. Sport Psychology. Lecture, three hours. Prerequisite: junior psychology major standing. 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). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Honors course parallel to course 137A.

137B. Attitude Formation and Change. Lecture, three hours. Prerequisites: courses 10, 41, 135. Structure and functions of attitudes, their measurement, how they develop, and methods for changing them.

137C. Close Relationships. Lecture, three hours. Prerequisite: course 10 or 41 or 135 or consent of instructor. Examination of research and theory about friendship, dating, and marriage, with emphasis on how these relationships are affected by gender and changing sex roles.

137D. Introduction to Health Psychology. Prerequisite: 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. (Same as Women's Studies M137E.) Prerequisite: course 10 or Women's Studies 10 or senior standing. 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.

137I. Interpersonal Influence and Social Power. Lecture, three hours. Prerequisite: 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. (Same as Communication Studies M124 and Women's Studies M137J.) Lecture, three hours. Prerequisites: course 10 or equivalent, junior standing. 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. (Same as Political Science M141A.) Lecture, three or four hours; discussion, one hour (optional); outside study, eight or nine hours. Prerequisite: course 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues.

M142. Advanced Statistical Methods in Psychology. (Same as Psychiatry M142.) Lecture, two hours; discussion, 90 minutes. Prerequisite: course 41. Survey of statistical techniques commonly used in psychology, education, and behavioral and social sciences: correlational techniques, analysis variance, and multiple regression.

144. Psychological Tests and Evaluation. Prerequisite: course 41. Further study of principles of measurement, stressing basic concepts. Application to problems of test construction, administration, and interpretation.

150. Mathematical Models in Psychology. Lecture, two hours; discussion, two hours. Prerequisites: Mathematics 3C or 31B, Computer Science 10C or 10F, or consent of instructor. 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. Lecture, two hours; discussion, two hours. Prerequisites: Computer Science 10C or 10F, consent of instructor. 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. (Same as Sociology M138.) Lecture, three hours. Prerequisite: junior standing. 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).

M165. Psychology of Gender. (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. Lecture, three hours. Prerequisites: courses 10, 41. 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.

170A. Behavior Modification. Lecture, three hours. Prerequisite: upper division standing or consent of instructor. 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. Discussion, two hours; fieldwork, six hours. Prerequisites: course 110 with a grade of A or 170A, consent of instructor. Fieldwork in applied behavior theory, especially to problems of retarded and autistic children.

170C. Advanced Fieldwork in Behavior Modification for Nonpsychology Majors. Lecture, two hours; fieldwork, six hours. Prerequisites: course 170B, consent of instructor. 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. Discussion, two hours; fieldwork, six hours; to be arranged, 20 hours. Prerequisites: course 170B, psychology major standing, consent of instructor. 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. Discussion, two hours; fieldwork, six hours; to be arranged, 20 hours. Prerequisites: course 171A, consent of instructor. 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. (Same as Afro-American Studies M172 and Women's Studies M172.) Limited to 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. Lecture, three hours. Prerequisites: courses 10, 41, 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.

174. Interpersonal Process Analysis. Lecture, two hours; laboratory, three hours. Prerequisites: courses 41, 42, 127, psychology major standing. 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).

175. Community Psychology. Prerequisites: junior or senior psychology major standing, consent of instructor. 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). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Honors course parallel to course 175.

M176. Communication and Conflict in Couples and Families. (Same as Communication Studies M116.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: courses 10, 41, and 127, or consent of instructor. 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).

177. Counseling Relationships. Prerequisites: courses 10, 41, 127, junior or senior standing, and consent of instructor, or junior or senior psychology major standing. 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.

178. Human Motivation. Lecture, three hours. Prerequisite: upper division standing. 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). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Honors course parallel to course 178.

179A. Health Behavior and Health Status of Ethnic Groups: Behavioral Perspective. Lecture, three hours. Prerequisites: course 10, junior or senior standing. 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. Lecture, three hours. Prerequisites: course 137D or 179A or Health Services 100, junior or senior standing. 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. (Same as Psychiatry M180A.) Prerequisites: courses 10, 41, and 127 or 130. Corequisites: courses M181A-M181B. 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.

M180B. Contemporary Issues in Mental Retardation. (Same as Psychiatry M180B.) Prerequisite: course M180A. Limited to Immersion Program students. Psychoeducational issues in mental retardation relating literature to ongoing field experiences through lectures, discussions, media, and six student papers.

M181A-M181B. Research in Contemporary Problems in Mental Retardation. (Same as Psychiatry M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress grading.

186A. Cognitive Science Laboratory: Introduction to Theory and Simulation. (Formerly numbered 186.) Lecture, two and one-half hours; discussion, 30 minutes; laboratory, three hours. Prerequisites: course 85, Program in Computing 15, and junior departmental major standing or consent of instructor. 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. (Formerly numbered 186.) Lecture, two and one-half hours; discussion, 30 minutes; laboratory, three hours. Prerequisites: course 85, Program in Computing 10A, 10B (or PASCAL), and junior departmental major standing or consent of instructor. Recommended: knowledge of calculus. 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. (Formerly numbered 187.) Lecture, two hours; discussion, two hours. Prerequisite: junior standing. 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). (Formerly numbered 187H.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Honors course parallel to course 187A.

187B. Advanced Psychology and Law. Lecture, three hours; discussion, one hour. Prerequisites: course 187A, junior standing. 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.

188. Fieldwork in Cognitive Science. Lecture, two hours; fieldwork (approved community setting), six hours. Prerequisites: cognitive science major standing, department consent. Fieldwork in applications of cognitive science. 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. Lecture, three hours; outside study, nine hours. Prerequisites: courses 10, 120, junior standing. 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). Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: consent of instructor. Honors course parallel to course 189. P/NP or letter grading.

190A-190B-190C. Honors Course. Seminar, two hours. Prerequisite: psychology honors program standing. 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. Prerequisites: junior or senior psychology, cognitive science, or psychobiology major standing, consent of department. 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. Seminar, two hours; fieldwork (approved community setting), six hours. Prerequisites: sophomore prepsychology, precognitive science, prepsychobiology, psychology, cognitive science, or psychobiology major standing, consent of department. 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 course requirements for any Psychology Department major. P/NP grading.

194. Research in Psychology. Seminar, one hour; internship (approved research setting), seven hours. Prerequisites: sophomore prepsychology, precognitive science, prepsychobiology, psychology, cognitive science, or psychobiology major standing, consent of department. 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 course requirements for any Psychology Department major. P/NP grading.

197. Current Issues in Psychology. Lecture, three hours. Prerequisite: junior or senior major standing (some sections may require consent of instructor). 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. Prerequisites: junior or senior psychology, psychobiology, or cognitive science major standing (juniors must have at least 3.0 GPA in the major), consent of instructor and vice chair for Undergraduate Affairs (based on written proposal outlining course of study). 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. Basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning, and species-specific behavior.

200B. Human Learning and Behavior. 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 unit). Discussion, 90 minutes. Prerequisite: graduate standing. 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.

204B. Theories of Learning. Discussion, three hours. Prerequisite: course 200A or equivalent. 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. Lecture, three hours. Prerequisites: graduate standing in psychology, consent of instructor. 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: graduate standing. 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. Discussion, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. 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: transactions, lesions, focal stimulation, and single unit recording.

205J. Homeostatic Drive, Hunger, and Thirst (2 units). Lecture, three hours. Prerequisite: graduate standing. 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 units). Lecture, three hours. Prerequisite: graduate standing. Exploration of anatomy, physiology, and computation in visual system, focusing on retina, visual cortex, and overall performance.

205L. Cognitive Neuroscience (2 units). Lecture, three hours; Prerequisite: graduate standing. 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.

M205Z. Behavioral and Systems Neuroscience. (Same as Neuroscience M205 and Physiological Science M205.) Lecture, three hours. Prerequisites: Neuroscience M201, M202, M203, and M204, or consent of instructor. 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.

206. Psychophysiology of Brain Function. Modern concepts of functional organization of the brain, with particular reference to psychological phenomena and behavior. Recent advances in neurophysiology and electroencephalography bearing on perception, attention, drive, sleep-wakefulness, levels of consciousness, etc. Some emphasis on pathology of behavior resulting from brain injury.

207A-207B-207C. Seminars: Physiological Psychology. Prerequisite: course 115 or equivalent.

210. Comparative Psychobiology. Prerequisites: course 115 or equivalent, consent of instructor. Survey of determinants of species-specific behavior, including genetic influences and learning.

212. Evaluation of Research Literature in Physiological Psychology (1 unit). Discussion, 90 minutes. Prerequisite: consent of instructor. 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. (Same as Neuroscience M272 and Physiological Science M272.) Lecture, three hours; outside study, nine hours. Prerequisites: Neuroscience M201, M202. Recommended: mathematics and computer background. 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. Lecture, three hours. Prerequisite: graduate standing in psychology. Intensive consideration of concepts, theories, and major problems in social psychology.

220B. Research Methods in Social Psychology. (Formerly numbered 224.) Lecture, three hours. Prerequisite: graduate standing in psychology or consent of instructor. Research design and methodological issues in experimental and nonexperimental social research.

220C. Advanced Social Psychology. (Formerly numbered 220B.) Lecture, three hours. Prerequisite: course 220A or 220D. Review of contemporary topics and issues in social psychological research and theory.

220D. Introduction to Social Psychology. (Formerly numbered 220C.) Lecture, three hours. Prerequisite: graduate standing. 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. Discussion, three hours. Prerequisites: courses 220A and 220B, or consent of instructor. Social psychological research and theories on opinions and attitudes. Effects of mass communication, social factors in assimilation of information and influence.

222A. Interpersonal Relations. Discussion, three hours. Prerequisite: course 220A or consent of instructor. Critical review of theory and research on interpersonal relations, with emphasis on friendship, dating, and marriage.

222B. Interpersonal Influence and Social Power. Seminar, three hours. Prerequisite: advanced social psychology course (psychological or sociological) or consent of instructor. 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. (Formerly numbered 223A, 223B.) Lecture, three hours. Prerequisite: course 220B or consent of instructor. Contemporary issues and topics in social survey research methodology.

225. Seminar: Critical Problems in Social Psychology. Discussion, three hours. Prerequisites: courses 220A and 220B, or consent of instructor. May be repeated for credit with consent of instructor.

226A-226B-226C. Current Literature in Social Psychology (2 units each). (Formerly numbered 226.) Discussion, 90 minutes. Prerequisite: for courses 226B-226C: consent of instructor for nonsocial psychology students. Course 226A is limited to first-year social psychology students. Recent and current research papers in social psychology presented by members of seminar and their significance and methodology discussed and criticized in depth. S/U grading.

227. Health Psychology. Lecture, two hours; discussion, one hour. Prerequisite: 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. (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. (Same as Political Science M261D.) Discussion, three hours. Prerequisite: course 220A or Political Science M261A or consent of instructor. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion.

M228C. Critical Problems in Political Psychology. (Same as Political Science M261E.) Discussion, three hours.

229. Social Cognition. 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. Seminar, three hours. Prerequisite: one prior course on gender/women's studies or consent of instructor. 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. Lecture, three hours. Prerequisite: graduate standing. Designed 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. Prerequisites: 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. (Formerly numbered M234.) Prerequisite: consent of instructor. 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. Survey of cognitive, analytic, and learning theory approaches to study of personality. Emphasis on intensive exploration of selected concepts and related research.

M239. Personality, Motivation, and Attribution. (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. Lecture, three hours. Prerequisites: one undergraduate developmental psychology course, graduate standing. 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 unit). Discussion, 90 minutes. Prerequisite: graduate standing in developmental psychology. 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. Seminar, three hours. Prerequisites: courses 240A-240B or equivalent, consent of instructor. 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.

242E. Cognitive Factors in Learning Disorders.

242F. Development of Language and Communication.

243A-243B. Seminars: Practical and Societal Issues in Developmental Psychology. Lecture, three hours. Prerequisites: courses 240A-240B or equivalent, consent of instructor. 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. Lecture, three hours. Prerequisites: courses 240A-240B or equivalent, consent of instructor. 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. (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. (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. Prerequisites: 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. Review of fundamental concepts. Basic statistical techniques as applied to design and interpretation of experimental and observational research.

250B. Advanced Psychological Statistics. Advanced experimental design and planning of investigations.

251A-251B-251C. Research Methods. Limited to psychology graduate 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. (Formerly numbered 252.) Lecture, three hours. Prerequisites: courses 250A and 250B, or consent of instructor. 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. Lecture, three hours. Prerequisites: courses 250A and 250B, or consent of instructor. 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. 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. Lecture, three hours. Prerequisite: graduate standing. Theory of measurement, law of comparative judgment, methods of unidimensional scaling, multidimensional scaling, and related topics of current interest.

254B. Cluster Analysis. Lecture, three hours. Prerequisite: graduate standing. Quantitative methods for classification. Theories and assumptions underlying major clustering methods. Use of methods in exploratory data analysis.

255. Quantitative Aspects of Assessment. Fundamental assumptions and equations of test theory. Current problems in assessment.

M256. Advanced Regression Analysis. (Not the same as course 256 prior to Fall Quarter 1992.) (Same as Political Science M200E.) Seminar, three hours. Prerequisite: consent of instructor. 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. (Same as Political Science M208D.) Lecture, three hours. Prerequisite: consent of instructor. 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.

258. Special Problems in Psychological Statistics. Lecture, three hours. Prerequisites: courses 250A and 250B, or consent of instructor. Special problems in psychological statistics and data analysis.

259. Quantitative Methods in Cognitive Psychology. Prerequisites: courses 250A and 250B, or consent of instructor. 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 unit each). Presentation of research topics by students, faculty, and visiting scholars. May be repeated for credit. S/U grading.

261. Perception. Lecture, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: consent of instructor. Contemporary theory and research in human verbal learning and memory; verbal and nonverbal learning and memory processes, structure and organization of short- and long-term memory.

263. Psycholinguistics. Lecture, three hours. Prerequisite: consent of instructor. Contemporary theory and research in psycholinguistics: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception.

265. Thinking. Lecture, three hours. Contemporary theory and research in thinking, problem solving, inference, semantic memory, internal representation of knowledge, imagery, concepts.

266. Cognitive Science. Lecture, three hours. Prerequisite: consent of instructor. 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. Seminar, three hours. Prerequisite: consent of instructor. 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 Thought; **268E.** Human Performance.

269. Seminar: Cognitive Psychology. Seminar, three hours. Prerequisite: consent of instructor. 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. Prerequisites: courses 271A-271B-271C. Limited to graduate students in clinical psychology. **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 units each). 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 units). Discussion, one hour; laboratory, one hour. Corequisites: courses 270A or 270B or 270C, and 271A or 271B or 271C. Limited to graduate students in clinical psychology. 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 units each). Prerequisites: course 271D, graduate standing in clinical psychology. 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. Seminar, three hours. Prerequisite or corequisite: course 401 or 451. Each course may be taken independently for credit:

272A. Behavior Modification with Children. Prerequisites: courses 271A-271B-271C or consent of instructor. 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. Prerequisite: second-year graduate standing in clinical psychology. 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. Prerequisites: 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.

274A-274B. Group Therapy Dynamics.

275. Family Process: Psychological and Social Perspectives on the Family. 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. Lecture, three hours; discussion, one hour. Prerequisite: doctoral standing. 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. Laboratory, two hours; additional hours to be arranged through Psychology Clinic. Prerequisite: graduate standing in clinical psychology. Projective techniques, clinical interpretation, case studies, psychological test battery, psychopathology, and application of assessment to problems in psychotherapy.

278. Seminar: Motivation, Conflict, and Neurosis.

279. Seminar: Research in Psychopathology.

M280. Affective Disorders (2 or 4 units). (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.

282. Interpersonal Forms: Analysis of Human Interaction Structures. Lecture, two hours; laboratory, two hours. Conceptual and experimental study of six response modalities common to psychotherapy and everyday interaction: questions, silences, advisement, interpretation, self-disclosure, and reflection. Laboratory work performed in conjunction with lecture and seminar sessions.

283. Psychopathology. 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.

M285. Cognitive Behavior Therapy with Children: Treatment and Systems of Care (2 or 4 units). (Same as Psychiatry M277.) Seminar, 90 minutes. Prerequisites: graduate standing, consent of instructor. 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. 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. Prerequisites: courses 250A, 250B. Special problems of measurement and design in clinical research.

290. History of Psychology. Philosophical and historical context of contemporary psychology. Major trends from the 19th century to contemporary issues.

291. Principles of Behavioral Pharmacology. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisite: graduate standing in psychology or consent of instructor. 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. Prerequisite: consent of instructor. Behavioral and psychophysiological characteristics of alcoholism, along with theories concerning their etiology and treatment. Experimental approaches.

M294. Seminar: Neural and Behavioral Endocrinology (2 units). (Formerly numbered M294A-M294D.) (Same as Neurobiology M255 and Physiological Science M255.) Lecture, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of 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. (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 units). (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. Seminar, three hours. Prerequisites: graduate standing, consent of instructor. 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. Content depends on interests of particular instructor. May be repeated for credit.

299. Developmental Methodology. 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 units). Prerequisite: 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 units). Prerequisites: courses 271A-271B-271C. Students on practicum assignments are required to register for this course each term (except by consent of clinical program committee).

402A-402B-402C. Clinical Research Practicum (2 units each). Prerequisite: third-year graduate standing in clinical psychology. Required three-term practicum in clinical research methods. Alternate meetings cover research methodology and professional issues; remaining meetings center on student presentations of current and proposed research activity. S/U grading.

410A-410B-410C. Clinical Teaching and Supervision. Prerequisites: completion of Ph.D. comprehensive examinations, advancement to candidacy or preparation for dissertation research actively under way, consent of instructor and clinic steering committee. Study and practice of knowledge, concepts, and theories on teaching and supervision of applied clinical psychology.

410D-410E-410F. Clinical Assessment Supervision. Discussion, two hours; other, one hour. Prerequisite: third-year graduate standing in clinical psychology or consent of instructor. Study and practice of knowledge, concepts, and theories on teaching and supervision of psychological assessment.

420A-420B. Health Psychology Practicum (2 units each). Prerequisite: graduate standing. 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 units). 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. 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 units). 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 units). Prerequisite: course 401. Limited to students who have successfully completed departmental qualifying examinations. May be repeated for credit. S/U grading.

454. Internship in Industrial Psychology (2 to 4 units).

490. Scientific Writing for Psychologists (2 units). Lecture, two hours; laboratory, two hours. Prerequisite: consent of instructor. Gives graduate students opportunity to improve their effectiveness in writing scientific papers for publication and proposals for dissertations or grants. May not be applied toward graduate degree requirements. S/U grading.

495. Presentation of Psychological Materials. Supervised practicum in undergraduate teaching. Students serve as discussion section leaders in selected undergraduate courses. S/U grading.

501. Cooperative Program (2 to 8 units). Prerequisite: 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 units). 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 units). Intended primarily as preparation for Ph.D. qualifying examinations. May be required by some area committees as a prerequisite for taking examinations. S/U grading.

599. Research for Ph.D. Dissertation (2 to 12 units). Prerequisite: successful completion of qualifying examinations. One 599 course is required during each year following completion of qualifying examinations. S/U grading.

level: the Master of Public Health; the Doctor of Public Health; the concurrent M.B.A./M.P.H. with the John E. Anderson Graduate School of Management; and two articulated M.A./M.P.H. degrees with African Area Studies and 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.

Master's Degrees

Master of Public Health

The Master of Public Health (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 Master of Public Health 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, UCLA, 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 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/division administrators or to the staff in the Student Affairs Office.

Applicants to the School of Public Health must perform satisfactorily on a recent Graduate Record Examination (GRE), Medical College Admission Test (MCAT), or Dental Admission Test (DAT). The Epidemiology Department requires GRE scores. MCAT or DAT scores are accepted only for applicants already hold-

PUBLIC HEALTH SCHOOLWIDE PROGRAMS

School of Public Health

UCLA
16-071 Center for the Health Sciences
Box 951772
Los Angeles, CA 90095-1772
(310) 825-5516

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Certain degrees within the School of Public Health are not offered by the individual departments but are administered on a schoolwide

ing 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. Applicants at the master's level require a minimum combined (verbal and quantitative) GRE score of 1,100. The analytical section is not required. 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.

Biostatistics

Students concentrating in biostatistics should have completed at least one year of calculus. 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 in the Health Services Department 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 and Allied 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 of offering 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' 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 student's 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 integration 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 100A, 100B, and 100C (in exceptional circumstances, Biostatistics 110A, 110B, and 115 may be substituted); Biostatistics 402A, 402B (402B satisfies the field training requirement); Biostatistics 403, 406; and two courses from Biostatistics 200A through 200C, M210 through 219, 230 through M236 or 404 through 419 (except 406). Epidemiology 201A-201B are recommended. Elective courses should be selected in public health, biomathematics, 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 271, 282, 482, and 487 are required. In addition, two to three elective courses from the list of specialty areas are selected in consultation with the student's 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 schools/colleges at UCLA.

International Family Health is 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, 430A, 434A, and 441 are required. In consultation with the adviser, additional elective courses are selected from Community Health Sciences M236, 246, 280, 294, 431, 447, and relevant courses in other departments in the school or other schools/colleges 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 internship leading to R.D. eligibility; physicians 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, M432, 436A, 436B, 444, and relevant courses in other departments in 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, the student must also select two courses from Community Health Sciences 214, 230, M236, 237, M274, 291, M432, and 436A-436B.

Sociocultural Aspects of Health is for students interested in the relation between location in the social system and health outcomes. Com-

munity Health Sciences M275 and 400 are required. In consultation with the adviser, students must also select two courses from Community Health Sciences 230, 235, 237, 238, M240, M244, M245A, M245B, M245C, 246, 273, 278, 281, 283, 284, 285, 290, 291, 431, M432, 433, 474.

Environmental Health Sciences

Required courses include Biostatistics 100B; Environmental Health Sciences 201, 210, 230, 240, 250, 401 (or 410A and 410B), and M411. Each departmental required course may be waived if a similar college-level course has been taken elsewhere and the student can pass the waiver examination. Elective courses should be selected in the chosen area of specialization.

Units from the courses listed above sum to approximately 52. At least five of these 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

Courses usually required include Biostatistics 100B; Epidemiology 201A-201B, 220, 400 (for predoctoral students), 596 (for postdoctoral students); and eight additional units from Epidemiology 202A, 202B, 203, 204, 210, M214, 223A, 223B, 224A, 224B, 227, M228, 230, 240, 241, 242, 243, 244, 246, 251, 252, 253, 260, 261, 263, 266, 270, M276, 280, 281, 282, 410A, 410B, 411, 414, and M417. Physicians and other postdoctoral students in an appropriate biomedical science may petition for waiver of course 400.

Students must submit a report demonstrating competence in epidemiologic methodology. The report may not be submitted prior to the completion of Epidemiology 400 (for predoctoral students) or 596 (for postdoctoral students who qualify for waiver of Epidemiology 400). Course 400 must be taken after completion of 201B. Course 596, for postdoctoral students, may be taken concurrently with 201B; minimum enrollment in two units of 596 is required for report grade.

Health Services

Health Services specialization programs include (1) policy and management, (2) health services organization, and (3) a cooperative M.P.H./M.B.A. All specialization programs require Health Services 200A-200B-200C, as well as School of Public Health core courses: Biostatistics 100A, Community Health Sciences 100, Environmental Health Sciences 100, and Epidemiology 100.

Policy and Management. The policy and management specialization is a two-year program

requiring 18 full courses, a summer internship in a local health care organization, and a major written research report. Required courses include Health Services 400, 422, Biostatistics 100B, and Health Services 236 or Management 403. In addition, students select five courses from Health Services 131, 134, 231, M233, 234, 235, 236, 239, 240, 244, 431, 433, 434, 435, 436, 441, 444, 446, or 447E. Students must select at least two other elective courses and are encouraged to choose courses outside the Department of Health Services and/or the School of Public Health.

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 236 or Management 403.

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 422. Management 402 may substitute for Biostatistics 100A.

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. 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 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. No more than 18 full courses are required for 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 or 101; Epidemiology 100 (200, 201A-201B for epidemiology majors); and Health Services 100 (200A-200B-200C for health services majors). Each core course may be waived if the student has 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 student's 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 at the doctoral level need a minimum combined (verbal and quantitative) score of 1,200.
- (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.
- (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.

Major fields or Subdisciplines

Major fields and subdisciplines and typical course plans, in addition to courses required for the master's degree, are listed below.

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 consultation with an adviser and the department faculty. The following courses, if not already taken, should be included: 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 M152A, 152B. All registered doctoral students enroll in Biostatistics 402B for one term each year. This may be used as the additional area of concentration referenced below.

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.

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

Behavioral Sciences and Health Education. At least four advanced research methods/statistics courses and at least five advanced courses from a list designed and offered by the department are required. Two quarters of research experiences prior to beginning the dissertation are required, as is participation in Community Health Sciences 286 (program doctoral seminar) and 288 (a discussion of current problems in health education). Written examinations in both the major and minor area of concentration are required.

A minimum of six full courses (four must be at the 200 or 400 level) in at least two School of Public Health departments/programs other than behavioral sciences and health education are required; four of these must be in only one other department/program.

Electives are chosen in consultation with the adviser. All doctoral students are reviewed annually by department faculty for evaluation of their performances.

Population and Family Health. Course content for the major field includes courses needed for the departmental M.P.H., Community Health Sciences 242 (program doctoral seminar), and two advanced courses in research methodology. Beyond the master's degree requirements, a minimum of 48 units (four quarters with an average of 12 units each) is required. Of these, at least 20 units must be in this program, in addition to the program doctoral seminar.

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 prerequisites are an M.P.H. degree or its equivalent, and full-time work experience in some aspect of public health is highly recommended. The candidate is 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 department also requires at least one area of concentration which may be either inside or outside the department.

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 applicant's residency experience.

After completion of the second doctoral year, the candidate 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.

Written and Oral Qualifying Examinations

Before advancement to candidacy, students must pass written examinations in the major 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 the student has 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. Two of the four must hold appointments in Public Health; one must be an outside member who holds no appointment in 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.

RADIATION ONCOLOGY

School of Medicine

UCLA
B265 UCLA Medical Plaza 200
Box 956951
Los Angeles, CA 90095-6951
(310) 794-1252

Chairs

H. Rodney Withers, M.D., D.Sc., *Chair*
Guy J.F. Juillard, M.D., *Vice Chair, Clinical Affairs*

Scope and Objectives

The Department of Radiation Oncology includes clinical divisions at the UCLA Medical Plaza and Medical Center, Wadsworth 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 Wadsworth VA. The primary clinical mission of

the department is the management of patients who have cancer and benign intracranial lesions, although ionizing radiations also are used for preparing patients for bone marrow transplantations and for altering the immune systems of patients with a range of illnesses. Knowledge of the disease in question, the comparative efficacy of radiation therapy and other methods, radiation biology and pathophysiology, and the physical characteristics of varying radiations is essential.

Research interests range from clinical problems through cellular kinetics, radiation modifiers, radiation chemistry, molecular biology, immunology, and basic and applied physics. The educational programs serve medical, dental, basic science (biology and physics), nursing, and radiation therapy students, and community and postgraduate physicians 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
1V-365 Center for the Health Sciences
Box 951428
Los Angeles, CA 90095-1428
(310) 825-7811

Professors

Zoran L. Barbaric, M.D.
Jorge R. Barrio, Ph.D.
Edward J. Hoffman, Ph.D.
Sung-Cheng (Henry) Huang, D.Sc.
Hooshang Kangaroo, M.D.
Robert B. Lufkin, M.D.
John C. Mazziotta, M.D., Ph.D.
William H. McBride, D.Sc.
Michael E. Phelps, Ph.D. (*Jennifer Jones Simon Professor of Biophysics*)
Heinrich R. Schelbert, M.D., Ph.D.
James B. Smathers, Ph.D.
Richard J. Steckel, M.D. (*Leo G. Rigler Professor of Radiological Sciences*), *Chair*
Ramesh C. Verma, M.D.
Milo M. Webber, M.D., LL.B.
H. Rodney Withers, M.D., D.Sc.
Leslie R. Bennett, M.D., *Emeritus*
Moses A. Greenfield, Ph.D., *FACR, Emeritus, Biomedical Physics Program Acting Director*
F. Eugene Holly, Ph.D., *Emeritus*
Norman S. MacDonald, Ph.D., *Emeritus*
Amos Norman, Ph.D., *Emeritus*

Associate Professors

Jeffrey R. Alger, Ph.D., *in Residence*
Denis B. Buxton, Ph.D., *in Residence*
Mark S. Cohen, Ph.D., *in Residence*
James D. Collins, M.D.
Sanjiv Gambhir, M.D., Ph.D.
Carolyn Kimme-Smith, Ph.D., *in Residence*
Nagichettiar Satyamurthy, Ph.D., *in Residence*

Assistant Professors

Simon R. Cherry, Ph.D.
Magnus Dahlbom, Ph.D., *in Residence*
Kuo Ting (Bruce) Ho, Ph.D., *in Residence*
Carl K. Hoh, M.D., *in Residence*
Michael McNitt-Gray, Ph.D., *in Residence*
William P. Melega, Ph.D., *in Residence*
Maribeth A. Raines, Ph.D., *in Residence*
Shantanu Sinha, Ph.D., *in Residence*
Phoebe L. Stewart, Ph.D.
Ricky Taira, Ph.D., *in Residence*
M. Albert Thomas, Ph.D., *in Residence*

Lecturers

Lan H. Kobe, M.S.
Marilyn C. Wexler, M.S.

Adjunct Professors

L. Stephen Graham, Ph.D.
Lawrence E. Williams, Ph.D.

Adjunct Associate Professors

Martin W. Herman, Ph.D.
James W. Sayre, Dr.P.H.
James S. Whiting, Ph.D.

Adjunct and Visiting Assistant Professors

Robert Close, Ph.D., *Adjunct*
Andre J. Duerinckx, M.D., Ph.D., *Visiting*
Keyvan Farahani, Ph.D., *Adjunct*
Guido Germano, Ph.D., *Adjunct*
Min-Yuan Leu, Ph.D., *Adjunct*
Hazel L. Lewis, Ph.D., *Adjunct*
James C. Liu, Ph.D., *Adjunct*
David Metcalf, Ph.D., *Adjunct*
Craig Morioka, Ph.D., *Adjunct*
James A. Roseboro, Ph.D., *Adjunct*
Peter J. Rosemark, Ph.D., *Adjunct*
Usha Sinha, Ph.D., *Adjunct*
Daniel J. Valentino, Ph.D., *Adjunct*
Robert E. Wallace, Ph.D., *Adjunct*

Scope and Objectives

The biomedical physics graduate program in the Department of Radiological Sciences offers training in four specialties: biophysics, medical imaging, therapeutic medical physics, and radiation biology and experimental radiation therapy. 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 biomedical cyclotrons, the radiation oncology cyclotron, the picture archiving and communication system (PACS), positron emission tomography (PET) scanners, the stereotactic gamma irradiator, and many VAX and SUN computers with image processor systems. Students are trained to work as independent investigators. The program also prepares students for careers as professional medical physicists, and graduates are qualified to work in a clinical environment under the supervision of a board certified medical physicist or are prepared for a clinical medical physics residency.

Graduates in biomedical physics can expect to engage in any combination of clinical service, consultation, research, and teaching. 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to the University's minimum requirements, applicants to the Master of Science in Biomedical Physics are required to hold a bachelor's degree with a major in a science. Also, it is expected that applicants will 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 from 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 address given at the beginning of this listing.

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 eight common core courses (Radiological Sciences 200A, 204, 205, 216, 217, 218, 260A, 260B) and the following nine courses, along

with any special direction by the graduate adviser: Radiological Sciences 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.

Radiological Sciences 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. After students complete the course requirements, they must choose a faculty member to guide their research and chair the thesis committee.

Doctoral Degree

Admission

See the Admission section under Master's Degree.

Major Fields or Subdisciplines

See the Areas of Study section under Master's Degree.

Course Requirements

After selecting a specialty, students acquire sufficient knowledge by taking courses recommended for the specialty; these include the common core courses. These 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 requirement of 60 hours. The biophysics specialty includes the core courses, specialty courses within the department, graduate courses from physics, engineering, chemistry/biochemistry, biological chemistry, pharmacology, and biomathe-

matics, and by research study and seminar courses

Medical Imaging. Minimum course requirement of 60 hours. The medical imaging specialty includes the core courses, Radiological Sciences 202B, and elective courses (Radiological Sciences 206, 208A, 209, 210, 211, 214, 215, 219, 222, M230, 269). The following courses outside the department may be taken as part of the 60 hours:

Computer Science 112, 118, 141, 161, 168, 168L, 171, 171L, 172, 174, 212A, 212B, 214, 215, 241A, 241B, 267A, 268, 270A, 276A, 276B.

Electrical Engineering 113, 113L, 115A, 115B, 115C, 212A, 213A, 215A, 230D.

Mathematics 141A, 141B, 142, 149, 270A, 270F.

The 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: Radiological Sciences 200A, 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 (Radiological Sciences 202A-202B-202C), 201, 203, 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. Each examination is written and graded by more than two faculty members.

Each specialty can request its own students to 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 given for eight courses taken as part of the medical imaging requirements. The questions are based on both knowledge of these 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 knowledge 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 this oral qualifying examination is consistent with University requirements. A final oral dissertation defense is required.

Lower Division Course

88. Lower Division Seminar: Special Topics in Radiological Sciences. 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 radiological sciences approach study of them. Students define, prepare, and present their own research projects with guidance of a professional school faculty member.

Upper Division Course

199. Directed Individual Studies or Research for Undergraduate Students (2 to 4 units). Prerequisite: consent of graduate adviser (based on 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. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. Lecture, one hour; laboratory, three hours. Prerequisite: course 200A or equivalent. 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. Lecture, three hours. Prerequisite: course 216 or consent of instructor. 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. Selected studies in clinical use of radioisotopes:

202A. Nuclear Medicine. Prerequisite: course 200B or consent of instructor.

202B. Diagnostic Radiology. Prerequisites: courses 200A and 205, or consent of instructor.)

202C. Radiation Therapy. Prerequisites: courses 203, 204, 208B, 221.

203. Physics of Radiation Therapy. Lecture, three hours; discussion, one hour. Prerequisites: 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. Effect of ionizing radiation on chemical and biological systems.

205. Physics of Diagnostic Radiology. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: 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.

207. Dosimetry and Health Physics. Lecture, three hours. Prerequisite: consent of instructor. Dosimetry of ionizing radiation, concepts in radiation protection, recommendation of national council on radiation protection and measurements, maximum permissible dose levels. Shielding calculations. Layout and design of radiographic installation.

208A. Medical Physics Laboratory: Medical Imaging. Discussion, two hours; laboratory, four hours. Prerequisite: 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. Discussion, two hours; laboratory, four hours. Prerequisite: course 203. Hands-on experience calibrating treatment planning and radiation therapy equipment.

209. Digital Techniques in Radiological Sciences. Lecture, three hours; discussion, one hour. Prerequisites: one course in C or another computer language, consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: course 209 or equivalent. 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. Lecture, 90 minutes; laboratory, two hours. Prerequisite: one calculus course; for nonbiomedical physics graduate students: consent of instructor. 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). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: courses 209, 210, consent of instructor. 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. Lecture, three hours; laboratory, two hours. Prerequisites: course 205, consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, two hours. Prerequisites: 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. Lecture, three hours; discussion, two hours. Prerequisite: consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisite: consent of instructor. 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 units each). Prerequisite: consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisites: course 216, consent of instructor. 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. Lecture, three hours; laboratory, one hour. Prerequisites: course 219, Physics 8E or equivalent, consent of instructor. 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.

M230. Computed Tomography: Theory and Applications. (Same as Biomathematics M230.) Prerequisite: consent of instructor. 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.

M233. Principles, Practices, and Policies in Biotechnology (2 units). (Same as Biological Chemistry M233, Biology M233, Chemical Engineering M233, Chemistry M233, Microbiology M233, and Microbiology and Immunology M233.) Prerequisite: graduate standing or consent of instructor. 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. S/U or letter grading.

260A-260B-260C. Seminars: Biomedical Physics (1 unit each). Joint critical study by students and instructors in fields of knowledge pertaining to biomedical physics. Periodic contributions made by visiting scientists. Discussion of research in progress. Student presentations required in spring term. May be repeated. S/U grading.

266A-266B-266C. Seminars: Nuclear Medicine (2 units each). Topics of current interest in nuclear medicine. Intended for physicians, radiation physicists, and graduate students. S/U grading.

268. Radiopharmaceutical Chemistry. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. 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 unit). Prerequisite: consent of instructor. 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.

495. Special Studies in Biomedical Physics. Discussion, two hours; laboratory, four hours. Prerequisite: consent of instructor. Teaching assistance in graduate laboratory courses under supervision of a faculty member. S/U grading.

596. Research in Biomedical Physics (4 to 12 units). 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. 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 units). 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 units). Prerequisite: successful completion of screening examinations. Research for and preparation of Ph.D. dissertation. May be repeated. S/U grading.

RELIGION, STUDY OF

*Interdepartmental Program
College of Letters and Science*

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Professors

Robert L. Benson, Ph.D. (*History*)
Edward G. Berenson, Ph.D. (*History*)
Robert E. Buswell, Ph.D. (*Chinese and Korean Buddhism*)
Richard Hovannisian, Ph.D. (*History*)
Henry Ansgar Kelly, Ph.D. (*English*)
Afaf Marsot, D.Phil. (*History*)
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*)
Merrick Posnansky, Ph.D. (*History, Anthropology*)
David C. Rapoport, Ph.D. (*Political Science*), Chair
Yona Sabar, Ph.D. (*Hebrew*)

Professors Emeriti

Marilyn McCord Adams, Ph.D. (*Philosophy*)
Robert Merrihew Adams, Ph.D. (*Philosophy*)
Milton V. Anastos, Ph.D. (*Classics*)
Amin Banani, Ph.D. (*Persian, History*)
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*)
Claus-Peter Clasen, Ph.D. (*History*)
Herbert A. Davidson, Ph.D. (*Hebrew*)
Vinton A. Dearing, Ph.D. (*English*)
Daniel W. Howe, Ph.D. (*History*)
William A. Lessa, Ph.D. (*Anthropology*)
Bengt T.M. Löfstedt, Ph.D. (*Medieval Latin*)
Jacques Maquet, Ph.D. (*Anthropology*)
Philip L. Newman, Ph.D. (*Anthropology*)
Douglass R. Price-Williams, Ph.D. (*Anthropology, Psychiatry and Biobehavioral Sciences*)
Jan 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*)
Hossein Ziai, Ph.D. (*Iranian and Islamic Studies*)

Assistant Professor

David N. Myers, Ph.D. (*History*)

Adjunct Associate Professor

S. Scott Barchy, 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.

Bachelor of Arts Degree

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 your 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. If you are admitted to honors, you should take three 199 courses under the guidance of the sponsoring professor. These courses are taken in the senior year and 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, you 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 David C. Rapoport at the program address.

Upper Division Courses

100. Undergraduate Seminar: Study of Religion. Prerequisite: consent of instructor. 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. 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.

Study of Religion Upper Division Course List

Courses marked with an asterisk have readings in foreign languages. See departmental course listings for prerequisites.

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

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 161. Introduction to Classical Mythology

166A. Greek Religion

166B. Roman Religion

168. Introduction to Comparative Mythology

Folklore and Mythology M122. Celtic Mythology

M126. Baltic and Slavic Folklore and Mythology

M128. Hungarian Folklore and Mythology

M129. Folklore and Mythology of the Ugric Peoples

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 119. The Christian Church, 100 to 1517

120. 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

Islam

Arabic (Near Eastern Languages) *120. Islamic Texts

History 107A-107B. Islamic Civilization

109A. History of North Africa from the Moslem Conquest: To 1578

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

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

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

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) 160. Japanese Buddhism

161. Religious Life in Modern Japan

175. Introduction to Japanese Thought

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*

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Professors

Shirley L. Arora, Ph.D. (*Spanish*)
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Rubén A. Benítez, Ph.D. (*Spanish*)
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Patrick Coleman, Ph.D. (*French*)
Marga Cottino-Jones, Ph.D., Dottore in Lettere (*Italian*)
Eric Gans, Ph.D. (*French*)
Joaquín Gimeno, Ph.D. (*Spanish*)
Peter Haidu, Ph.D. (*French*)
Bruce P. Hayes, Ph.D. (*Linguistics*)
Carroll B. Johnson, Ph.D. (*Spanish*)
Gerardo Luzuriaga, Ph.D. (*Spanish*)
C. Brian Morris, Litt.D. (*Spanish*)
C.P. Otero, Ph.D. (*Spanish, Romance Linguistics*)
A. Carlos Quicoli, Ph.D. (*Portuguese, Romance Linguistics*), Chair
Enrique Rodríguez-Cepeda, Ph.D. (*Spanish*)
Donca Steriade, Ph.D. (*Linguistics*)
Edward F. Tuttle, Ph.D. (*Italian*)
Stephen D. Werner, Ph.D. (*French*)

Professors Emeriti

George D. Bedell, Ph.D. (*Linguistics*)
Marc Bensimon, Ph.D. (*French*)
Giovanni Cecchetti, Dottore in Lettere (*Italian*)
E. Mayone Dias, Ph.D. (*Portuguese*)
Hassan el Nouty, Docteur ès Lettres (*French*)
Claude L. Hulet, Ph.D. (*Spanish and Portuguese*)
Bengt T.M. Löfstedt, Ph.D. (*Classics*)
José Pascual-Buxó, Ph.S. (*Spanish*)
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Associate Professors

Jean-Claude Carron, Docteur ès Lettres (*French*)
 Shuhsi Kao, Ph.D. (*French*)
 Hilda J. Koopman, Ph.D. (*Linguistics, African Languages*)
 Efrain Kristal, Ph.D. (*Spanish*)
 Sara Melzer, Ph.D. (*French*)
 José Monleón, Ph.D. (*Spanish*)
 Susan Plann, Ph.D. (*Spanish*)
 Lucia Re, Ph.D., Dottore in Lettere (*Italian*)
 A. John Skirius, Ph.D. (*Spanish*)
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 Timothy A. Stowell, Ph.D. (*Linguistics*)

Assistant Professors

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 Verónica Cortínez, Ph.D. (*Spanish*)
 Andrea Loselle, Ph.D. (*French*)
 Claudia Parodi, Ph.D. (*Spanish*)
 Malina Stefanovska, Ph.D. (*French*)

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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

The UCLA Bachelor of Arts degree in French, Italian, Portuguese, or Spanish, or equivalent, is required. Applicants to the Master of Arts 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 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. 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, the student 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 in Romance Linguistics and Literature or the UCLA Master of Arts in French, Italian, Portuguese, or Spanish, or equivalent is required. 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 middle pass are reviewed like candidates from other institutions; those who received 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, (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.

Graduate Courses

204A-204B. Romance Syntax: French (1 to 4 units each). Lecture, three hours. Prerequisites: Linguistics 120B, 200B, consent of instructor. Course 204A is prerequisite 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. Lecture, three hours. Prerequisite: French 210A or Portuguese 204A or Spanish 204A or consent of instructor. Comparative study of syntactic processes in Romance languages. Investigation of parameters underlying linguistic variation.

255. Topics in Romance Syntax (1 to 4 units). Prerequisite: consent of instructor. 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 units). Prerequisite: consent of instructor and program chair. 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 units). Prerequisite: consent of graduate adviser. 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 units). Prerequisite: consent of guidance committee. Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation (2 to 12 units). Prerequisite: successful completion of Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

Romance Linguistics and Literature 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 prerequisites:

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

Northern Gallo-Romance: French 210A. Phonology and Morphology from Vulgar Latin to French Classicism

210B. Syntax and Semantics from Vulgar Latin to French Classicism

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-215D. 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 218A-218B-218C. 18th Century

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 219A-219D. 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 220A-220D. 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 216A-216B-216C. Renaissance
 217A-217D. 17th Century
 251A-251B. Studies in the Renaissance
 252A-252B. Studies in the Baroque
 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 you to qualify for an officer's commission in the Army, Navy, Air Force, or Marine Corps while completing your 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 consid-

ered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of your 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.

The majority of commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service.

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. 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. Three- and two-year scholarship applications may be obtained from the appropriate UCLA department and must be submitted prior to February 1.

AEROSPACE STUDIES

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Professor

William F. Porter, M.S., Colonel, *Chair*

Adjunct Assistant Professors

Barbara L. Carpenter, M.A., Captain
 Kurt S. Shigeta, M.B.A., Captain

Air Force ROTC 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.

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 expenses and are paid about \$450 to cover 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 six-week field training program on an Air Force base during the summer preceding enrollment in the program.

Students interested in the six-week field training program are encouraged to apply to the department chair early during Fall Quarter of their sophomore year. The application deadline normally is February 1, but earlier submission is recommended, as the selection board considers applications monthly. 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, aptitude examination scores, medical examination results, performance during an officer board interview, and a physical fitness test.

Students selected for the six-week summer field training are provided meals, quarters, clothing, travel expenses, and approximately \$675 to cover 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 POC incur a military obligation and are paid \$150 per month during the academic year. Graduation and successful completion of POC leads to a commission as a second lieutenant. Cadets then report to one of the challenging assignments in the Air Force.

Freshman-Year Courses

Z. Leadership Laboratory (No credit). Laboratory, three hours. Mandatory for and restricted 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. The Air Force Today (2 units each). 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. The Air Force Way (2 units each). Lecture, one hour. Survey course designed to facilitate transition from Air Force GMC cadet to Air Force POC candidate. Topics include Air Force heritage, Air Force leaders, Quality Air Force, introduction to ethics, values, and leadership, group leadership problems, and continuing application of communication skills. P/NP or letter grading.

Upper Division Courses

130A-130B-130C. Air Force Leadership and Management. 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. Preparation for Active Duty. 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 units). Prerequisite: consent of instructor. 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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Professor

Michael L. Graves, M.S., Lieutenant Colonel, *Chair*

Adjunct Assistant Professors

Ben Chu, B.S., Captain
Edmund Davis, B.A., Major
Mapu Jamais, B.A., Major
Paul Knutson, B.S., Captain

Army ROTC 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.

Programs

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.

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

This 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.

Lower Division Courses

Army ROTC students may satisfy military history requirements by completing History 7B, 125E, 125F, 127A, 127B, 130C, 147A, 148A, 148B, 148C, 152A, or 152B in lieu of Military Science 110, with consent of the ROTC adviser.

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 units). 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 units). 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 units). 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 units). 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 units). 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 units). 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 units). 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 units). Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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 units). Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. 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 units). Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. 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 units). Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. 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 units). Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. Designed to present students who will 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 units). Lecture, 30 minutes; discussion, 90 minutes. Prerequisite: consent of instructor. 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). Prerequisites: upper division standing, consent of instructor. Supervised independent studies and research for undergraduate students who desire to pursue topics of their own selection.

NAVAL SCIENCE

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Professor

Daniel P. McKnight, M.S., Colonel, U.S. Marine Corps,
Chair

Adjunct Assistant Professors

Paul M. D'Alessandro, B.S., Lieutenant, U.S. Navy
Eric M. Tranter, B.A., Captain, U.S. Marine Corps
Sean C. Walker, B.S., Lieutenant, U.S. Navy
Steven C. Wurgler, B.S., Lieutenant, U.S. Navy

Navy ROTC 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. Nonscholarship 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.

Programs

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 below. 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.

Freshman-Year Courses

1A. Introduction to Naval Science (2 units). 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.

20B. Seapower and Maritime Affairs (2 units). 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.

Sophomore-Year Courses

1B. Naval Ship Systems I. 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.**

101B. Navigation II. Prerequisite: 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.

Junior-Year Courses

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, 101B, 102B, 102C.

20A. Naval Ship Systems II. 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.

101A. Navigation I. 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.**

103. Evolution of Warfare. 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.

Senior-Year Courses

102B. Naval Leadership and Management I. 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. Naval Leadership and Management II (2 units). Prerequisite: 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.

104. Expeditionary Military Operations. 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 units). Prerequisites: upper division standing, consent of instructor. 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

UCLA
2326 Murphy Hall
Box 951539
Los Angeles, CA 90095-1539

(310) 825-6828
fax: (310) 825-9754
e-mail: scandiniv@humnet.ucla.edu
<http://www.humnet.ucla.edu/humnet/scandinavian/scanhome.htm>

Professors

James R. Massengale, Ph.D.
Mary Kay Norseng, Ph.D., *Vice Chair*
Ross P. Shideler, Ph.D.
Kenneth G. Chapman, Ph.D., *Emeritus*

Lecturer

Jules L. Zentner, Ph.D.

Visiting Assistant Professor

Timothy Tangherlini, 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 graduate majors are expected to concentrate on one Scandinavian language, though they study the literatures of the other language areas.

Bachelor of Arts in Scandinavian Languages

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.

Graduate Study

The following constitutes introductory information regarding the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to the University minimum requirements, prospective students in the M.A. program in Scandinavian must have an undergraduate major in Scandinavian languages or equivalent. Applicants who have deficiencies in the undergraduate major must complete it 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 a brochure describing the program and requirements, write to the address given at the beginning of this listing.

Areas of Study

There are no specific major fields or subdisciplines 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 the student has completed the course requirements and feels 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.

For the Ph.D. degree in Germanic Languages with Scandinavian literature as a major or minor field, see the Ph.D. in Germanic Languages.

Lower Division Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in 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, or 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 these 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.

1. **Elementary Swedish.**
2. **Elementary Swedish.** Enforced requisite: course 1.
3. **Elementary Swedish.** Enforced requisite: course 2.
4. **Intermediate Swedish.** Enforced requisite: course 3.
5. **Intermediate Swedish.** Enforced requisite: course 4.
11. **Elementary Norwegian.**
12. **Elementary Norwegian.** Enforced requisite: course 11.
13. **Elementary Norwegian.** Enforced requisite: course 12.
14. **Intermediate Norwegian.** Enforced requisite: course 13.
15. **Intermediate Norwegian.** Enforced requisite: course 14.
21. **Elementary Danish.**
22. **Elementary Danish.** Enforced requisite: course 21.
23. **Elementary Danish.** Enforced requisite: course 22.
24. **Intermediate Danish.** Enforced requisite: course 23.
25. **Intermediate Danish.** Enforced requisite: course 24.

50. Introduction to Scandinavian Literature. Lecture, three hours; discussion, one hour; outside study, eight hours. Intended 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. Discussion, three hours. Prerequisite: course 5 or equivalent. Readings, composition, and conversation in Swedish. May be repeated once for credit. P/NP or letter grading.

110. Advanced Norwegian. Discussion, three hours. Prerequisite: course 15. Readings, composition, and conversation in Norwegian. May be repeated once for credit. P/NP or letter grading.

115. Advanced Danish. Discussion, three hours. Prerequisite: course 25. Readings, composition, and conversation in Danish. May be repeated once for credit. P/NP or letter grading.

141. Backgrounds of Scandinavian Literature. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite: reading knowledge of a Scandinavian language. Reading and analysis of selected texts by major 20th-century Swedish authors.

C182. Theory of the Scandinavian Novel. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. Discussion, three hours. Prerequisite: 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.

C186. Voices of Women in Scandinavian Literature. Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. 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. (Formerly numbered 60.) Discussion, three hours. Prerequisite for Scandinavian majors: course 5, 15, or 25, or equivalent; for nonmajors: knowledge of a Scandinavian language not required. Intended 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.

190. Honors Course in Scandinavian. Prerequisites: senior standing with a minimum 3.0 GPA in the major, consent of honors committee. Intensive study of a selected special topic in Scandinavian. Discussions, oral and written reports.

199A-199ZZ. Special Studies in Scandinavian (2 or 4 units each). Prerequisites: senior or graduate standing, consent of instructor. To be arranged with faculty member who will direct 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 or senior undergraduates who desire more intensive or specialized investigation of material covered in a regular course and who present such a course as a prerequisite.

Graduate Courses

C251. Henrik Ibsen on the World Stage. Discussion, three hours. Prerequisites: advanced knowledge of a modern Scandinavian language, consent of instructor. 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. Discussion, three hours. Prerequisite: advanced knowledge of a Scandinavian language or consent of instructor. 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. Discussion, three hours. Prerequisites: advanced knowledge of a modern Scandinavian language, consent of instructor. 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. Discussion, three hours. Prerequisite: advanced knowledge of a Scandinavian language or consent of instructor. 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. Discussion, three hours. Prerequisite: graduate standing or consent of instructor. 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. Discussion, three hours. Prerequisites: advanced knowledge of a Scandinavian language, consent of instructor. 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. Discussion, three hours. Prerequisite: 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. Discussion, three hours. Prerequisite: advanced knowledge of a Scandinavian language or consent of instructor. Intensive study of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course C186. 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.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: graduate standing in Scandinavian. To be arranged with faculty member who will direct 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 units). To be arranged with faculty member who will direct 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. To be arranged with faculty member who will direct the study or research. May be repeated. S/U grading.

SLAVIC LANGUAGES AND LITERATURES

College of Letters and Science

UCLA
115 Kinsey Hall
Box 951502
Los Angeles, CA 90095-1502
(310) 825-2676

Professors

Henning Andersen, Ph.D. (*Slavic Languages*)
Henrik Birnbaum, Ph.D. (*Slavic Languages and Literatures*)
Michael 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. Osipov, Ph.D. (*Russian Literature*)
Ronald Vroon, Ph.D. (*Russian Literature*), *Chair*
Dean S. Worth, Ph.D. (*Slavic Languages*)
Aleksandar Albijanić, Ph.D., *Emeritus*
Thomas Eekman, Ph.D., *Emeritus*
Kenneth E. Harper, Ph.D., *Emeritus*
Vladimir Markov, Ph.D., *Emeritus*
Rochelle Stone, Ph.D., *Emerita*

Associate Professor

Peter Hodgson, Ph.D. (*Russian Literature*)

Assistant Professors

Irina Gutkin, Ph.D. (*Russian Literature*)
Roman Koropeckyj, Ph.D. (*Polish and Ukrainian Literature*)

Lecturers

Olga Kagan, Diploma (*Russian*)
Edward Denzler, M.A., *Emeritus*

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 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 Slavic linguistics and literature 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 careers 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.

Bachelor of Arts in Russian Language and Literature

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.

You 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 124A through 124F, 125, 126, 130B, 130C, 134, 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, 124A through 124F, 125, 126, 130B, 130C, 134, 140B, 140C, 140D, M150, Linguistics 103, 110, 120A, 120B, 127 are required.

Bachelor of Arts in Slavic Languages and Literatures

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, Serbo-Croatian 103A-103B-103C, 103D-103E-103F (placement with consent of instructor); three courses from Czech 102D, 102E, 102F, Polish 102D, 102E, 102F, Serbo-Croatian 103D, 103E, 103F, Russian 102A, 102B, 102C, 123, 130A, 130B, 130C, 134, 140A through 140D, M150; two courses from Czech 155A, 155B, Polish 152A, 152B, Serbo-Croatian 154A, 154B, Slavic M125, M126.

Bachelor of Arts in Russian Studies

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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to the University minimum requirements, the department requires the following from applicants to the Master of Arts program in Slavic Languages and Literatures: 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.

A departmental brochure describing the curriculum in some detail (graduate and undergraduate) is available at the address given at the beginning of this listing.

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 for students in linguistics.

Slavic 201, Russian 204, 212A, 220A are required of all M.A. students.

Literature students must also take Russian 211A, 211B, 212B, 213, 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.

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 retaking 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. 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.

Students with M.A. degrees from other institutions who are admitted to the program must take the UCLA M.A. comprehensive examination as a screening examination within three terms following matriculation. This determines whether they are allowed to continue for the Ph.D. Students may retake the examination

once in order to attempt to achieve the high pass grade.

Major Fields or Subdisciplines

Candidates for the Ph.D. degree choose a specialization in either literature or linguistics, with Russian as the principal language and literature. By special arrangement doctoral students 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, Russian 211A or 211B (complementing students' M.A. course selection), and three 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.

Written Examinations. All students are expected to have a sound general knowledge of both Slavic philology and Russian literary history.

Students in linguistics must take one written examination 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. Each examination lasts three hours.

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 stu-

dents' 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.

Oral Examination. 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.

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. 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. Lecture, three hours. Introductory survey of social and cultural institutions of the Slavic peoples and their historical background.

Upper Division Courses

M125. Interwar Central European Prose. (Same as German M119G and Humanities M162.) 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.

M126. Postwar Central European Prose. (Same as German M119H and Humanities M166.) 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.

177. Baltic Languages and Cultures (2 units). General survey of peoples speaking Old Prussian, Lithuanian, and Latvian; their linguistic, historical, and ethnic affiliations.

M179. Baltic and Slavic Folklore and Mythology. (Same as Folklore M126.) Lecture, three hours. General course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, consent of instructor.

Graduate Courses

200. Proseminar. Presentation/discussion, three hours. Prerequisite: graduate standing. Introduction to research tools and techniques, as well as broad exposure to metalanguages of linguistics and literary criticism.

Linguistics

201. Introduction to Old Church Slavic. Lecture, three hours. Required for M.A. (linguistics, literature). Introduction to phonology and grammar; readings.

202. Introduction to Comparative Slavic Linguistics. Lecture, three hours. Prerequisite: course 201. Required for M.A. (linguistics). Introduction to comparative phonology and grammar of Slavic languages.

221. Introduction to East Slavic Languages. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Prerequisite: course 202. Recommended: Serbo-Croatian 103A-103B-103C or Bulgarian 103A-103B-103C. Required for Ph.D. (linguistics). Introduction to structure and history of South Slavic languages.

224. Introduction to Ukrainian and Belorussian. Lecture, three hours. Prerequisite: course 202. Introduction to history and structure of Ukrainian and Belorussian.

M229. Introduction to Slavic Bibliography (2 units). (Same as Library and Information Science M229C.) Prerequisite: consent of instructor. 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.

241A-241B. Advanced Old Church Slavic. Lecture, three hours. Prerequisite: course 201. **241A.** Advanced Readings in Canonical Texts; **241B.** East, West, and South Slavic Recensions of Church Slavic.

242. Comparative Slavic Linguistics. Lecture, three hours. Prerequisite: course 202. Selected topics in development of Common Slavic.

251. Introduction to Baltic Linguistics. Lecture, three hours. Prerequisite: course 202. Introduction to Baltic linguistics, with special attention to relationship between Baltic and Slavic.

261. Slavic Paleography. Lecture, three hours. Prerequisite: course 201. Introduction to Slavic paleography: inscriptions, birchbark letters, Glagolitic and Cyrillic texts.

262A-262B. West Slavic Linguistics. Lecture, three hours. Prerequisite: course 222. **262A.** Lethitic; **262B.** Czechoslovak, Sorbian.

263A-263B. South Slavic Linguistics. Lecture, three hours. Prerequisite: course 223. **263A.** Serbo-Croatian, Slovene; **263B.** Bulgarian, Macedonian.

281. Seminar: Slavic Linguistics. 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. 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. Lecture, three hours. Recommended prerequisites: 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.

290. Seminar: Comparative Slavic Literature. Seminar, three hours. Prerequisites: courses 230A-230B-230C. Recommended: reading knowledge of one Slavic language in addition to Russian. Selected topics involving more than one Slavic literature or Slavic and Western literatures. May be repeated for credit with consent of instructor and graduate adviser.

295. Seminar: Literary Analysis. Seminar, three hours. Recommended (but not prerequisite): reading knowledge of one Slavic language in addition to Russian. Selected topics from various Slavic literatures or Slavic and Western literatures, with emphasis on analytic methods. May be repeated for credit with consent of instructor and graduate adviser.

Special Studies

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: consent of instructor and graduate adviser.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units). Prerequisite: consent of instructor and graduate adviser.

599. Research for Ph.D. Dissertation (2 to 12 units).

Bulgarian

Lower Division Course

99. Introduction to Bulgarian Civilization. Lecture, three hours. Introductory survey of social and cultural institutions of the Bulgarian people and their historical background.

Upper Division Courses

103A-103B-103C. Elementary Bulgarian (5 units each). Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Bulgarian language. P/NP or letter grading.

154. Survey of Bulgarian Literature. Lecture, three hours. Prerequisite: upper division standing. 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 units each). Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Czech language. P/NP or letter grading.

102D-102E-102F. Advanced Czech. Recitation, three hours. Prerequisite: course 102C.

155A-155B. Czech Literature. Lecture, three hours. Lectures and readings in English. **155A.** Survey of Czech Literature from the Middle Ages to the Present; **155B.** Selected Topics.

Polish

Upper Division Courses

102A-102B-102C. Elementary Polish (5 units each). Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Polish language. P/NP or letter grading.

102D-102E-102F. Advanced Polish. Recitation, three hours. Prerequisite: course 102C.

152A-152B-152C. Survey of Polish Literature. Lecture, three hours. Lectures and readings in English. **152A.** From the Middle Ages to Neoclassicism; **152B.** Romanticism and Realism. (Formerly numbered 160.); **152C.** From Young Poland to the Present. (Formerly numbered 152B.).

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 Courses

1. Elementary Russian (5 units). Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

2. Elementary Russian (5 units). Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

3. Elementary Russian (5 units). Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

4. Intermediate Russian (5 units). Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

5. Intermediate Russian (5 units). Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

6. Intermediate Russian (5 units). Recitation, five hours; laboratory, one hour; outside study, 10 hours minimum. P/NP or letter grading.

10. Intensive Course in Russian (15 units). 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 to 12 units). Basic courses in the Russian language. 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.

15A-15B. Accelerated Russian (8 units, 7 units). 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.

20. Intensive Intermediate Russian (15 units). Prerequisite: course 10 or one year of college-level Russian or equivalent. Intermediate instruction in reading, writing, and speaking Russian equivalent to courses 4, 5, and 6.

101A-101B-101C. Advanced Russian (5 units each). Recitation, five hours; outside study, 10 hours minimum. Prerequisite: course 6. Advanced grammar, reading, and conversation. P/NP or letter grading.

102A-102B-102C. Advanced Composition and Conversation: Reading of Contemporary Texts. Lecture, three hours. Prerequisite: course 101C or consent of instructor. Advanced conversation and composition, using a multimedia approach (contemporary Russian prose, Soviet television and films).

106. Reading of Advanced Literary Texts. (Formerly numbered 106A-106B.) Lecture, three hours. Prerequisite: course 101C. Emphasis on integrating concepts about the structure of Russian into reading and analysis of difficult texts.

107. Russian for Social Scientists (2 units). Prerequisite: three years of Russian or consent of instructor. Reading of texts relevant to social scientists: viewing of Soviet TV. May be repeated for credit.

108A-108B-108C. Business Russian. Prerequisite: consent of instructor. Russian grammar, conversation, reading, general and business vocabulary, and verbal etiquette; introduction to Russian business conduct. P/NP or letter grading.

Linguistics Course

123. Historical Commentary on Modern Russian. Lecture, three hours. Prerequisite: course 101C. Historical explanation of phonological and morphological anomalies of modern Russian.

Literature and Civilization Courses

25. The Russian Novel in Translation. Lecture, three hours; discussion, one hour. Designed for non-majors. Study of major works by the great 19th-century Russian novelists.

99A. Introduction to Russian Civilization. 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. 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.

118. Survey of Russian Literature to Pushkin. Lecture, three hours. Prerequisite: upper division standing. Slavic majors should take this course during their sophomore year. Lectures and readings in English.

119. Survey of 19th-Century Russian Literature. Lecture, three hours. Prerequisite: upper division standing. Slavic majors should take this course during their sophomore year. Lectures and readings in English.

120. Survey of 20th-Century Russian Literature. Lecture, three hours. Prerequisite: upper division standing. Slavic majors should take this course during their sophomore year. Lectures and readings in English.

124A-124F. Studies in Russian Literature. Lecture, three hours. Lectures and readings in English. Following writers are alternately discussed: **124A.** Pushkin; **124B.** Gogol; **124C.** Turgenyev; **124D.** Dostoevsky; **124E.** Tolstoy; **124F.** Chekhov.

125. The Russian Novel in Its European Setting. Lecture, three hours. Prerequisite: upper division standing. Lectures and readings in English. Emphasis on 19th- and 20th-century novelists.

126. Survey of Russian Drama. Lecture, three hours. Prerequisite: upper division standing. Lectures and readings in English. Major Russian plays from the 18th to 20th century.

127. Women in Russian Literature. Lecture, three hours. Prerequisite: upper division standing. 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. 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. Lecture, three hours. Prerequisite: course 6. Lectures and readings in Russian. **130A.** Introduction to Analysis of Poetic Texts; **130B.** From Mid-18th Century through Precursors of Symbolism; **130C.** From Late-19th Century through Contemporary Soviet Verse.

134. Pushkin. Lecture, three hours. Prerequisite: course 6. Lectures and readings in Russian. Major poetical works.

140A-140D. Russian Prose. Lecture, three hours. Prerequisite: course 6. Lectures and readings in Russian. Close reading of texts representing various periods and styles. Emphasis on narrative techniques, rhetorical strategies, and literary genres. **140A.** Introduction to Analysis of Prose Texts; **140B.** Karamzin to Turgenev; **140C.** Dostoevsky to Gorky; **140D.** Soviet and Emigre Writers.

M150. Russian Folk Literature. (Same as Folklore M150.) Lecture, three hours. Lectures and readings in Russian.

M170. Russian Folklore. (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. Lecture, three hours. Prerequisite: course 6 or consent of instructor. Recommended: course 101C. Reading and discussion of selected authors; written seminar papers usually required.

Graduate Courses

201A-201B-201C. Introduction to Analysis of Russian Texts. Lecture, three hours. Prerequisites: courses 102C and 106, or consent of instructor. Conducted in Russian. Reading, analysis of text structure and style, translation exercises, composition.

Linguistics

203. Practicum in Russian (2 units). Prerequisite: 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. Lecture, three hours. Prerequisites: 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. Lecture, three hours. Prerequisite: Slavic 201 or consent of instructor. Readings in premodern Russian texts. May be repeated for credit.

220A-220B. Structure of Modern Russian. 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. Prerequisite: course 220A. Required for M.A. (linguistics). Survey of Russian syntax and grammatical categories.

241. Topics in Russian Phonology. Lecture, three hours. Prerequisite: course 220A. Selected topics in Russian phonology. May be repeated for credit with consent of instructor.

242. Topics in Russian Morphology. Lecture, three hours. Prerequisite: course 220A. Selected topics in Russian inflection and derivation. May be repeated for credit with consent of instructor.

243. Topics in Historical Russian Grammar. Lecture, three hours. Prerequisites: course 204, Slavic 221. Selected topics in Russian historical phonology, morphology, and syntax. May be repeated for credit with consent of instructor.

263. Russian Dialectology. Lecture, three hours. Prerequisite: Slavic 221. Phonology and grammar of modern Great Russian dialects.

264. History of the Russian Literary Language. Lecture, three hours. Prerequisites: course 204, Slavic 201. Evolution of literary Russian from the 11th to 20th century. Lectures and analysis of texts.

265. Topics in Russian Syntax. Lecture, three hours. Prerequisite: course 220B. Traditional and generative approaches to Russian syntax. May be repeated for credit with consent of instructor.

266. Russian Lexicology. Lecture, three hours. Examination of formal and semantic structure of Russian lexicon.

Literature and Civilization

211A. Literature of Medieval Rus'. 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. 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. 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 Turgenev, Goncharov, and Dostoevsky, moving to major novels of Tolstoy, Dostoevsky, and Saltykov-Shchedrin, and concluding with works of the pre-symbolist period, especially the short stories of Chekhov.

213. 20th-Century Russian Literature. Lecture, three hours. Required for M.A. (literature). Lectures and readings in major and secondary writers.

215. Contemporary Russian Literature. Discussion, three hours. Prerequisite: 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. 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. Lecture, three hours. Prerequisite: graduate standing. Introduction to use of linguistic methods in study of Russian poetic texts. May be repeated for credit.

251. Topics in Literature of Medieval Rus'. Lecture, three hours. Prerequisite: 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. 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. Seminar, three hours. Recommended (but not prerequisite): 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'. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisites: 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. Seminar, three hours. Prerequisite: 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. Seminar, three hours. Prerequisites: 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. Discussion, three hours. Reading and discussion on selected topics in history of Russian culture.

Serbo-Croatian

Upper Division Courses

103A-103B-103C. Elementary Serbo-Croatian (5 units each). Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Serbo-Croatian language. P/NP or letter grading.

103D-103E-103F. Advanced Serbo-Croatian. Recitation, three hours. Prerequisite: course 103C.

113A-113B-113C. Advanced Reading and Composition. Recitation, three hours. Prerequisite: course 103F or consent of instructor. Reading and translation of difficult texts; advanced composition.

154A-154B. Yugoslav Literature. Lecture, three hours. Lectures and readings in English. **154A.** Survey of Yugoslav Literature from the Middle Ages to the Present; **154B.** Selected Topics.

Slovak

Graduate Course

222. Structure of Slovak. Lecture, three hours. Prerequisite: Slavic 202. Recommended: Slavic 222. Introduction to phonological and morphological structure of the Slovak language, especially as contrasted with Czech.

Ukrainian

Upper Division Courses

101A-101B-101C. Elementary Ukrainian (5 units each). Recitation, five hours; outside study, 10 hours minimum. Basic courses in the Ukrainian language. P/NP or letter grading.

152. Ukrainian Literature. 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. Tychna.

Non-Slavic Languages of Eastern Europe

Lithuanian

Upper Division Courses

101A-101B-101C. Elementary Lithuanian. Recitation, five hours. Basic courses in the Lithuanian language.

Romanian

Lower Division Course

99. Introduction to Romanian Civilization. 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 units each). Recitation, five hours; outside study, 10 hours. Basic courses in the Romanian language. P/NP or letter grading.

152. Survey of Romanian Literature. 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. 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 in Other Departments

Economics 182; Ethnomusicology and Systematic Musicology 91C, 128, 130; Geography 184; History 131A-131D, 200D, 233A-233B; Linguistics 20, 103, 110, 120A, 120B, M150, as well as several of the graduate courses in linguistics; Political Science 128A, 128B, 156A, 157.

SOCIAL SCIENCES

College of Letters and Science

UCLA
A265 Murphy Hall
Los Angeles, CA 90095
(310) 206-2875

Lower Division Courses

There is no major in social sciences; however, the following courses are offered for interested students.

20. Racial Minorities in the U.S. 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 units). Introduction to nature of legal institutions, processes, and norms.

40. Introductory Statistics. 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. 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.

SOCIAL SCIENCES COLLEGIUM

College of Letters and Science

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Professors

Jeffrey C. Alexander, Ph.D. (*Sociology*), Director
Joyce Appleby, Ph.D. (*History*)
Ivan T. Berend, Ph.D. (*History*)
Edward G. Berenson, Ph.D. (*History*)
Richard Berk, Ph.D. (*Sociology*)
Rogers Brubaker, Ph.D. (*Sociology*)
Ellen DuBois, Ph.D. (*History*)
Bryan C. Ellickson, Ph.D. (*Economics*)
J. Nicholas Entrikin, Ph.D. (*Geography*)
J. Eugene Grigsby III, Ph.D. (*Urban Planning*)
Peter B. Hammond, Ph.D. (*Anthropology*)
Jack Katz, Ph.D. (*Sociology*)
William Mason, Ph.D. (*Sociology*)
Ruth M. Milkman, Ph.D. (*Sociology*)
Eric H. Monkkenon, Ph.D. (*History*)
Gary B. Nash, Ph.D. (*History*)
Karen J. Orren, Ph.D. (*Political Science*)
David O. Sears, Ph.D. (*Political Science, Psychology*)
Edward W. Soja, Ph.D. (*Urban Planning*)
Steven L. Spiegel, Ph.D. (*Political Science*)
Ivan Szelenyi, Ph.D. (*Sociology*)
Donald J. Treiman, Ph.D. (*Sociology*)
Roger Waldinger, Ph.D. (*Sociology*)
Scott L. Waugh, Ph.D. (*History*)

Associate Professors

Peter Baldwin, Ph.D. (*History*)
Ruth Bloch, Ph.D. (*History*)
Judith A. Carney, Ph.D. (*Geography*)
Franklin D. Gilliam, Jr., Ph.D. (*Political Science*)
Douglas Hollan, Ph.D. (*Anthropology*)
Kathryn Norberg, Ph.D. (*History*)
Raymond A. Rocco, Ph.D. (*Political Science*)
William G. Roy, Ph.D. (*Sociology*)
Miriam Silverberg, Ph.D. (*History*)
Edward E. Telles, Ph.D. (*Sociology*)
Albion M. Urdank, Ph.D. (*History*)

Assistant Professors

Peter E. Kollock, Ph.D. (*Sociology*)
Muriel McClendon, Ph.D. (*History*)
José Moya, Ph.D. (*History*)
David N. Myers, Ph.D. (*History*)
Simon Potter, Ph.D. (*Economics*)

The Social Sciences Collegium is a consortium of social sciences faculty dedicated to the enrichment of lower division education. These top faculty members have come together to develop innovative courses which are (1) sensitive to your needs, providing you with a basic introduction to social scientific research and theories and (2) geared to your interests, helping you develop sophisticated, in-depth understanding of contemporary social problems and events.

The collegium offers three different kinds of opportunities:

Social Sciences Collegium Seminars are excellent opportunities to explore a social issue in an intimate classroom environment. With an enrollment capacity of 20, these seminars allow you to build your writing and speaking skills while learning about the events and forces that shape headlines and lives. The seminars are taught by advanced graduate students with outstanding academic and teaching records. The graduate student instructors, selected by a competitive awards process, bring enthusiasm and fresh perspectives to the seminars.

Social Sciences Collegium Lecture Courses are reduced-enrollment courses taught by cutting-edge scholars. Faculty members have developed a variety of new lecture courses specifically for first- and second-year students, integrating interdisciplinary and multimedia approaches to contemporary and often controversial issues. These courses offer excellent TA-to-student ratios and opportunities to do original research on relevant topics.

Social Sciences Collegium Omnibus Course — Los Angeles in Transition is a unique and dynamic learning experience focused on one of the most fascinating urban environments: our own backyard. The course is team taught in Winter Quarter by 10 distinguished faculty members from the social sciences and professional schools who have research expertise in some aspect of Los Angeles, such as the city's history, ecology, government, or educational system. Each professor holds a weekly seminar meeting with 20 students, and all 200 students and 10 faculty members gather for a weekly lecture and debate session. The course relies on contemporary writings, media resources, and field trips to integrate these diverse perspectives.

For further information, contact Christopher Campbell at the program address.

SOCIAL WELFARE

School of Public Policy and Social Research

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Professors

Rosina M. Becerra, Ph.D.
Yehekel Hasenfeld, Ph.D.
Stuart A. Kirk, D.S.W. (*Marjorie Crump Professor of Social Welfare*)
Duncan Lindsey, Ph.D.
Fernando M. Torres-Gil, Ph.D.

Professors Emeriti

Jerome Cohen, Ph.D.
Nathan E. Cohen, Ph.D.
Maurice F. Conery, 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*)
Jack Rothman, Ph.D.
Leonard Schneiderman, Ph.D.
Harry Wasserman, D.S.W.

Associate Professors

A.E. Benjamin, Ph.D.
Diane de Anda, Ph.D.
Alfreda P. Iglehart, Ph.D.
James E. Lubben, D.S.W., *Chair*
Alex J. Norman, D.S.W., *Emeritus*

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Karin A. Elliott Brown, Ph.D.
Rachelle A. Dorfman, Ph.D.
Todd M. Franke, Ph.D.
Julia R. Henly, Ph.D.
Mitchell T. Maki, Ph.D.
Linda G. Mills, Ph.D.
Ailee Moon, Ph.D.

Academic Coordinators

Walter M. Furman, M.Phil., *Center for Child and Family Policy Studies Associate Director*
Wanda S. Ballenger, M.S.W., *Center for Child Welfare Director*
Elsa Ten Broeck, M.S.W., *Inter-University Consortium on Child Welfare Director*

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.
Gerardo P. Laviña, L.C.S.W.
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Mary Brent Wehrl, M.S.W.
Katherine M. Kolodziejcki, Ph.D., *Emerita*
Jane E. Kurohara, M.S.W., *Emerita*
Winifred E. Smith, M.S.W., *Emerita*

Scope and Objectives

The primary objective of the Department of Social Welfare graduate program is to prepare students for agency-based practice in a multicultural setting. In response to changing demographic trends and the emergence of new social problems, the department provides leader-

ship 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.

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 of our children, families, and communities enjoy a better education, better health care, better job training, and a better economic future.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

Admission

In addition to University graduate admission requirements, the Master of Social Welfare (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 prerequisite 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 examinations be 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 the applicant.

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 at the address given at the beginning of this listing.

Areas of Study

Social work practice in communities, administration, policy and planning, and social work practice with individuals, families, and groups are offered as social work methods. Specializations are available in gerontology, child welfare, children and adolescents, health, and mental health.

Course Requirements

A total of 76 units in courses in the department 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. Only Social Welfare 596A and 597A may be taken. 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. As a component of the second-year research course, the satisfactory completion of an individual research project, or participation in a group research project concerned with a social welfare problem, is required.

Practicum Requirements. There is a concurrent field placement in each of the two years. Time spent in placement may vary according to guidelines established by the program. The overall time requirement is approximately 1,300 hours.

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 include meeting the general admission requirements of the Graduate Division and an 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 prerequisites 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 at the address given at the beginning of this listing.

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 series of two major papers demonstrating students' knowledge and analytical skills in (a) application of social and behavioral science knowledge of social work and (b) utilization of research methods to a problem area. Each paper must be evaluated by a two-member committee.

The qualifying examinations are graded on a pass/fail basis, and passing them is prerequisite for pursuing the dissertation. If students fail one or more components, they may be permitted to retake the examination only on recommendation by the department's doctoral program committee.

Advancement to doctoral candidacy follows successful completion of both the 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.

Upper Division Courses

100A. Introduction to Social Welfare: Policies and Programs. Prerequisite: consent of instructor. 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. Prerequisite: 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. (Formerly numbered 105.) 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. Recommended prerequisites: 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. Prerequisites: 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. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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.

104C. Diversity and Aging. Exploration of complexity of variables related to diversity of the aging population and variability in the aging process within context of both physical and social aging, in a multidisciplinary perspective. P/NP or letter grading.

104D. Public Policy and Aging. 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.

104E. Social Aspects of Aging. 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.

106. Research Seminar and Field Observation: Social Welfare. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: consent of instructor. 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. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisites: course 106, consent of instructor. 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.

140. Introduction to Study of Aging. 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.

Graduate Courses

Consult the department for curriculum updates.

201A-201B. Dynamics of Human Behavior (3 units each). 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.

202A-202B. Dynamics of Human Behavior (2 units each). Prerequisites: 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 units each). (Formerly numbered 203.) Prerequisite: consent of instructor. 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.

205A. Cross-Cultural Awareness (2 units). 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 grading.

205B. Group Conflict and Change (2 units). Study of phenomena of group conflict and change as they appear in the social welfare matrix of groups, communities, and social institutions; relationship between conflict and social and cultural change; major research contributions in understanding of these phenomena.

220. History and Philosophy of Social Welfare (2 units). 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.

221A. Social Welfare Policy and Services I. Lecture, three hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory with special reference to values as seen by different components of the welfare system; theory and research about needs met and not met, about various welfare policies and organizational forms, and about social change to prevent needs. S/U or letter grading.

221B. Social Welfare Policy and Services II (2 units). 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 units). 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. Discussion, three hours. Prerequisites: doctoral standing and/or consent of instructor:

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 Direct Social Work Practice I, II, III (2 units each). 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 Direct Social Work Practice IV, V, VI (2 units each). Corequisite: required social work practicum. Advanced level, critical analysis of theories, concepts, and principles underlying social casework practice. Specific attention to deviation and stress as conditions affecting functioning of individuals and groups, and to diagnostic knowledge and competence required in rehabilitation and prevention.

240A-240B-240C. Community Administration, Policy, and Planning I, II, III (2 units each). 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 Work Method (Administration, Planning, and Community Organization) IV, V, VI (2 units each). 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.

245A-245B. Development of Social Work Practice Theory. Discussion, three hours. Prerequisites: doctoral standing and/or consent of instructor:

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 units). Prerequisites: doctoral standing and/or consent of instructor. 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 (2 units). 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.

281A-281B-281C. Advanced Social Welfare Research (2 units each). 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 grading.

285A-285B-285C. Research in Social Welfare. Prerequisite: doctoral standing or consent of instructor. 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-286B-286C. Survey of Research Methods. Prerequisites: doctoral standing and/or consent of instructor. 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.

290A-290B-290C. Seminars: Social Work (2 units each). 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.

M290D. Women, Health, and Aging: Policy Issues (2 or 4 units). (Same as Health Services M241.) Lecture, three hours; discussion, one hour. Prerequisites: two upper division social sciences courses, two upper division biological sciences courses, or equivalent, consent of instructor. 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.

M290E-M290F-M290G. Child Abuse and Neglect (2 units, 2 units, 1 unit). (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.) Course M290E is prerequisite to M290F, which is prerequisite 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.

401A-401B-401C. Practicum: Social Work (2 units, 4 units, 4 units). 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 (6 units, 4 units, 2 units). Laboratory, 24 hours. Prerequisites: 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 units). 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 units). Prerequisite: 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 for M.S.W. Candidates (2 to 8 units). Individual programming for selected students to permit pursuit of a subject in greater depth.

596B. Special Study and Research for Ph.D. Candidates (2 to 8 units). Prerequisites: doctoral standing and/or consent of instructor. S/U grading.

597A. Preparation for M.S.W. Comprehensive Examination (2 to 8 units). Prerequisite: consent of instructor.

597B. Preparation for Ph.D. Qualifying Examinations (2 to 8 units). Prerequisites: doctoral standing and/or consent of instructor. S/U grading.

599. Ph.D. Dissertation Research in Social Welfare (2 to 8 units). Prerequisites: doctoral standing and/or consent of instructor. S/U grading.

Robert M. Emerson, Ph.D., *Chair*
Michael S. Goldstein, Ph.D.
Oscar Grusky, Ph.D.
John C. Heritage, Ph.D.
Jack Katz, Ph.D.
Ivan H. Light, Ph.D.
Michael Mann, Ph.D.
William Mason, Ph.D.
Ruth M. Milkman, Ph.D.
Melvin Oliver, Ph.D.
Melvin Pollner, Ph.D.
Jerome Rabow, Ph.D.
Emanuel A. Schegloff, 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.
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

Duane Champagne, Ph.D.
David Halle, Ph.D.
M. Nicolette Hart, Ph.D.
Gail Kligman, Ph.D.
David E. López/Ph.D.
David D. McFarland, Ph.D.
Vilma Ortiz, Ph.D.
Jeffrey Prager, Ph.D.
William G. Roy, Ph.D.
Edward E. Telles, Ph.D.

Assistant Professors

Steven E. Clayman, Ph.D.
Rebecca Emigh, Ph.D.
Peter E. Kollock, Ph.D.
Gi-Wook Shin, Ph.D.
Min Zhou, Ph.D.

Adjunct Associate Professor

Barbara Ballis Lal, 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 will have a particular appeal to those students whose interests are broad and unspecialized. At both 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 the student's capacity for critical 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.

Bachelor of Arts Degree

Preparation for the Major

Required: One course from Sociology 1, 2, 3, 4, M5, 31; one course from Mathematics 2, 3A, 31A; Sociology 18 (or Statistics 50, Psychology 41, or Economics 40).

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, 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. You 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 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.

Specialization in Computing

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 112, 113. You graduate with a bachelor's degree in sociology and a specialization in computing.

SOCIOLOGY

College of Letters and Science

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Professors

Jeffrey C. Alexander, Ph.D.
Walter Allen, Ph.D.
Rodolfo Alvarez, Ph.D.
Ronald Andersen, Ph.D.
Perry Anderson, B.A.
Kenneth D. Bailey, Ph.D.
Richard Berk, Ph.D.
Lawrence Bobo, Ph.D.
Phillip Bonacich, Ph.D.
Rogers Brubaker, Ph.D.
Lucie C. Cheng, Ph.D.

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, you must complete an honors section of Sociology 1 and 18, and Mathematics 2, 3A, or 31A.

Prior to taking other upper division sociology courses, you must complete an honors section of Sociology 101 and 102 (Honors Collegium 61 may be substituted for course 102) and one methods course selected from Sociology 106, CM124A, 209A.

Also required are three undergraduate seminars from the Sociology 197 series; any two additional upper division sociology courses; courses 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 100, 110W, 129A through 129D, 131A through 131D (may be taken on a P/NP grading basis).

Qualifications — You 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, 254A Haines Hall. You should apply in the last term of your junior year.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

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 (a master's degree 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 depart-

ment'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 at the address given at the beginning of this listing.

Areas of Study

See Major Fields or Subdisciplines in the Doctoral Degree section.

Course Requirements

In addition to the departmental requirements, area programs and some subareas within area programs have their own course requirements for affiliated students. Students who intend to affiliate with an area would do well to satisfy some of its requirements in the first two years.

Before the Master's Paper Review

Departmental Requirements. For departmental requirements, all students are required to take nine courses (36 units).

(1) Sociology 202A-202B. These 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 from

211A through 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 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 202A-202B, 211A through 216B, 217B-217C, 218A-218B, C244A-244B, 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.

Area Program Prerequisites. In addition to departmental requirements, students must take the following prerequisites to area program coursework:

Communities and Institutions. Sociology 209A-209B or 210A-210B.

Ethnomethodological, Phenomenological, and Observational Sociologies. No courses required.

Macrosociology. Sociology 209A-209B or 210A-210B.

Quantitative Sociology. Sociology 209A-209B or 210A-210B.

Social Psychology. Sociology 209A-209B or 210A-210B. Admission may be granted without these courses if students are changing their area of interest. In this case, 209A-209B or 210A-210B must be completed in the first year after entry to the area program.

Because four of the five area programs require satisfactory completion of Sociology 209A-209B or 210A-210B, students ordinarily take these courses in the first two years, and are strongly urged to do so in the first year. Furthermore, a background in statistics is often necessary to do the master's paper.

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 this committee, students develop a paper, probably 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.

Students are allowed two years from entrance into the department to qualify under the master's paper system. This means that students must be nominated for faculty review no later than the sixth quarter of residence. The nomination must be made regardless of the state of the paper. All the requirements for the M.A. degree must be completed by the end of the quarter in which students are nominated for faculty review.

Doctoral Degree

Admission

In the quarter following acceptance of the master's paper, usually at the beginning of the third year, students must affiliate with one of the department's five area programs in order to pursue more specialized, advanced study and research toward the Ph.D.

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

The five area programs represent the special strengths of the department in research and graduate instruction.

Communities and Institutions. Includes social demography, work and occupations, deviance and social control, criminal justice, methods of historical and ethnographic research, community organization, immigrant and minority communities, medical sociology, gender relations.

Ethnomethodological, Phenomenological, and Observational Sociologies. Includes ethnomethodological/methodological, ethnographic, phenomenological, or observational stances toward a range of subject matters, including studies of work especially in the sciences and professions, sociology of knowledge, sociology of law, deviance, social control, conversational and other forms of ordinary interaction, and historical studies of everyday interaction and consciousness.

Macrosociology. Includes political sociology, economy and society, historical and comparative sociology, macrosociological theory, and comparative stratification.

Quantitative Sociology. Includes methods of applied and evaluation research, survey research methods, formal and social demography, social stratification, advanced social statistics, and mathematical sociology.

Social Psychology. Includes attitudes and social structure, collective behavior, socialization, social interaction and small group behavior, and organizational social psychology.

The area programs have both a formal and informal aspect. Each area program has course requirements, including an area seminar or colloquium specifically for affiliated students, and areas also oversee field examinations for affiliated students. On the other hand, the area programs are intellectual and social communities of faculty and students sharing a commitment to certain topics and methods of research. While the area program system seeks to provide students with special training in theory and research, it is not intended to prevent or discourage students from pursuing topics that cut across established area programs or from working closely with faculty members whose primary affiliations lie in different area programs.

Course Requirements

After the Master's Paper Review

Departmental Requirements. For departmental requirements, all students are required to take two courses (eight units) of an additional methodology sequence (from Sociology 211A through 216B, 217B-217C, 218A-218B, C244A-C244B), which must be completed before the awarding of the Ph.D. degree. Some areas specify allowable methodology sequences.

Area Course Requirements. Students should contact the graduate affairs assistant or area directors for more specific details of the programs.

Communities and Institutions. (1) Two of the following: Sociology 229A, 229B, 234, 235, 241, 261; (2) methods — one from Sociology 211A-211B, 212A-212B, 213A-213B, 215A-215B, 216A-216B, or 217B-217C; (3) at least two of the following courses devoted to substantive area: Sociology 230, 234, 236, M249A, M249B, 259, M262, 263, 265, M275, 276, 282, 291; (4) Sociology 290A-290B-290C.

Ethnomethodological, Phenomenological, and Observational Sociologies. (1) Sociology 222; (2) two quarters of one of the following method sequences and at least one quarter of a second: 214A-214B, 217B-217C, 218A-218B, or C244A-C244B; (3) at least two of the following: Sociology 217A, 223, 229A, 229B, 243, 251, 258, 264, 266, 267, 271, 284 (a third methods sequence may also be taken to satisfy this requirement); (4) Sociology 293A-293B-293C; (5) students who wish to receive a Ph.D. in this area must take a standardized field examination in the area based on a reading list available from the graduate adviser. The second field examination required by the department before admission to candidacy for the Ph.D. may be created in consultation with at least two ethnomethodological, phenomenological, and observational sociologies faculty.

Macrosociology. (1) Sociology 211A-211B; (2) Sociology 228A-228B; (3) Sociology 294A-294B-294C; (4) three additional graduate courses covering theoretical, substantive, or methodological topics.

Quantitative Sociology. The quantitative sociology area requires Sociology 295A-295B-295C and requirements from the speciality chosen. Quantitative sociology specialities are advanced social statistics, applied sociology and evaluation research, demography, mathematical sociology, and quantitative social stratification. Each specialty requires up to six courses, several of which are two-quarter courses. Other courses are recommended; consult a departmental adviser.

Advanced Social Statistics — (1) Sociology 216A-216B; (2) Sociology 219A-219B.

Applied Sociology and Evaluation Research — Sociology 216A-216B, 219A-219B, 279, 280.

Demography: (1) Sociology 213A-213B; (2) Sociology 226A-226B; (3) two electives in calculus and matrices.

Mathematical Sociology — (1) Preparation in calculus, matrices, and differential equations; (2) Sociology 281; (3) Sociology 596 — two or more specialized courses to be arranged with advisers; (4) two or more substantive sociology courses relevant to the areas in which mathematical modeling is carried out.

Quantitative Social Stratification — (1) Sociology 216A-216B; (2) Sociology 239A-239B; (3) Sociology 263; (4) two electives.

Social Psychology. (1) Completion of an undergraduate program equivalent to two UCLA basic undergraduate social psychology courses and at least two courses in psychology, chosen from the fields of learning, language and communication, personality, social psychology, and abnormal psychology; (2) Sociology 224A-224B; (3) a second methods sequence in addition to the one required for the M.A., at least one of which must be from the following: Sociology 215A-215B, 216A-216B, or 217B-217C; (4) Sociology 289A-289B-289C.

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. This 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. A candidacy fee appears on students' billing statements four to eight weeks after they have been advanced to candidacy.

Lower Division Courses

1. Introductory Sociology. Survey of characteristics of social life, processes of social interaction, and tools of sociological investigation.

2. Changing Society and Making History. 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. 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. 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. (Formerly numbered 5.) (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.

18. Interpretation of Quantitative Data. 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.

31. Dilemmas of Third World Development. 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. Lecture, 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. 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. Prerequisite: 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. 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. 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.

105. Research Methods in Policy Analysis and Evaluation. Prerequisite: course M144 or consent of instructor. 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 units). Lecture, two hours; discussion, two hours; fieldwork, 12 hours. Prerequisites: upper division standing, consent of instructor. 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). (Formerly numbered M107.) Prerequisite: 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. 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.

112. Introduction to Mathematical Sociology. Prerequisites: course 18, Mathematics 2, 3A (course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus), or equivalent. 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).

113. Statistical and Computer Methods for Social Research. Lecture, three hours; laboratory, one hour. Prerequisite: course 18. Continuation of course 18, 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. 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. 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. (Formerly numbered C124A-C124B.) (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.** Prerequisite: course CM124A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

126. Study of Norms. 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. Lecture, two and one-half hours; discussion, one hour. Prerequisite: course 1 or equivalent. 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. Lecture, three hours; discussion, one hour. Prerequisites: course 1 and junior standing, or consent of instructor. 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. 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. 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. Prerequisites: courses 1, 18, or equivalent, upper division standing. 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. Prerequisites: courses 1, 18, or equivalent, upper division standing. 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. 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. Prerequisites: courses 1, 18, or equivalent, upper division standing. Examination of processes of interaction, decision making, role differentiation, conflict, integration, and socialization within the family and their interrelations with society.

137. Psychoanalytic Sociology. Prerequisites: courses 1, 18. Recommended: one course in theory (course 101 or 102) and in social psychology. 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. (Same as Psychology M163.) Lecture, three hours. Prerequisite: junior standing. 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. Lecture, three hours; discussion, one hour. Prerequisite: 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. (Formerly numbered M144.) Historical overview of urban poverty and social welfare programs; ongoing debates about causes and consequences of poverty.

145. Sociology of Deviant Behavior. Examination of leading sociological approaches to study of deviation and general survey of major types of deviation in American society.

146. Sociology of Disputes and Troubles. (Not the same as course 146 prior to Spring Quarter 1992.) Lecture, three hours; discussion, one hour. Theoretical implications of everyday disputes and troubles in contemporary society; origins, progression, and outcomes of informal disputes; disputing in intimate family, community, public place, and workplace settings; forms dynamics and consequences of third-part intervention.

147A. Sociology of Crime. (Formerly numbered 146.) Lecture, three hours; discussion, one hour. Sociological theories of social origins, organization, and meanings of crime and criminal behaviors.

147B. Sociology of Criminal Justice. (Formerly numbered 147.) 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. Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of "mental illness."

149. Social Organization of Psychiatric Treatment. Strongly recommended (but not prerequisite); course 148. Review of current research and theory on psychiatric treatment processes and treatment organizations, including mental hospitals and community mental health organizations.

151. Comparative Immigration. 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. Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: course 151. Comparison of acculturation and assimilation of Europeans, Africans, Mexicans, and Asians in the U.S., with emphasis on long-term cultural consequences of immigration. P/NP or letter grading.

M153. Chinese Immigration. (Formerly numbered 153.) (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. 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. (Formerly numbered 155.) (Same as Chicana and Chicano Studies M155.) Lecture, three hours; discussion, one hour. Prerequisites: course 1 and junior standing, or consent of instructor. 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. 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. 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. 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. 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. 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.

161. Comparative American Indian Societies. Lecture, three hours. Prerequisite: course 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.

M162. Sociology of Gender. (Same as Women's Studies M162.) Lecture, three hours; discussion, one hour. Prerequisite: course 1 or Women's Studies 10 or consent of instructor. 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. (Same as Women's Studies M164.) Lecture, three hours. Prerequisite: course 1 or Women's Studies 10 or consent of instructor. 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.

168. Organizations and Society. 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. 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. Prerequisite: course 1 or consent of instructor. 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. Description and analysis of representative occupations and professions, with emphasis on the contemporary U.S.

172. Entrepreneurship. Lecture, three hours; discussion, one hour. Prerequisite: 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. Sociology of economic life, with emphasis on principal economic institutions of the U.S.

174. Sociology of the Family. 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.

M175. Sociology of Education. (Same as Education M108.) Prerequisite: 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. (Same as Communication Studies M147.) Prerequisite: 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.

182. Political Sociology. 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. Prerequisite: 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. Study of patterns of social change, resistance to change, and change-producing agencies and processes.

185. American Society. 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. 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. Prerequisites: upper division standing, consent of instructor. Survey of Middle Eastern societies; their historic and environmental bases; contemporary demographic and cultural situation.

188. Comparative Social Institutions of East Asia. Analysis of selected social institutions of China, Japan, and Korea. Emphasis on continuity and change in East Asian societies.

189. Japanese Society. Lecture, two and one-half hours; discussion, two hours. Prerequisite: course 1 or consent of instructor. 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. Lecture, three hours; discussion, one hour. Prerequisite: junior or senior standing. Theories of capitalism and socialism, history of social experiments with socialism and other non-capitalist systems, and assessment of the record of these experiments. P/NP or letter grading.

195A-195Z. Special Topics in Sociology. Prerequisite: upper division standing (some sections may require prior coursework or consent of instructor). 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.

196A-196B. Contemporary Issues in Urban Poverty Research. (Formerly numbered M196A-M196B.) Prerequisite: Geography 150. Two-term research seminar designed to engage students in ongoing faculty research projects focusing on models of urban poverty and underclass behaviors.

197. Undergraduate Seminar. Prerequisites: upper division standing, major in sociology, consent of instructor.

199. Special Studies (2 to 8 units). Prerequisites: senior standing, 3.0 GPA in major, courses 1 and 18 or equivalent, consent of instructor and department chair. Course of independent studies designed for graduate or senior undergraduate 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 prerequisite 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. Prerequisite: honors program standing. In Progress grading. **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 units). Prerequisite: consent of instructor and department. 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

202A-202B. Theory and Research in Sociology: Exemplary Studies, Classical and Contemporary. Lecture, two hours; discussion, two hours. Prerequisite: graduate standing. Required of first-year sociology graduate students. Introduction to study of the discipline's formative and exemplary works to learn about theory and research by reading work done by other people. Designed to help students link their research to the great traditions of sociological enterprise. In Progress grading.

203A. Social Survey Practicum. Lecture, one hour; discussion, one hour; laboratory, two hours. Prerequisite: graduate standing or consent of instructor. Training through practice in basic techniques of survey research.

203B. Social Survey Research Seminar. Lecture, one hour; discussion, one hour; laboratory, two hours. Prerequisite: graduate standing or consent of instructor. Development of individual survey research projects under faculty supervision.

209A-209B. Data Analysis for Social Scientists. Lecture, three hours; laboratory, one hour. Introduction to applied statistics and data collection for graduate students in social sciences. In Progress grading.

209C. Mathematics for Social Statistics. Lecture, three hours; computer exercises. Prerequisites: graduate standing, consent of instructor. 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. Lecture, three hours; discussion, two hours. Prerequisite: course 18 or equivalent. 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. In Progress grading.

211A-211B. Comparative and Historical Methods. In Progress grading. 211A. Strategies of Research and Conceptualization. Prerequisite: consent of instructor. 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. Prerequisite: 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. Marxist Methodology. Prerequisite: course 101 or consent of instructor. Practice in dialectical method of attaining scientific knowledge about society as a process and mode of production. Critical examination of methodological issues and techniques and practical field research.

213A-213B. Techniques of Demographic and Ecological Analysis. Prerequisite: course 210A or equivalent. 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. Prerequisite: consent of instructor. 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. Prerequisites: course 210A or equivalent, consent of instructor. Basic fundamentals of experimental method, particularly as it is used in social psychology. In Progress grading.

216A-216B. Survey Research Methods. Course in methodology and techniques: formulation of research problem; study design; hypotheses; sampling; measurement; questionnaire and schedule construction; interviewing and data collection; processing and tabulation; analysis and interpretation; presentation of findings; cross-national, replicative, panel, and other complex survey designs. Students participate in survey research project. In Progress grading.

217A. Analyzing Ethnographies. Seminar, three hours. Prerequisite: consent of instructor. Analysis of ethnographic monographs.

217B-217C. Ethnographic Fieldwork. (Formerly numbered 217A-217B.) Seminar, three hours. Prerequisite: consent of instructor. Recommended: 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. Prerequisite: consent of instructor. 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. Lecture, three hours; discussion, two hours. Prerequisites: courses 210A-210B or equivalent or consent of instructor. 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. Role Theory. Prerequisites: graduate standing, consent of instructor. Review of theories and research dealing with social roles, with special emphasis on roles in social interaction and in formation of the social self.

221. Social Ecology. Prerequisites: courses 18, 116, or equivalent, and graduate standing, or consent of instructor. 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. Lecture, three hours. Prerequisite: graduate standing or consent of instructor. 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. Lecture, three hours. Comparison of phenomenological and symbolic interactionist 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. Prerequisites: course 210A, consent of instructor. 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 sub-fields.

225A-225B. Demographic Perspectives on Relationship of Family and Economic Systems. Prerequisites: courses 210A-210B or consent of instructor. 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. Lecture, two hours; discussion, one hour. Prerequisites: course 210A, consent of instructor. 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. Prerequisite: graduate standing or consent of instructor. 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. Lecture, two hours; discussion, one hour. Prerequisite: graduate standing. 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.

229A. Informal Social Control. Lecture, three hours. Development and transformation of informal disputes and troubles in communities, neighborhoods, public places, work settings, households, and families.

229B. Social Control Institutions. (Formerly numbered 229.) Lecture, three hours. Course 229A is not prerequisite to 229B. Current research and theory in formal social control processes and institutions, including police, courts, schools, and non-voluntary treatment programs, among others.

230. Nations and Nationalism. (Not the same as course 230 prior to Fall Quarter 1993.) 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. Lecture, one hour; discussion, two hours. Prerequisite: graduate standing or consent of instructor. 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. Survey Data Acquisition. Lecture, three hours. Prerequisites: courses 210A-210B. Traditional topics on survey research practice in study design, instrument design, sampling, interviewing, and data management. Parallel coverage of research literature on various sources of nonsampling response bias that influence survey results. Ongoing survey that employs Computer-Assisted Telephone Interviewing is available as a resource for course.

233. Foundations of Political Sociology. Lecture, three hours. Prerequisite: graduate standing or consent of instructor. 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. Prerequisites: graduate standing, consent of instructor. 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 metropolises.

235. Theories of Ethnicity. Lecture, one hour; discussion, two hours. Prerequisite: graduate standing or consent of instructor. 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 (3 units). (Not the same as course 236 prior to Fall Quarter 1993.) 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.

237. Seminar: Theory and Research in Comparative Social Analysis (2 units). Prerequisite: graduate standing. 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.

239A-239B. Quantitative Research on Social Stratification and Social Mobility. Lecture, three hours. Prerequisites: courses 210A-210B or equivalent. 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. Prerequisite: 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. 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?

242. Analysis of Categorical Data. Lecture, three hours. Prerequisites: courses 210A-210B or Statistics M152A and 152B-152C or equivalent or consent of instructor. Log-linear and log-bilinear analysis (hierarchical log-linear models, logit models, association models, quasi-symmetry models, log-rate models, latent-structure models, and latent-trait models).

243. Interaction and Institutions. Lecture, three hours. Examination of ethnographic and conversational analytic research on structure and processes of interaction in several institutional settings, taken from the following: medicine, criminal justice, psychiatry, social welfare, education, mass communications.

C244A-C244B. Conversational Structures I, II. 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.** Prerequisite: 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. 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. 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. (Not the same as course 247 prior to Fall Quarter 1992.) Lecture, two hours; discussion, one hour. Prerequisite: graduate standing. 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. Seminar, three hours. Prerequisite: graduate standing. 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. (Same as Community Health Sciences M274.) Lecture, three hours. Prerequisite: Community Health Sciences 210 or consent of instructor. 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.

M249B. Health and Illness Behavior. (Same as Community Health Sciences M275.) Prerequisites: Community Health Sciences 210 and Epidemiology 100, or consent of instructor. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick-role behavior.

250. Methodological Problems.

251. Topics in the Problem of Social Order.

253. Quantitative Methods in Sociology.

255A-255B. Selected Issues in Sociological Theory. Seminar. Prerequisite: consent of instructor. Course 255A is not ordinarily prerequisite to 255B. Examination of selected issues and problems in classical or contemporary sociological theory and in history of development of sociological theory.

256. Demography.

257. Demography of Marriage Formation and Dissolution. Discussion, three hours. Prerequisites: course 210A, consent of instructor. Extensive and intensive critical examination of major approaches to analysis of marriage formation and dissolution, with focus primarily on demographic literature.

258. Talk and Social Institutions. Lecture, three hours. Prerequisite: consent of instructor. Introduction to methods of conversation analysis, with particular reference to interaction in institutional contexts. Examination of relations between design of specific interactional activities and larger social and institutional contexts in which those activities are embedded.

259. Social Structure and Economic Change: Historical and Comparative Perspectives.

260. Economy and Society. Discussion, two hours. Prerequisite: graduate standing or consent of instructor. Review and critique of major analytical traditions in economy and society.

261. Ethnic Minorities.

M262. Selected Problems in Urban Sociology. (Same as Afro-American Studies M200C.) Seminar. Prerequisite: consent of instructor.

263. Social Stratification.

264. Personal Identity in Historical Perspective. Lecture, three hours. Prerequisite: graduate standing. 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.

266. Selected Problems in Analysis of Conversation. Prerequisites: courses C244A-C244B or consent of instructor. 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.

268. Selected Problems in Psychoanalytic Sociology. Discussion, three hours. Recommended (but not prerequisite): 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.

270. Selected Problems in Socialization.

271. Ethnomethodology.

272. Topics in Political Sociology.

273. Attitudes and Social Structure.

M275. Contemporary Issues of the American Indian. (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. Prerequisites: graduate standing, consent of instructor. 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. Lecture, two and one-half hours. Prerequisite: graduate standing. 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. Lecture, one hour; discussion, two hours. Prerequisite: graduate standing or consent of instructor. 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. Lecture, 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. Prerequisite: graduate standing. 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. Prerequisite: consent of instructor. 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.

283. Applied Sociology. Discussion, two hours. Prerequisite: graduate standing. 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. Prerequisites: course 148 or equivalent, graduate standing.

285A-285Z. Special Topics in Sociology. Seminar, three hours. Prerequisite: graduate standing. Seminars on selected current topics of sociological interest. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit.

286. Event History Analysis. Lecture, three hours. Prerequisites: courses 209A-209B and 209C, or 210A-210B, or equivalent, or consent of instructor. Logit models for discrete-time event history models; piecewise exponential hazards models based on use of log-linear analysis; proportional hazards, nonproportional hazards, and stratified models based on Cox partial likelihood method; and accelerated failure-time regression models. S/U or letter grading.

288A-288B-288C. Mental Health Services for Persons with AIDS (3 units each). Lecture, two hours; discussion, one hour. Prerequisite: graduate standing or consent of instructor. Analysis of current research on mental health service systems for persons with AIDS. S/U grading.

289A-289B-289C. Social Psychology Seminars (2 units each). Lecture, one hour; discussion, one hour. Prerequisite: graduate standing. Required of students in social psychology area program, but open to all graduate students in good standing. Forums for presentation of advanced work in social psychology designed to develop ability to understand, critically evaluate, and present research in fields relevant to study of social psychology. May be repeated for credit. S/U grading.

290A-290B-290C. Communities and Institutions Seminars (2 units each). Lecture, one hour; discussion, one hour. Prerequisite: graduate standing. Required of students in communities and institutions area program, but open to all graduate students in good standing in department. Seminars for presentation of advanced work in communities and institutions designed to contribute to theoretical and methodological comprehension of work in this area program and to critically evaluate avenues for further research advancements. May be repeated for credit. In Progress and S/U grading.

291. Moral Solidarity in Communities. 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.

293A-293B-293C. Colloquia: Ethnomethodological, Phenomenological, and Observational Sociologies (2 units each). Prerequisites: courses CM124A-CM124B or 217B-217C or 218A-218B and 222, or consent of instructor. Participants present ongoing work and read and discuss exemplary past work of common interest. Continuing colloquia in which participation is expected of faculty and graduate students affiliated with ethnomethodological, phenomenological, and observational sociologies area program (students taking a minor field examination may be exempt on request). S/U grading.

294A-294B-294C. Research Seminars: Macrosociology. Discussion, two hours. Prerequisite: consent of instructor. Required of students in macrosociology area program. Training in conduct, presentation, and critical evaluation of original research and analysis of substantive and methodological questions in macrosociology. In Progress and S/U grading.

295A-295B-295C. Seminars: Quantitative Sociology (2 units each). Ongoing seminars in quantitative sociology area program. Forum in which faculty, students, and visitors make presentations and obtain feedback on research being planned or conducted or recently completed, including didactic presentations on important developments in the area. Students required to make a presentation each term they are enrolled for credit. S/U grading.

M296A-M296B. Social Theory and Comparative History. (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. (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.

297A-297B-297C. Colloquia: Macrosociology (2 units each). Weekly forums for presentation of advanced work in macrosociology by graduate students and faculty, as well as visitors from other campuses. Intended to contribute to theoretical and methodological understanding of work in area of macrosociology. S/U grading.

298A-298B-298C. Workshops in Culture and Society (2 units each). 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.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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-495B. Supervised Teaching of Sociology (2 units each). Prerequisite: appointment as teaching assistant in Sociology Department or equivalent. 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 units). Prerequisite: 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 units). 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 units).

597. Individual Study for Examinations (4 to 12 units). Preparation for Ph.D. qualifying examinations. S/U grading.

599. Research in Sociology for Ph.D. Candidates (4 to 12 units).

SPANISH AND PORTUGUESE

College of Letters and Science

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Professors

Shirley L. Arora, Ph.D. (*Spanish*)
Rubén A. Benítez, Ph.D. (*Spanish*)
Joaquín Gimeno, Ph.D. (*Spanish*)
Carroll B. Johnson, Ph.D. (*Spanish*), *Chair*
J. Randal Johnson, Ph.D. (*Portuguese*)
Gerardo Luzuriaga, Ph.D. (*Spanish*)
C. Brian Morris, Litt.D. (*Spanish*)
C.P. Otero, Ph.D. (*Spanish*)
A. Carlos Quicoli, Ph.D. (*Portuguese, Romance Linguistics*)
Enrique Rodríguez-Cepeda, Ph.D. (*Spanish*)

Professors Emeriti

José R. Barcia, Lic. F. y L.
John A. Crow, Ph.D.
E. Mayone Dias, Ph.D.
Claude L. Hulet, Ph.D.
José Pascual-Buxó, Ph.D.
Stanley L. Robe, Ph.D.
Aníbal Sánchez-Reulet, Ph.D.
Marion A. Zeitlin, Ph.D.

Associate Professors

Héctor Calderón, Ph.D. (*Spanish*)
Guillermo Hernández, Ph.D. (*Spanish*)

Efrain Kristal, Ph.D. (*Spanish*)
José Montleón, Ph.D. (*Spanish*)
Susan Plann, Ph.D. (*Spanish*)
A. John Skirius, Ph.D. (*Spanish*)
Paul C. Smith, Ph.D. (*Spanish*)

Assistant Professors

Adriana Bergero, Ph.D. (*Spanish*)
Verónica Cortez, Ph.D. (*Spanish*)
Claudia Parodi, Ph.D. (*Spanish*)

Lecturers

José M. Cruz-Salvadores, M.A. (*Spanish*)
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.

Bachelor of Arts in Spanish and in Spanish and Linguistics

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.

Preparation for the Majors

Required: Spanish 25 or equivalent as determined by the placement test; courses M35, M42, M44, or equivalent.

The Major, Plan A (Spanish Language and Literature)

Required: Fifteen upper division courses, including Spanish 100A-100B, 105, 119A, 119B, 119C, 120A-120B, 127, 136A-136B, and four elective courses in the department (one in Spanish literature, one in Spanish-American literature, and two others).

The Major, Plan B (Spanish and Linguistics)

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. Portuguese is recommended.

The major consists of 15 upper division courses, including Spanish 100A-100B, 105, 115, M118A-M118B, 127, Linguistics 100, 103, 110, 120A, 120B, and three electives in Spanish.

Honors Program

To qualify for graduation with departmental honors, you must achieve a 3.0 overall grade-point average and a 3.5 grade-point average in the major and have completed two of the three senior honors seminars (Spanish 170A, 170B, 170C) with appropriate grades.

Bachelor of Arts in Portuguese

Preparation for the Major

Required: Portuguese 3, 25, 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, 130A-130B, and six elective courses in Portuguese, or four electives in Portuguese plus two courses from areas that complement your 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 Portu-

guese as early as possible in their B.A. program.

Study in a Portuguese-Speaking Country

You 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 your 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.

Bachelor of Arts in Spanish and Portuguese

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.

Graduate Study

The following constitutes introductory information regarding graduate degree programs. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

Spanish

Admission

Admission to the Master of Arts program 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 three plans of study for the M.A. degree in Spanish: Plan A, Linguistics; Plan B, Literature; and Plan C, Linguistics and Literature.

Course Requirements

Eleven graduate courses offered by the department are required for the M.A.; at least one must be a seminar taken only after the appropriate preseminar. Spanish 596 may be included only once; courses 597 and 598 do not count toward the degree.

Plan A: Linguistics. Students choose one major field and one minor field from the following areas of specialization: phonology and morphology, syntax, diachronic or synchronic language variation. Five courses are chosen for the major field, three courses for the minor field, and either Spanish M201A-M201B or two linguistic courses from the area not chosen for the student's major and minor fields. Also required is one graduate course in literature offered by the department.

Plan B: Literature. Spanish M201A-M201B, one course from 202A through 209, and eight elective graduate courses are required. Four courses are chosen for the major field, three for the minor field, and one additional course from an area outside the major and minor fields. Students choose one major field and one minor field from the following areas of specialization:

- (1) Spanish literature from its beginning to 1700.
- (2) Spanish literature from 1700 to the present.
- (3) Spanish-American literature from its beginning to 1900.
- (4) Spanish-American literature from 1900 to the present.

Plan C: Linguistics and Literature. Required courses are Spanish M201A-M201B and nine elective graduate courses, four in literature and five in linguistics. The four courses in literature are chosen from two of the Plan B areas of specialization, two from each area.

Of the five courses in linguistics, one must be in phonology and morphology, one in syntax, and one in diachronic or synchronic language variation.

Comprehensive Examination Plan

Plan A. A list of essential reading is given to each student on entry to Plan A. One quarter before students propose to take their M.A. examination, they must present to their guid-

ance committee two reading lists, one for the major field and one for the minor field. These reading lists, which must be approved by the guidance committee, must incorporate both the prescribed reading and reading undertaken independently to complement coursework. These two reading lists form the basis of the M.A. examination, which consists of (1) a three-hour written examination on the major field and (2) a two-hour written examination on the minor field.

Plan B. One quarter before students propose to take their M.A. examination, they must present to their guidance committee two reading lists, one for the major field and one for the minor field. These reading lists, which must be approved by the student's guidance committee, must adequately represent both the readings for individual courses and readings undertaken independently to complement coursework. The reading list for the major field should comprise approximately 15 authors and 30 works; the reading list for the minor field should comprise approximately nine authors and 18 works. The guidance committee has the right to prescribe authors and texts not included in the lists. These two reading lists form the basis of the M.A. examination, which consists of (1) a three-hour written examination on the major field and (2) a two-hour written examination on the minor field.

Plan C. One quarter before students propose to take their M.A. examination, they must present to their guidance committee a reading list that must adequately represent both their readings for individual literature courses and readings undertaken independently to complement coursework. The reading list for literature should comprise approximately 12 authors and 24 works. The reading list must be approved by the guidance committee, which has the right to prescribe authors and works not included in the list, and forms the basis of the literature section of the M.A. examination. The guidance committee establishes the reading list for linguistics. The examination consists of (1) a three-hour examination in linguistics and (2) a three-hour examination in literature.

Thesis Plan

In lieu of taking the comprehensive examination, a student in any one of the three plans may seek permission to present a thesis for the M.A. degree. The student 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

Admission to the Master of Arts program 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

Students choose one major field and two minor fields from the following areas of specialization: Portuguese literature; Brazilian literature; Portuguese linguistics.

Course Requirements

Ten courses are required for the M.A. by examination: Portuguese M201A-M201B and eight elective graduate courses in Portuguese offered by the department. At least one of the courses must be a seminar. Course 596 may be included only once; courses 597 and 598 do not count toward the degree. Four courses are chosen for the major field, with two courses for each of the two minor fields.

Comprehensive Examination Plan

One quarter before the proposed date of the M.A. examination, the student must present to the guidance committee a reading list that must adequately represent both the readings completed for individual literature courses and the readings undertaken independently to supplement coursework. The student's reading list for a major field in literature should comprise approximately 15 authors and 30 works; the reading list for a minor field in literature should comprise approximately six authors and 15 works. The reading list must be approved by the guidance committee, which has the right to prescribe authors and works not included in the student's list. The reading lists form the basis of the literature section of the M.A. examination.

The reading list for linguistics is established by the guidance committee.

The examination consists of (1) a three-hour examination in the major field and (2) a 90-minute examination in each of the two minor fields.

Thesis Plan

In lieu of taking the comprehensive examination, a student may seek permission to present a thesis for the M.A. degree. The student 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

Ph.D. program in Hispanic Languages and Literatures. Three letters of recommendation are also required from professors familiar with the applicant's work as a graduate student, which address the applicant's capacity for research-oriented doctoral studies and possible entry into the profession. The Graduate Record Examination (GRE) General Test is also required. A combined score of 1,000 is preferred, and the verbal score is considered more important than the quantitative.

Applicants holding the M.A. in Spanish or in Portuguese from UCLA are in one of three categories and are so notified on receipt of the degree. The categories are (1) low pass (terminal M.A., not eligible for admission into the Ph.D. program); (2) mid pass (may continue toward the Ph.D. on a probationary basis); and (3) high pass (automatically eligible to enter the Ph.D. program).

Major Fields or Subdisciplines

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 and 19th-century Spanish-American literature; 20th-century Spanish-American literature; early Portuguese literature; modern Portuguese literature; Brazilian literature; Spanish and Luso-Brazilian folklore.

Course Requirements

After the B.A., a minimum of 20 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. In the major field, students normally take a minimum of six graduate courses, of which at least two are seminars. In each of the minor fields, students normally take a minimum of four graduate courses, of which at least one must be a seminar. Seminars may be taken for credit no more than twice, with the approval of the appropriate guidance committee, if the content of the course is substantially different.

Written and Oral Qualifying Examinations

The qualifying examinations consist of (1) a four-hour written examination on the major field; a two-hour written examination on each of the minor fields. These examinations take place during the fifth and sixth weeks of the Fall, Winter, and Spring Quarters; (2) a two-hour University Oral Qualifying examination.

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

Spanish 1 through 3 use Shumway and Forbes' *Español en español*. The method is inductive. 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 grammar and/or composition.

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.

1. Elementary Spanish. Discussion, five hours; laboratory, one hour.

1G. Reading Course for Graduate Students. Lecture, three hours. Knowledge of Spanish not required. May not be applied toward degree requirements. S/U grading.

2. Elementary Spanish. Discussion, five hours; laboratory, one hour. Enforced requisite: course 1.

2G. Reading Course for Graduate Students. Lecture, three hours. Enforced requisite: course 1G. May not be applied toward degree requirements. S/U grading.

3. Elementary Spanish. Discussion, five hours; laboratory, one hour. Enforced requisite: course 2.

4. Intermediate Spanish. Discussion, five hours; laboratory, one hour. Enforced requisite: course 3.

5. Intermediate Spanish. Discussion, five hours; laboratory, one hour. Enforced requisite: course 4.

6. Intermediate Spanish. 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. 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 units each). Discussion, three hours. Course 8A is open to students with credit for course 4 or equivalent. Students who have completed course 3 with a grade of B or better may be admitted.

9A-9B. Advanced Conversation (2 units each). Discussion, three hours. Enforced requisite: course 8B.

25. Advanced Spanish and Composition. 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. 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. (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. (Same as Portuguese M42.) 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. (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. 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. 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. 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. Discussion, 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). 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

Prerequisite to all upper division courses is Spanish 25 or equivalent as determined by the placement test.

100A-100B. Introduction to Study of Spanish Grammar. Lecture, three hours. Prerequisite: 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. Lecture, three hours. Practice in writing Spanish with appropriate vocabulary, syntactical structures, and stylistic patterns.

107. The Spanish of Southern California. Lecture, three hours. Prerequisites: courses M35 and 100A-100B, or consent of instructor. 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. Lecture, three hours. Prerequisites: courses M35, 100B. Survey of major linguistic problems faced by teachers of Spanish.

M118A-M118B. History of Portuguese and Spanish. (Same as Portuguese M118A-M118B.) Lecture, three hours. Prerequisites: 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. Lecture, three hours. 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. Lecture, three hours. Introduction to study of literary devices, figures of speech, versification, and distinctive stylistic features in the poetry of Spain and Spanish America.

119C. Introduction to Study of Literature: Drama. Lecture, three hours. Introduction to study of literary devices, figures of speech, and distinctive stylistic features in the drama of Spain and Spanish America.

120A-120B. Survey of Spanish Literature. Lecture, three hours. Introduction to principal periods, currents, and authors of Spanish literature.

122. Medieval Literature: Prose. Lecture, three hours. Recommended (but not prerequisite): course 120A. Study of main genres through representative works.

123. Medieval Literature: Poetry. Lecture, three hours. Recommended (but not prerequisite): course 120A. Study of main genres through representative works.

124. Golden Age: Poetry and Drama. Lecture, three hours. Recommended (but not prerequisite): course 120A. Study, through representative works, of the Golden Age poetry and drama.

125. Golden Age: Prose. Lecture, three hours. Recommended (but not prerequisite): 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. Lecture, three hours. Recommended (but not prerequisite): course 120A. Development of the novel in the Golden Age, with particular reference to *Don Quijote*.

128. The Enlightenment and Romanticism in Spain. Lecture, three hours. Recommended (but not prerequisite): 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. Lecture, three hours. Recommended (but not prerequisite): course 120B. Development of main trends of Spanish literature from 1850 to 1898.

132. 20th-Century Spanish Prose. Lecture, three hours. Recommended (but not prerequisite): course 120B. Study of several representative works of Spanish prose literature since 1898.

133. 20th-Century Spanish Poetry and Drama. Lecture, three hours. Recommended (but not prerequisite): course 120B. Study of several representative works of Spanish poetry and drama since 1898.

136A-136B. Survey of Spanish-American Literature. Lecture, three hours. Introduction to principal periods, currents, and authors of Spanish-American literature.

137. Literature of Colonial Spanish America. Lecture, three hours. Recommended (but not prerequisite): course 136A. Study of most important genres and authors from the *Conquest* to 1810.

139. Romanticism and Realism in Spanish-American Literature. Lecture, three hours. Recommended (but not prerequisite): course 136A. Study, through representative literary works, of most important currents of thought and literary trends from 1810 to 1880.

140. Modernismo. Lecture, three hours. Recommended (but not prerequisite): course 136A. Study, through representative works, of principal characteristics of *modernismo* in Spanish-American literature.

142. 20th-Century Spanish-American Literature: Fiction and the Essay. Lecture, three hours. Recommended (but not prerequisite): course 136B. Study, through representative novels, short stories, and essays, of Spanish-American prose literature since 1910.

143. 20th-Century Spanish-American Literature: Poetry and Drama. Lecture, three hours. Recommended (but not prerequisite): course 136B. Study of principal poets, dramatists, and dramatic movements in Spanish-American literature since 1910.

144. Mexican Literature. Lecture, three hours. Recommended (but not prerequisite): course 136B. Study of major movements and authors of Mexican literature.

M145A-M145B. Introduction to Chicano Literature. (Formerly numbered M145.) (Same as Chicana and Chicano Studies M145A-M145B.) Lecture, three hours. Prerequisite: 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. (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. (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. Discussion, three hours. 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. Recommended (but not prerequisite): courses 120A-120B. **151B.** Spanish America. Recommended (but not prerequisite): courses 136A-136B.

M161. Film and Literature of the Spanish-Speaking World. (Same as Humanities 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.

170A. Senior Honors Seminar: Topics in Spanish Literature. Lecture, three hours. Prerequisite: senior Spanish major with 3.5 GPA in the major. Directed research on topics within general area of Spanish literature. Two senior seminars required for departmental honors.

170B. Senior Honors Seminar: Topics in Spanish-American Literature. Lecture, three hours. Prerequisite: senior Spanish major with 3.5 GPA in the major. Directed research on topics within general area of Spanish-American literature. Two senior seminars required for departmental honors.

170C. Senior Honors Seminar: Topics in Hispanic Linguistics. Lecture, three hours. Prerequisite: senior Spanish major with 3.5 GPA in the major. Directed research on topics within general area of Hispanic linguistics. Two senior seminars required for departmental honors.

197. Undergraduate Seminar. Lecture, three hours. Prerequisites: upper division Spanish major, consent of instructor. Limited to 15 students. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term.

197A. Studies in Hispanic Culture and Civilization. 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 units). Prerequisite: consent of adviser and instructor. Eight units may be applied toward the major requirements.

Graduate Courses

M200. Research Resources. (Same as Portuguese M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (Same as Portuguese M201A-M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. In Progress grading.

202A. Phonology. 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. Lecture, three hours. Study of derivational and inflectional word formation processes and their interaction with syntactic structure.

204A-204B. Generative Syntax and Semantics. 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. (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. 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. Lecture, three hours. Readings of and lectures on Spanish lyric poetry from the beginning to 1500.

222. Medieval Epic and Narrative Poetry. Lecture, three hours. Readings of and lectures on Spanish epic and narrative poetry from the beginning to 1500.

223. Medieval Prose. Lecture, three hours. Readings of and lectures on Spanish prose from the beginning to 1500.

224. Poetry of the Golden Age. Lecture, three hours. Readings of and lectures on Spanish poetry from 1500 to 1700.

225. Drama of the Golden Age. Lecture, three hours. Readings of and lectures on the *comedia*.

226. Prose of the Golden Age. Lecture, three hours. Readings of and lectures on fictional, didactic, religious, and historical writings.

227. Cervantes. Lecture, three hours. Readings of and lectures on works of Cervantes.

228. The Enlightenment. Lecture, three hours. Readings of and lectures on representative works of the period.

229. Romanticism. Lecture, three hours. Readings of and lectures on representative works of the period.

230. Realism and Naturalism. Lecture, three hours. Readings of and lectures on literary works, principally novels, from 1850 to 1898.

231. Major Currents in Modern Spanish Literature. 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. 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. 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. Lecture, three hours. Readings of and lectures on representative plays and poems.

235. Spanish Drama and Poetry after the Civil War. Lecture, three hours. Readings of and lectures on representative plays and poems of the period.

237. Literature of the Spanish Conquest. 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. Lecture, three hours. Readings of and lectures on representative texts.

239. Romanticism and Realism in Spanish-American Literature. Lecture, three hours. Intensive study of Romanticism and realism in Spanish-American literature.

240. Major Currents in Modern Spanish-American Literature. Lecture, three hours. Study of principal trends in modern Spanish-American literature, particularly *naturalismo* and *modernismo*.

241A-241B. Contemporary Spanish-American Short Story. Lecture, three hours. Study of important short story writers from modernism to the present.

243A-243B. Contemporary Spanish-American Poetry. Lecture, three hours. Intensive study of important poets of Spanish America from modernism to the present.

244A-244B. Contemporary Spanish-American Novel. Lecture, three hours. Study of important novelists from modernism to the present.

245. Contemporary Spanish-American Essay. Lecture, three hours. Study of important Spanish-American essayists of the 20th century.

246. Contemporary Spanish-American Drama. Lecture, three hours. Study of principal Spanish-American dramatists and theater movements in the 20th century.

247. Chicano Literature. Lecture, three hours. Study of major movements and authors of Mexican American literature.

M249. Folk Literature of the Spanish and Portuguese Worlds. (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.

Seminar courses (M251A through 290) may be taken for a maximum of eight units each with consent of the appropriate guidance committee and with topic change.

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (Same as Portuguese M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish.

256A-256B. Studies in Spanish Linguistics. Lecture, two hours. Study of problems in analysis and description of the contemporary Spanish language.

257. Studies in Dialectology. Discussion, two hours.

262A-262B. Studies in Medieval Spanish Literature. Discussion, two hours.

264A-264B. Studies in Golden Age Spanish Literature. Discussion, two hours.

265. Cervantes. Discussion, two hours.

270A-270B. Studies in 18th-Century Spanish Literature. Discussion, two hours.

271A-271B. Studies in 19th-Century Spanish Literature. Discussion, two hours.

272A-272B. Studies in 20th-Century Spanish Literature. Discussion, two hours.

277A-277B. Studies in Colonial Spanish-American Literature. Discussion, two hours.

278A-278B. Studies in 19th-Century Spanish-American Literature. Discussion, two hours.

280A-280B. Studies in Contemporary Spanish-American Literature. Discussion, two hours.

281. Studies in Chicano Literature. Discussion, two hours.

M286A-M286B. Studies in Hispanic Folk Literature. (Same as Folklore M286A-M286B.) Lecture, two hours.

290. Special Topics. Lecture, two hours. Variable topics; consult *Schedule of Classes* or department counselor for topics to be offered in a specific term.

310. Teaching Spanish in Elementary School. Lecture, three hours.

370. Teaching Spanish in Secondary School. Lecture, three hours.

373. Teaching Composition (2 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisite: 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. Prerequisite: graduate standing in department. 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 units). Prerequisite: consent of graduate adviser and chair. 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 units). Prerequisites: official acceptance of candidacy by department, consent of graduate adviser. 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 units). Prerequisite: consent of guidance committee. Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation (4 to 8 units). 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

No credit is allowed for completing a less advanced course after completion of a more advanced course in grammar and/or composition.

1. Elementary Portuguese. Discussion, five hours; laboratory, one hour.

2. Elementary Portuguese. Discussion, five hours; laboratory, one hour. Enforced requisite: course 1.

3. Intermediate Portuguese. Discussion, five hours; laboratory, one hour. Enforced requisite: course 2.

8A-8B. Portuguese Conversation (2 units each). Discussion, three hours. Enforced requisite: course 3 (B or better).

25. Advanced Portuguese. Enforced requisite: course 3.

M35. Spanish, Portuguese, and Nature of Language. (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. 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. (Same as Spanish M42.) 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. (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. 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

Prerequisite to all upper division courses is Portuguese 25 or consent of instructor.

100A. Phonology and Morphology. Lecture, three hours. Analysis of phonetic, phonemic, and morphological systems of Portuguese.

100B. Syntax. Lecture, three hours. Review of patterns of the Portuguese language.

101A. Advanced Reading and Conversation. Lecture, three hours. Reading and discussion of writings by modern Brazilian and Portuguese authors.

102A-102B. Intensive Portuguese. Prerequisite: foreign language experience (other than Portuguese) or consent of instructor. 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.

105. Advanced Composition and Style. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns.

M118A-M118B. History of Portuguese and Spanish. (Same as Spanish M118A-M118B.) Lecture, three hours. Prerequisites: 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. Lecture, three hours. Introduction to principal periods, currents, and authors of Portuguese literature.

C124. Early Portuguese Literature. Lecture, three hours. 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. Lecture, three hours. 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. Lecture, three hours. 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. Lecture, three hours. 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. Lecture, three hours. Study of principal features through representative works. May be concurrently scheduled with course C228.

C129. 20th-Century Portuguese Literature. Lecture, three hours. 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. Lecture, three hours. Introduction to principal periods, currents, and authors of Brazilian literature.

C131. Colonial Brazilian Literature and Culture. Lecture, three hours. 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. Lecture, three hours. 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. (Not the same as course C133 prior to Fall Quarter 1995.) Lecture, three hours. Study of selected works by Joaquim Maria Machado de Assis. Concurrently scheduled with course C233. P/NP or letter grading.

C134. Brazilian Modernism. (Not the same as course C134 prior to Fall Quarter 1995.) Lecture, three hours. 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. Lecture, three hours. 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. 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. Lecture, three hours. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term.

SPEECH

College of Letters and Science

UCLA
334 Kinsey Hall
Box 951538
Los Angeles, CA 90095-1538
(310) 825-3303

Professors

Neil M. Malamuth, Ph.D. (*Communication Studies*),
Chair
Donald E. Hargis, Ph.D., *Emeritus*
Charles W. Lomas, Ph.D., *Emeritus*

Associate Professors

Paul I. Rosenthal, Ph.D. (*Communication Studies*)
Ralph Richardson, Ph.D., *Emeritus*

Lecturers

Dee Bridgewater, Ph.D.
Stephen A. Doyle, M.A.
Marde S. Gregory, M.A., *Senior*
Thomas E. Miller, M.A.
Sonya H. Packer, M.A.

There is no major in speech; however, the following undergraduate courses are offered for interested students.

Lower Division Courses

1. Principles of Oral Communication. 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.

2. Public Speaking and Discussion. 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. 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 units each). Prerequisite: consent of instructor. May be repeated once for credit.

191. Analysis and Briefing (2 units). 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. Prerequisite: senior standing or consent of instructor. Variable topics course involving intensive study of discourse associated with a single major issue or personality.

199. Special Studies (2 to 4 units). Prerequisites: senior standing, consent of instructor.

199. Special Studies (2 to 4 units). Prerequisite: consent of adviser and instructor. Eight units may be applied toward the major requirements.

Graduate Courses

M200. Research Resources. (Same as Spanish M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (Same as Spanish M201A-M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. In Progress grading.

202. Synchronic Morphology and Phonology. Lecture, three hours. Study of theoretical synchronic linguistics as applied to Portuguese.

204A-204B. Generative Grammar. Lecture, three hours. Prerequisite: consent of instructor. Course 204A or consent of instructor is prerequisite 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. (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. 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. 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. 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. 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. Lecture, three hours. Study of principal features through representative works. May be concurrently scheduled with course C128.

C229. 20th-Century Portuguese Literature. 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. 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. 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. (Not the same as course C233 prior to Fall Quarter 1995.) 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. (Not the same as course C234 prior to Fall Quarter 1995.) 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. 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. (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. (Same as Spanish M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish.

252. Studies in Early Portuguese Literature. Discussion, two hours.

253. Studies in Modern Portuguese Literature. Discussion, two hours.

254. Studies in Early Brazilian Literature. Discussion, two hours.

255. Studies in Modern Brazilian Literature. Discussion, two hours.

256A-256B. Studies in Portuguese Linguistics. Lecture, two hours. Study of problems in analysis and description of the contemporary Portuguese language.

290. Special Topics. Discussion, two hours. Prerequisite: graduate standing or consent of instructor. 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. For future teachers in this field.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units). Prerequisite: consent of graduate adviser and chair. 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 units). Prerequisites: official acceptance of candidacy by department, consent of graduate adviser. 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 units). Prerequisite: consent of guidance committee. Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation (4 to 8 units). Limited to students who have passed Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. 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

Executive Chair

E. Carmack Holmes, M.D. (*William P. Longmire, Jr.,
Distinguished Professor of Surgery*)

Executive Vice Chair

J. Thomas Rosenthal, M.D.

Vice Chairs

Leonard Makowka, M.D. (*Cedars-Sinai*)
Edward P. Passaro, Jr., M.D. (*Wadsworth VA*)
Howard A. Reber, M.D., (*Sepulveda VA*)
Bruce E. Stabile, M.D., (*Harbor-UCLA*)
Jesse E. Thompson, Jr., M.D. (*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 eight-week and one four-week core clerkship for a total of 12 weeks in clinical surgery, assigned to either Harbor-UCLA Medical Center or a combination of UCLA, Wadsworth VA, and Olive View-UCLA Medical Centers. Each facility has a special orientation depending on the patient population and the individual staff. 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*.

Upper Division Course

199. Special Studies (2 to 8 units). Prerequisite: consent of instructor. 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

TEACHING ENGLISH AS A SECOND LANGUAGE AND APPLIED LINGUISTICS

College of Letters and Science

UCLA
3300A Rolfe Hall
Box 951531
Los Angeles, CA 90095-1531
(310) 825-4631

Professors

Roger W. Andersen, Ph.D.
Lyle Bachman, Ph.D.
Marianne Celce-Murcia, Ph.D.
Elinor Ochs, Ph.D.
John H. Schumann, Ed.D., *Chair*
Russell N. Campbell, Ph.D., *Emeritus*
Evelyn R. Hatch, Ph.D., *Emerita*
Earl J. Rand, Ph.D., *Emeritus*

Assistant Professor

Asif Agha, Ph.D.

Lecturers

Donna Brinton, M.A.
Janet Goodwin, M.A.
Christine Holten, M.A.
Linda Jensen, M.A.

Scope and Objectives

The Teaching English as a Second Language and Applied Linguistics (TESL) Department offers a program designed for students who wish to develop research skills related to the teaching and learning of English as an additional language. The program is a two-year course of graduate study leading to a Master of Arts degree.

The first year of the program is designed to improve teachers' performance in the ESL classroom. The second year provides opportunity to investigate in depth some particular aspect of teaching and learning English as a second language. The course of study includes a practical element: observing classes, prepar-

ing lesson plans, and actual classroom teaching. There is, however, greater emphasis on theory in the program. Students are expected to become familiar with current theories regarding the nature of language, as well as the ways in which people acquire and use language. They are also expected to be able to relate theoretical guidelines to practical procedures. The program is therefore not appropriate for the student who is interested exclusively in receiving vocational training. Admission preference is granted to applicants with strong research interests.

In addition, the Department of Teaching English as a Second Language and Applied Linguistics 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, 3300A Rolfe Hall, UCLA, Los Angeles, CA 90095-1531. (Also see the section on Applied Linguistics earlier in this chapter.)

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, 3310 Rolfe Hall, UCLA, Los Angeles, CA 90095-1531.

Graduate Study

The following constitutes introductory information regarding the graduate degree program. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degree

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 if you are 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 the letters of recommendation directly to the graduate adviser at the address given at the beginning of this listing. 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 TESL at UCLA; (2) special 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

Prerequisite. Linguistics 20 or its equivalent.

First-Year Curriculum. The typical course of study for the first year of the M.A. program is as follows:

Fall Quarter: Teaching English as a Second Language and Applied Linguistics 249, 370, foreign language requirement or elective (course depends on language requirement plan).

Winter Quarter: Teaching English as a Second Language and Applied Linguistics C122, 241 or 261 or 269 or 271, foreign language requirement or elective (course depends on language requirement plan).

Spring Quarter: Teaching English as a Second Language and Applied Linguistics 106 or 107 or 109, 380, Linguistics 103 or Teaching English as a Second Language and Applied Linguistics 103.

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 Teaching English as a Second Language and Applied Linguistics, English, linguistics, or structure of language courses in language departments.

Successful completion of the above courses qualifies students for a TESL 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 Teaching English as a Second Language and Applied Linguistics C122, 241 or 261 or 269 or 271, 249, and Linguistics 103 or Teaching English as a Second Language and Applied Linguistics 103) 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 com-

pleted 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.

Teaching English as a Second Language and Applied Linguistics 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 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.

Teaching English as a Second Language and Applied Linguistics

Upper Division Courses

101. Introduction to Language Learning and Language Teaching. Lecture, two hours; discussion, two hours. Prerequisite: Linguistics 1 or consent of instructor. 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.

103. Phonetics for Teachers of English as a Second Language. Prerequisite: consent of instructor. Analysis of phonological structure of contemporary English, with attention to differences between British and American speech. Drill directed toward individual needs.

106. Writing in the ESL Context. Provides opportunities for practice and improvement in writing skills and thus fulfills composition requirement for TESL M.A. degree. Survey of important theoretical and methodological issues related to teaching writing/composition to ESL students and examination of appropriate classroom materials and authentic student compositions.

107. Reading in the ESL Context. Provides opportunities for practice and improvement in reading and writing skills and thus fulfills composition requirement for TESL M.A. degree. Survey of important theoretical and methodological issues related to teaching reading and writing to ESL students and examination of appropriate classroom materials.

109. Literature in the ESL Context. Provides opportunities for practice and improvement in writing skills and thus fulfills composition requirement for TESL M.A. degree. Survey of important theoretical and methodological issues related to teaching literature to ESL students and examination of appropriate classroom materials. Strong emphasis on the cultural basis for literature.

C122. Structure of Present-Day English. (Formerly numbered 122.) Lecture, six hours. Prerequisite: Linguistics 20 or consent of instructor. 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.

M189. Metaphor and Literal Speech. (Formerly numbered 189.) (Same as Philosophy M173.) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: Linguistics 1 or equivalent or consent of instructor. 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.

Graduate Courses

All graduate courses are open to qualified graduate students from other departments with consent of department.

209. Current Issues in Experimental Design and Statistics for Applied Linguistics. Specialized topics of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current theoretical methodological trends in the field.

C216. Structure of Present-Day English. Lecture, six hours. Prerequisite: Linguistics 20 or consent of instructor. 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 C122. Additional assignments required of graduate students.

220. Materials Development for Language Teaching. Prerequisites: course 370, at least two years of ESL/EFL teaching experience. Planning and preparation of an original set of language teaching materials geared to needs of a specified group of learners. Revision of first drafts and evaluation of one's own work and that of one's peers.

221. Media for Language Teaching. Rationale and pedagogical application for using media equipment and materials in the language classroom. Training in standard classroom media equipment operation and basic materials production techniques, focusing on application to ESL instruction.

222. Language Testing for Teachers of English as a Second Language. Prerequisites: course 370, Linguistics 20. Theories and techniques for language assessment across the skill areas. Emphasis on classroom testing and functions of testing within a language program. Basic statistical concepts and hands-on experience with construction of language tests.

225. Program Evaluation in Applied Linguistics.

Evaluation of effectiveness of ESL curriculum and instruction, including assessment of teacher behavior. Prevalent evaluation theories, writing of evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design plans, framing the decision context, and reporting evaluation results.

227. Experiential Seminar: Second Language Learning.

Lecture, one hour; laboratory, four hours. Prerequisite: graduate standing. Students learn an uncommonly taught language with use of authentic language materials (video and audio recordings and print material). Discussion of experience in terms of issues in language learning and language teaching.

229. Current Issues in Language Education. Specialized topics in language education of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current topics of theoretical concern in the field.

232. Advanced Seminar: Construction and Administration of Language Tests.

Prerequisite: course 222 or consent of instructor. Designed to explore current issues in language testing research 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.

241. Interlanguage Analysis. Lecture, three hours; discussion, one hour. Prerequisites: course 370, Linguistics 20. Hands-on project-oriented introduction to research on interlanguage, the language of second language speakers. Theoretical and methodological aspects of linguistic research on second language acquisition. Research paper combining qualitative and quantitative research techniques required.

249. Current Issues in Language Analysis. Specialized topics in language analysis of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current topics of theoretical import in the field.

250. Advanced Seminar: Cohesion Analysis of English Structure.

Prerequisite: course C122 or consent of instructor. 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.

251. Advanced Seminar: Interlanguage Analysis.

Prerequisite: course 241. 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.

252. Advanced Seminar: Contextual Analysis of English Structure.

Prerequisite: course C122 or consent of instructor. Examination of selected words and structures in oral and written English texts to determine when and why the word or structure occurs. Emphasis on factors such as meaning, discourse genre, social/pragmatic function, and relative frequency. However, starting point in analysis is syntax (i.e., what are the structural properties—form, distribution—of word(s) or structure(s) under consideration?).

258. Laboratory: Advanced Topics in Language Assessment.

Prerequisite: consent of instructor. 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. Psycholinguistics and Language Teaching.

Prerequisites: course 370 and Linguistics 20, or consent of instructor. Exploration of those areas of psycholinguistics covering foreign language acquisition; types and theories of bilingualism; learning theories underlying current methods of teaching foreign languages.

261. Second Language Acquisition.

Prerequisite: consent of instructor. Review of literature on child and adult second language acquisition. Language variables (phonological, morphological, sentential, and discourse levels) and social and psychological variables which may account for differences in learning.

263. Cross-Linguistic Topics in Functional Grammar I: Typology.

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. Cross-Linguistic Topics in Functional Grammar II: Discourse.

Prerequisite: course 263. Cross-linguistic study of discourse function of grammatical devices. Topics include tense/mood/aspect, nominal reference, word order. May be repeated for credit with topic change.

266. Topics in Semantics and Pragmatics.

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. S/U or letter grading.

269. Current Issues in Language Acquisition.

Specialized topics in language acquisition of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current topics of theoretical concern in the field.

M270A-M270B. Ethnographic Methods in Applied Linguistics A, B.

(Same as Anthropology M249A-M249B.) Course M270A is prerequisite to 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 framework that considers language as a social and cultural practice. First term devoted to skills related to collecting socially and culturally meaningful data; second term 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. S/U or letter grading.

271. Cross-Linguistic Topics in Language Acquisition.

Lecture, one hour; discussion, three hours. Prerequisite: Linguistics 20. Advanced seminar on language acquisition in which a particular linguistics topic (e.g., development of tense/aspect, reference, subordination, agreement) is pursued from cross-linguistic and cross-disciplinary perspectives. Focus on language-specific vs. universal (i.e., cross-linguistically valid) mechanisms of language development.

272. Grammar and Discourse I: Theoretical Foundations.

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.

273. Grammar and Discourse II: Special Topics.

Prerequisite: course 272 or consent of instructor. 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.

283. Discourse Analysis. 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.

284. English for Specific Purposes. Study of methodologies for needs analysis, curriculum development, and testing for specific academic, professional, and vocational groups who require English as a foreign or second language.

285. Language Socialization. Prerequisite: course 283. 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.

288. Discourse Laboratory. Laboratory, three hours; fieldwork/research, 10 hours. Prerequisites: courses 249, 283, two other discourse analysis courses, and doctoral standing in applied linguistics, or consent of instructor. 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. S/U or letter grading.

289. Current Issues in Language Use. Specialized topics in language use and related areas of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current topics of concern in the field.

370. Teaching English as a Second Language.

Lecture, six hours. Prerequisite: consent of instructor. Bibliography, survey, and evaluation of methods and materials. Nature of language learning. Analysis of differences between two languages as a basis of instruction.

375. Teaching Apprentice Practicum (1 to 4 units).

Prerequisite: 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.

380. Supervised Teaching: English as a Second Language or Dialect.

Prerequisite: course 370. Team teaching at elementary, secondary, or adult level under supervision of a senior staff member. S/U grading.

400. TESL Colloquium. Prerequisite: consent of TESL M.A. adviser. 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 units).

Lecture, two or more hours. Corequisite: 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 units).

Prerequisite: 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.

Prerequisite: graduate standing. 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 units). Prerequisite: graduate standing. Survey of research needs and thesis preparation. Includes optional section on experimental design and statistical methods in Fall Quarter. Credit (four units) 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 (ESL) Service Courses

UCLA
3300B Rolfe Hall
Box 951531
Los Angeles, CA 90095-1531
(310) 825-4378

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, you may either be exempt from any special ESL requirement or may be required to take one or more courses. You are placed into the ESL track at a particular level and must enroll in one ESL course each term, beginning in your 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 you do not achieve a minimum score on the placement examination, you may be required 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.

Lower Division Courses

32. Oral Communication Skills for ESL Students. 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 discussion, 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. 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. 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. 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. 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. 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. 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. Structure of Present-Day English for ESL Students. 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. Analysis and practice of those grammatical structures of English most important to learners of English as a second or foreign language, with focus on incorporating knowledge of structures studied into communicative and interpretive activities. P/NP (undergraduates), S/U (graduates), or letter grading.

Upper Division Courses

103. Pronunciation for ESL Students. Lecture, four hours; outside study, eight hours. Prerequisite: 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. Prerequisites: 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. Lecture, four hours; outside study, eight hours. Prerequisite: 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. Lecture, four hours; outside study, eight hours. Prerequisite: 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.

South and Southeast Asian Languages

Lower Division Courses

40A-40B-40C. Introductory Hindi. (Formerly numbered Teaching English as a Second Language 98D-98E-98F.) 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. 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. 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. (Formerly numbered Teaching English as a Second Language 98G-98H-98I.) 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. (Formerly numbered Teaching English as a Second Language 98A-98B-98C.) 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. 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. (Formerly numbered Linguistics 98A-98B-98C.) 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. 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.

THEATER

School of Theater, Film, and Television

UCLA
103 East Melnitz Building
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(310) 825-5761

Professors

Gilbert Cates, M.A., *Dean*
Michael J. Hackett, Ph.D.
Robert Israel, M.F.A., *Cochair*
Neil Jampolis, B.F.A.
Dunya Ramicova, M.F.A.
Mel Shapiro, 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.
Burdette Fitzgerald
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.
George L. Schaefer, B.A.
Norman F. Welsh, B.A.
William T. Wheatley, Ph.D.

Associate Professors

Alan M. Armstrong, M.F.A.
Gary A. Gardner, Ph.D.
Patricia M. Harter, Ph.D.
Michael S. McLain, Ph.D.
Beverly J. Robinson, Ph.D.
Rich Rose, M.F.A., *Cochair*
Carol Fisher Sorgenfrei, Ph.D.
Margaret L. Wilbur, M.F.A.

Assistant Professor

Edit Villarreal, M.F.A.

Lecturers

John Brandt, A.A.
Jacques Heim
Gordon Hunt, B.A.
Daniel A. Ionazzi, M.B.A.

Visiting Professors

David Craig
Gordon Davidson, M.A.
Katherine Helmond
Leon Katz, Ph.D.
David Schweizer, B.A.
Peter Sellars, B.A.
José Luis Valenzuela

Visiting Associate Professors

Ellen Geer
Hanay Geiogamah, B.F.A.
Salome Jens

Adjunct Assistant Professors

Oskar Eustis
Madeline Kozlowski, M.F.A.
Anna Krajewska-Wieczorek, Ph.D.
Roberta Levitow, B.A.
Corey Beth Madden, B.A.
Tim Miller
Bill Reichblum, M.F.A.

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 oppor-

tunity to pursue elective courses in the area of film and television.

Bachelor of Arts Degree

The Bachelor of Arts degree provides a liberal education and preprofessional training in a program that combines the study of the arts, humanities, and sciences with exploration of the principal areas of theater practice — performance, playwriting, directing, design, technical theater, and the history and criticism of theater and drama. The program is designed to ensure that students will graduate with a sound humanistic and experiential base for further pursuits in education and in life beyond the University.

The *comprehensive program* provides a liberal education by combining critical study of theater with experiential practice in one or more of its component parts. Students explore each of the principal areas of theater practice — acting, directing, design, 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 courses in playwriting, directing, and theater history and drama, leading to a culminating research or creative experience in the senior project.

The *acting program* includes specialized and advanced courses that prepare students for careers in performance. Lower division courses introduce improvisation, sense memory, actions, objectives, and character work. There is some performance in projects, but emphasis is on class and studio work. Upper division advanced courses explore verse, scene study, comedy, cabaret, and performance for film and video. Performance is accentuated in the senior year which culminates in a senior production project combining research of character and play with performance.

The *design and production program* introduces design principles and investigates the design of scenery, lighting, costumes, and sound for theater, film, and television in lower division courses. Three design concentrations are available at the upper division level — scenic and lighting design, scenic and costume design, and lighting and sound design. Students select from an array of design skills courses to develop proficiency in essential areas of rendering, drafting, painting, and technology. Courses in art, history, and philosophy build an understanding of the social history of visual ideas. A sequence of courses in each concentration examines design principles and practice specific to each field, leading to assignment as a member of a production design team and the preparation and realization of designs for a production. The senior project includes a design portfolio project which culminates in the preparation of complete designs and drawings for a production

and the assembly of a design portfolio and résumé.

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 your application the department notifies you of the screening process, which includes submission of a written personal essay, 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, directing, design and technical theater, playwrighting, and history and criticism.

Students admitted to the theater major for Fall Quarter 1993 and thereafter are expected to fulfill the requirements listed below. Continuing students admitted prior to Fall Quarter 1993 should consult the 1992-93 *UCLA General Catalog*.

Preparation for the Major

Required: Theater 11, 13, 14A-14B-14C, 15, 50. Students in the comprehensive and design programs must also take course 12.

The Major

Required: A total of 58 upper division units, including Theater 101A-101B-101C and 150, and a specialization (42 units) from one of the following: (1) *acting program*—courses 115A-115B-115C, 116A-116B-116C, 124A, 124B, 125A, 125B, 126A-126B-126C, 127A-127B-127C, 180; (2) *comprehensive program*—courses 106, 180, and 34 elective units; (3) *design and production program*—course 159, six units of design skills courses, and one of the following emphasis sequences: (a) 151A-151B, C151C, 152A-152B, C152C, (b) 151A-151B, C151C, 153A-153B, C153C, (c) 152A-152B, C152C, 154A-154B, C154C.

Through certain of these required courses, you 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of Theater offers a Master of Arts degree and a Master of Fine Arts degree.

Master of Arts

Admission

The Master of Arts 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 at the address given at the beginning of this listing.

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 at the address given at the beginning of this listing.

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 10½ 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 the student 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, the student 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

The department is not admitting students at this time to the M.F.A. producers and sound design programs due to budgetary considerations.

Admission

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 at the address given at the beginning of this listing.

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, appli-

cants 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 examples of creative writing which may include dramatic writing or narrative fiction such as full-length plays, one-act plays, and screenplays. 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 at the address given at the beginning of this listing.

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 23½ courses (94 units) is required for the degree; of these, 20½ 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, 23½ 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 26½ courses (106 units) is required for the degree; of these, 23½ (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.

Doctoral Degree

The department is not admitting students at this time to the Ph.D. program due to budgetary considerations.

Admission

Applicants must submit evidence of potential as a practicing scholar as indicated by (1) breadth and depth of advanced coursework in history, theory, 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 at the address given at the beginning of this listing.

Major Fields or Subdisciplines

The Ph.D. student in theater is 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.

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, the student is 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, the student 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. The student is advanced to candidacy only on successful completion of this examination.

A dissertation demonstrating the ability to carry out independent and significant inquiry in a historical, theoretical, or critical field of theater is required. Final award of the Ph.D. depends on successful completion of the dissertation.

Lower Division Courses

11. Contemporary Theater Issues. 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.

12. Introduction to Performance. 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.

13. Play Reading and Analysis. 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, playwriting, and critical study.

14A-14B-14C. Introduction to Design. 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.

15. Introduction to Directing. Lecture, two hours; studio, four hours. Prerequisite: 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. 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 units 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 units). Studio, six hours. Laboratory experience in various aspects of theater production, including performance in a project or production, 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. 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. 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. 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. 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. 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. (Formerly numbered 103A.) (Same as Afro-American Studies M103A.) Lecture, three hours. Prerequisite: upper division standing. 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. (Formerly numbered 103B.) (Same as Afro-American Studies M103B.) Lecture, three hours. Prerequisite: upper division standing. 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. (Same as Chicana and Chicano Studies M103C.) Lecture, three hours. Prerequisite: upper division standing. 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. (Same as Chicana and Chicano Studies M103D.) Lecture, three hours. Prerequisite: upper division standing. Study of recent trends in Chicano theater as reflected in works of contemporary Chicano dramatists and theater artists.

M103E. African American Theater History: The Depression to the Present. (Formerly numbered 103E.) (Same as Afro-American Studies M103E.) Lecture, three hours. Prerequisite: upper division standing. 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. Prerequisite: consent of instructor. Study of American Indian theater as an evolving art form.

104A-104B-104C. History of American Theater. (Formerly numbered 104D-104E-104F.) 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 WWI; **104C.** WWI to the Present.

105. Main Currents in Theater. 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. Lecture, three hours. Survey of key works of American dramatic literature and landmarks of American theater history.

107. Drama of Diversity. Lecture, three hours. Investigation of diversity in American society as manifested in dramatic works and theatrical presentations.

108. Special Topics in History and Criticism. 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. 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. 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. 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.

115A-115B-115C. Acting, Voice, and Movement I (6 units, 6 units, 5 units). (Formerly numbered 21A-21B, 115.) Studio, 14 to 17 hours. Prerequisite: consent of instructor. 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 units, 6 units, 5 units). Studio, 14 to 17 hours. Prerequisite: consent of instructor. 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. 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 units). Lecture, four hours; other, to be arranged. Prerequisite: consent of instructor. 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. 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. Lecture/laboratory. Principles of production and performance for the child audience.

119B. Theater for the Child Audience: Performance. Lecture, two hours; laboratory, four hours. Prerequisites: audition and consent of instructor 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 units each). Studio, six hours. Prerequisite: consent of instructor. 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 units). Laboratory, to be arranged. Prerequisites: course 20, consent of instructor. 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 units). Prerequisite: consent of instructor. 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. Lecture/laboratory. Prerequisites: course 20, consent of instructor. Study and practice of art of acting through perfecting of techniques and application of those techniques to acting problems.

124A. Advanced Voice (2 units). Studio/laboratory, three to four hours. Prerequisites: courses 126A-126B-126C. Development of voice techniques for the stage, including work in relaxation, limbering, breathing, articulators, and resonators.

124B. Advanced Speech (2 units). Studio/laboratory, three to four hours. Prerequisite: 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 units). 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 units). Studio/laboratory, three to four hours. Prerequisite: course 125A. Advanced and contemporary approach to classical and modern movement for the stage actor.

126A-126B-126C. Acting, Voice, Movement III. Studio, nine hours. Prerequisites: courses 21A-21B. 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 units each). Studio, six hours. Prerequisites: 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 units each). Studio, four to six hours. Prerequisite: consent of instructor. 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 units). (Same as Film and Television CM129.) Lecture, two hours; screenings, two hours. Prerequisite: upper division or graduate standing in theater/film and television. 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. Beginning Playwriting. Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. 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. Lecture, three hours plus conference. Prerequisites: course 130A, consent of instructor. 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. Lecture/laboratory, three hours. Prerequisite: consent of instructor. 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. Lecture, three hours. Prerequisites: course 130A, consent of instructor. Principles and practices in evaluation of manuscripts for theater. May be repeated once for credit.

C133A-C133B-C133C. Script Development Workshops. Laboratory, three hours. Prerequisite for playwrights and directors: consent of instructor. 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.

136. Advanced Acting for the Stage. Lecture/laboratory. Prerequisites: course 123, consent of instructor. 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. Studio, six hours. Prerequisite: 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. Lecture/laboratory. Prerequisite: consent of instructor. Study of complex problems in voice, movement, and acting. May be repeated twice for credit.

140A. Scenic Techniques for the Stage. Lecture, three hours; laboratory, six hours. Prerequisites: course 10, consent of instructor. Intensive study of stage scenery techniques; tools, hardware, and materials; and their relationship to the art of theatrical scenic design through analysis of scenic design history, overall production concepts, and design styles.

141A. Lighting Techniques for the Stage. Lecture, three hours; laboratory, six hours. Prerequisites: course 10, consent of instructor. 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.

142B. Advanced Costuming for the Stage. Lecture, three hours; laboratory, four hours. Prerequisites: course 142A, consent of instructor. Special problems in procuring, designing, construction, and management of costumes used in theatrical productions.

144. Theater Sound Techniques (2 units). (Formerly numbered 144A.) Lecture, two hours; laboratory, two hours. Prerequisites: courses 14A-14B-14C or consent of instructor. Study of equipment and techniques utilized in recording and reproduction of sound for the theater.

145. Costume Design for the Theater. Lecture/laboratory. Prerequisite: consent of instructor. 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 (2 units). (Formerly numbered 149A.) Studio, four hours. Development of visual communication skills through drafting. Exploration of drafting for scenic and lighting designs. May be repeated once for credit.

147B. Rendering (2 units). Studio, four hours. 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. Lecture, three hours. Prerequisite: consent of instructor. Group study of selected subjects in design and technical theater. May be repeated twice for credit.

150. Theater Production and Performance (2 units). Studio, six hours. Prerequisite: course 50. Laboratory experience in various aspects of the 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisite: consent of instructor. 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisite: consent of instructor. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C452C.

153A-153B. Costume Design. Lecture/studio. Prerequisites: courses 14A-14B-14C. **153A.** (Formerly numbered 142A.) 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisite: consent of instructor. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C454C.

C155A-C155G. Graphic Representation of Design (2 units each). Studio, four hours. Prerequisite: course 147A or 147B. Concurrently scheduled with courses C455A-C455G.

C155A. Perspective Drawing. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-point perspective, form light, shade, and textures.

C155B. Watercolor Rendering. Study of watercolor techniques as they relate to interpretation of scenic designs, including painting of brick, wood, stone, fabrics, and other surfaces.

C155C. Marker Rendering. Study and practice of marker rendering techniques as a means of communication for scenic and costume designers.

C155D. Model Making. 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.

C155E. Life Drawing. Study and practice in drawing of human form.

C155F. Costume Rendering. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics.

C155G. Scene Painting Techniques. (Formerly numbered C146.) Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit.

C156A. Introduction to Computer-Assisted Drafting (2 units). Studio, four hours. Prerequisite: 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 units). Studio, four hours. Prerequisite: 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 units). Studio, four hours. Prerequisite: 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 units each). 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.** Prerequisites: courses 14A-14B-14C, consent of instructor. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C157B.** Prerequisite: course C157A. Introduction to costume drafting, construction of period undergarments. **C157C.** Prerequisites: courses C157A-C157B. Draping, patterning, and fitting techniques for period garments.

C158A. Scenic Design Technology. (Formerly numbered 140B.) Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisites: 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 units). Lecture, two hours; laboratory, four hours. Prerequisite: consent of instructor. 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. (Formerly numbered 161A, 161B, 161C.) Lecture/studio. Prerequisites: course 15, consent of instructor.

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. (Formerly numbered C162B.) Lecture, four hours; studio, six hours. Prerequisites: courses 163A-163B-163C, consent of instructor. 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 units). Hours to be arranged. Prerequisite: consent of instructor. 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 units). Hours to be arranged. Prerequisite: consent of instructor. 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 units). Hours to be arranged. Prerequisite: consent of instructor. 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 units). Studio, six hours. Prerequisites: 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 units). Studio, six hours. Prerequisites: 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 units). Studio, six hours. Prerequisites: 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 units). Studio, nine hours. Prerequisite: 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. Studio, 12 hours. Prerequisite: 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.

180. Senior Project. Lecture/studio, three hours. Prerequisites: 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 units). 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 units). 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 units). Lecture, 20 hours; laboratory, 22 hours. Prerequisite: consent of instructor. 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 units). Field experience, eight, 16, or 24 hours; individual conferences, to be arranged. Prerequisite: consent of instructor. Limited to senior Department of 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.

199. Special Studies in Theater Arts (2 to 8 units). Hours to be arranged. Prerequisite: senior standing, 3.0 GPA in major, consent of instructor. May be taken for a maximum of eight units.

Graduate Courses

Certain graduate courses concerned with individual student projects may be repeated for credit on recommendation of the departmental graduate adviser. Graduate courses are not open to undergraduate students.

202A. Seminar: Western Classical Theater. Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Examination of theatrical production and dramatic form in the Greek and Roman periods. May be repeated twice for credit.

202B. Seminar: Medieval Theater. Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Selected studies of theatrical production and dramatic form in the Middle Ages. May be repeated twice for credit.

202C. Seminar: Renaissance and Baroque Theater. Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Study of prototypes of modern experience as encountered in work of Ibsen and Strindberg. May be repeated twice for credit.
- 202F. Seminar: Modern Realism.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Selected studies of theater's response to science and technology, politics, and revolution. May be repeated twice for credit.
- 202G. Seminar: Modern Theatricalism.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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 units).** Seminar, four hours. Prerequisites: graduate standing, consent of instructor. 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 units).** Seminar, four hours. Prerequisites: graduate standing, consent of instructor. 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.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Analysis of major plays, commentaries, and historical materials. **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 units).** Seminar, four hours. Prerequisites: graduate standing, consent of instructor. 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.** Prerequisites: graduate standing, consent of instructor. 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.
- 208. Dramaturgy.** Discussion/laboratory, three hours. Prerequisites: graduate standing, consent of instructor. Theoretical and practical aspects of the dramatist's work in contemporary theater.
- 209. Theater Authors (5 units).** Prerequisites: graduate standing, consent of instructor. 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 units).** Prerequisites: graduate standing, consent of instructor. Investigation of selected topics in world theater, drama, production, and architecture. May be repeated four times for credit.
- 216A. Critical and Historical Methods.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Studies in theater historiography and sociological criticism.
- 216B. Critical Methods.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Studies in critical theories of theatrical form and structure.
- 216C. Critical Methods.** Discussion, three hours. Prerequisites: graduate standing, consent of instructor. Studies in contemporary modes of psychoanalytic and archetypal criticism for theater.
- 220. Graduate Forum (1 unit).** Seminar, two hours bimonthly or five times per term. Prerequisite: graduate standing in theater. 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 units).** (Same as Film and Television CM229.) Lecture, two hours; screenings, two hours. Prerequisite: upper division or graduate standing in theater/film and television. 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 units each).** Lecture, three hours; studio, two hours. Prerequisites: graduate standing, consent of instructor. **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.** Lecture, three hours. Prerequisites: graduate standing, consent of instructor. 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.** Prerequisites: graduate standing, consent of instructor. Research in technical processes and equipment in theater.
- 242A-242B-242C. History of Style and Ornamentation.** Prerequisites: graduate standing, consent of instructor. 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.** Prerequisite: consent of instructor. 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 units).** Laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. 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 units).** Laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. 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.** Lecture, three hours. Prerequisite: consent of instructor. 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.** (Formerly numbered 245.) Lecture, three hours. Prerequisite: 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.** Studio/laboratory. Prerequisite: 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.** Lecture/studio. Prerequisite: graduate standing. 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 units).** Studio, four hours. Prerequisites: graduate standing, consent of instructor. 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.** Lecture, four hours; studio, 24 hours. Prerequisites: graduate standing, consent of instructor. Development of directorial skills of analysis, planning, staging, and criticism through medium of written preparations and directing of scenes.
- 261. Directing II.** Lecture, four hours; studio, 30 hours. Prerequisites: graduate standing, consent of instructor. 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 units). Discussion, one hour; studio, 12 to 24 hours. Prerequisites: graduate standing, consent of instructor. 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. (Formerly numbered C262.) Lecture, four hours; studio, six hours. Prerequisites: courses 163A-163B-163C, consent of instructor. 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. Lecture, four hours; studio, 30 hours. Prerequisites: graduate standing, consent of instructor. Problems in interpretation and direction of historical or classical drama through medium of laboratory scene work.

265. Modern Theories of Production. 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. Examination of process of conceptualization in dramatic production; centrality of theatric 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 units). Lecture, three hours; laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. 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. Prerequisite: consent of instructor. 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.

290B. Programming and Planning Policies in the Theater. Prerequisite: consent of instructor. 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 units). Prerequisites: graduate standing, consent of instructor. 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 units). Prerequisites: graduate standing, consent of instructor. 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 units each). Lecture/discussion. Prerequisites: graduate standing, consent of instructor. Seminar study of problems in theater arts, organized on topic basis. May be repeated once for credit.

375. Teaching Apprentice Practicum (1 to 4 units). Prerequisite: 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 units, 4 units, 4 units). 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 units 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 units). 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 units 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 units 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 units 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 units 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 units). Studio, four hours. Prerequisites: graduate standing, consent of instructor. 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 units each). Lecture, three hours. Prerequisite: graduate standing in M.F.A. playwriting program. Guided completion of full-length scripts for the stage.

431. Special Topics in Playwriting. Discussion, three hours. Prerequisites: graduate standing in M.F.A. playwriting program and/or consent of instructor. 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. Laboratory, three hours. Prerequisites for playwrights and directors: graduate standing, consent of instructor. 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 units, 0 units, 2 units). Prerequisite: consent of instructor. 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. Lecture/studio. Prerequisite: consent of instructor:

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, multisensory 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. Lecture/laboratory. Prerequisites: graduate standing, consent of instructor. 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. Lecture/studio. Prerequisite: consent of instructor. 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 units). Lecture/laboratory, four hours (additional hours as required). Prerequisite: consent of instructor. Study and practice in design techniques for theater. May be repeated for a maximum of 12 units.

444A-444B-444C. Sound Design. Lecture/studio. Prerequisite: consent of instructor:

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. Lecture/studio. Prerequisite: consent of instructor. 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. Lecture/studio. Prerequisite: consent of instructor. 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisite: consent of instructor. 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-C455G. Graphic Representation of Design (2 units each). Studio, four hours. Prerequisite: course 147A or 147B. Concurrently scheduled with courses C155A-C155G:

C455A. Perspective Drawing. 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.

C455B. Watercolor Rendering. 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.

C455C. Marker Rendering. Study and practice of marker rendering techniques as a means of communication for scenic and costume designers.

C455D. Model Making. 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.

C455E. Life Drawing. Study and practice in drawing of human form.

C455F. Costume Rendering. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics.

C455G. Scene Painting Techniques. (Formerly numbered C446.) Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit.

C456A. Introduction to Computer-Assisted Drafting (2 units). Studio, four hours. Prerequisite: 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 units). Studio, four hours. Prerequisite: 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 units). Studio, four hours. Prerequisite: 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 units each). 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.** Prerequisites: courses 14A-14B-14C, consent of instructor. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C457B.** Prerequisite: course C457A. Introduction to costume drafting, construction of period undergarments. **C457C.** Prerequisites: courses C457A-C457B. Draping, patterning, and fitting techniques for period garments.

C458A. Scenic Design Technology. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisites: 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. Lecture/studio. Prerequisites: 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. Lecture, three hours. Prerequisite: consent of instructor. Limited to graduate students in Department of Theater. 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 unit each). Discussion, three hours. Prerequisites: graduate standing, consent of instructor. 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. Lecture, to be arranged. Prerequisite: consent of instructor. 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 units). Lecture, to be arranged. Prerequisite: consent of instructor. 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. Prerequisite: consent of instructor. 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 units). Laboratory, to be arranged. Prerequisites: M.F.A. candidate, consent of instructor. 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 units). Discussion, three hours; laboratory, 12 hours to be arranged. Prerequisites: graduate standing, consent of instructor. 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. Practicum in Teaching Theater. Lecture/laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. Study of and practice in teaching theater at college and university level.

495B. Practicum in Theater Production (2 or 4 units). Laboratory, to be arranged. Prerequisites: graduate standing, consent of instructor. Demonstration of competence in theater production through successful completion of a major teaching production assignment. May be repeated for a maximum of 12 units.

496. Practice of Teaching Theater (2 units). 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 Theater, Film, and Television (4, 8, or 12 units). Full- or part-time at a studio or on a professional project. Prerequisites: graduate standing, advanced standing in M.F.A. program, consent of instructor. 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 units). Prerequisite: 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 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

596B. Directed Individual Studies: Writing (2 to 12 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

596C. Directed Individual Studies: Directing (2 to 12 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

596D. Directed Individual Studies: Design (2 to 12 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

596E. Directed Individual Studies: Acting (2 to 12 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

596F. Directed Individual Studies: Production (2 to 12 units). Hours to be arranged. Prerequisite: graduate standing. May be repeated with consent of instructor.

597. Preparation for Ph.D. Qualifying Examinations in Theater Arts (2 to 8 units). May be repeated for a maximum of 12 units.

598. M.A. Thesis in Theater Arts (2 to 8 units). Prerequisite: 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 units). Prerequisite: advancement to Ph.D. candidacy. Research and writing for Ph.D. dissertation. May be repeated for a maximum of 12 units.

Related Courses in Other Departments

Classics 143. Ancient Drama

English 10A, 10B, 10C. English Literature

90. Shakespeare

112. Children's Literature

135A-135B-135C. Creative Writing: Drama

167. Drama, 1842 to 1945

Film and Television 126. Acting for Film and Television

177. Film and Television Acting Workshop

Humanities 1A, 1B, 1C. World Literature

Italian 122. Italian Theater

Musicology 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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Julie Roque, Ph.D.
Brian Taylor, 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. 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, 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of Urban Planning offers the Master of Arts 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 address given at the beginning of this listing.

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 those whose native language is not English, unless at least two years of university-level coursework at an English-language institution has 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.

Concurrent Degrees

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.

During the first year, students follow the required law curriculum and must attain at least a 70 average to continue in the concurrent degree program. The second year is spent in the urban planning program, taking 36 units toward the M.A. degree. During the third and fourth years, students take 36 additional quarter units to complete the planning degree and the necessary coursework to complete the law degree. Of the 72 quarter units toward planning, three courses must be taken from the multiple-listed courses offered by both law and planning (Law M285, M286, M287, M290, and M526) which may be applied toward both the J.D. and the M.A. degrees. Students may also petition to substitute other policy-oriented law courses for one or more of the multiple-listed courses.

Students who decide not to complete either the J.D. or M.A. must complete all the regular requirements for the program they wish to pursue.

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.

A total of 36 courses (144 units) is required: from 18 to 24 courses in the John E. Anderson Graduate School of Management and from 12 to 18 courses in the Department of Urban Planning. All core and concentration requirements for each program must be met, but where the two programs' core courses are substantially the same, students may choose from either program's offerings. A maximum of six courses count toward unit requirements for both degrees. Students complete all first-year M.B.A. requirements during the first year of residence; the second and third years of study are divided between both programs.

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 2½- 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.

A total of 25 courses (100 units) is required for the concurrent degree program: 18 courses for the M.A. in Urban Planning and nine courses for the M.A. in Latin American Studies. Two courses, selected from a list of urban planning courses approved by the Latin American Studies Program, may be applied toward both degrees. All requirements for each program must be met, and the degrees may be awarded simultaneously.

Further details may be obtained from the graduate adviser in the Department of Urban Planning.

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. This 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 economics.

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.

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 additional area of concentration must be obtained from the department chair. Further details may be obtained from the graduate adviser.

International Development Studies. Students wishing to focus their studies on policy and planning problems of newly industrializing countries may do so in the context of one of the major areas of concentration. Coursework is currently offered in rural development, urbanization policies, housing, the environmental impacts of resource-based development, spatial policies for development, and the role of women in development. In addition, a number of courses are concerned with the evolving world economy, general development issues, and related ideological questions.

Opportunities for work exist with international agencies, voluntary agencies, and foreign governments. Doctoral students generally pursue careers in teaching, research, and consulting.

The program is not admitting new students at this time.

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 and/or two courses or eight units of course 496) in urban planning or a related field.

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, 220A (waiver by examination), 220B, two core courses in theory and context, and one additional course from a selection of 12 remaining core courses in methods, theory and context, and/or practice. A complete list of core courses appears in the program handbook.

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 A or 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 required 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 six courses, two of which are generally specified, from a list of courses prepared for that area. Students are encouraged to seek waivers for requirements which have been met in their previous education.

Fieldwork. Students without substantial prior experience in planning are required to complete a minimum of eight units of fieldwork. Fieldwork is defined as clinical or "real world" experience with a planning office, a private organization involved in planning, a community action agency, or applied research within a clinical context (excluding conventional university-based research projects).

Students may petition to waive the fieldwork requirement if they have had at least one year of professional experience at a responsible level prior to entering the program. Those who have had less than one year's experience may petition for a partial waiver. The petition and required accompanying report must be submitted to the fieldwork coordinator by the end of the first year of study. If a waiver is received, other coursework must be substituted for fieldwork in order to fulfill unit requirements for the degree.

Further details about fulfilling this requirement are available from the graduate adviser.

Comprehensive Examination Plan

A student 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 for those who 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 597, four units each in Winter and Spring Quarters. 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 (group comprehensive project sequence), offered each year, 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 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 this 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

A student 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 provides 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. Four units of academic credit for thesis preparation is given through Urban Planning 205 in the fall and through Urban Planning 598, four units each in Winter and Spring Quarters.

The thesis project must receive a grade of B or S (depending on grading option) to be of passing quality.

Doctoral Degree

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 address given at the beginning of this listing.

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 those whose native language is not English, unless at least two years of university-level coursework at an English-language institution has 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 in Urban Planning 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.

Before acceptance into the program, two faculty members must agree to assume responsibility for guiding students in their studies.

The following questions should be addressed in the statement of purpose: (1) career plans and how a Ph.D. in planning will contribute to those plans; (2) the intended area of concentration; and (c) specific research interests and possible plans for dissertation.

Course Requirements

A high level of competence in an area of concentration and in planning theory and history, as measured by coursework and doctoral examinations, is required. In addition, a student must satisfy a requirement in research methods outside of coursework and is required to take Urban Planning 208 to aid in the preparation of dissertation research and writing.

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 an advanced seminar (Urban Planning 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).

Area of Concentration. The area of concentration 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 area of concentration 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 Winter Quarter of the first year. The plan must include (1) a short description of the area selected for study; (2) an indication of their major focus of research; (3) a short bibliography; and (4) a list of suggested courses and research papers through which they propose to prepare for the area examination. The list of courses must include a minimum of three from outside the department and three methods courses (see Research Methods Requirement). Once approved, the plan is filed with the graduate adviser. The normal time for completion of the area of concentration requirement is two academic years. The actual timing for 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, a student 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 student 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 area of concentration 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.

Written and Oral Qualifying Examinations

For details on the written qualifying examinations, see Planning Theory and History Requirement and Area of Concentration in the Course Requirements section above.

After successful completion of the planning theory and history, area of concentration, 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 student defends the dissertation proposal. To assist in the development of the proposal, the student is required to complete Urban Planning 208.

The University Oral Qualifying Examination should be taken by the end of the third year of doctoral study.

Lower Division Course

88. Lower Division Seminar: Special Topics in Urban Planning. 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: Problems and Issues. (Formerly numbered Architecture and Urban Planning CM128.) (Same as Geography M128.) Lecture, three hours. Prerequisite: Geography 5. Limited to juniors/seniors. Analysis of selected environmental problems and issues associated with human-induced ecological disturbances. In-depth evaluation of key problem factors and processes using a multidisciplinary approach. Concurrently scheduled with course C252. P/NP or letter grading.

M149. Transportation Geography. (Formerly numbered Architecture and Urban Planning M149.) (Same as Geography M149.) Prerequisite: consent of instructor. Study of geographical aspects of transportation; focusing on characteristics and functions of the various modes and on complexities of intra-urban transport.

179. Variable Topics in Urban Planning (2 to 8 units). (Formerly numbered Architecture and Urban Planning 179.) Lecture, three hours. Variable topics course in selected subjects in social policy and public services, urban and regional development, natural environment and resources, and the built environment. May be repeated for credit.

187. Planning and Designing Our Cities. (Formerly numbered Architecture and Urban Planning 187.) 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 units). (Formerly numbered Architecture and Urban Planning CM189.) (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. (Formerly numbered Architecture and Urban Planning 190.) (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.

197. Planning for Minority Communities. (Formerly numbered Architecture and Urban Planning 197.) 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 units). (Formerly numbered Architecture and Urban Planning 199.) Prerequisite: consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning M202A.) (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 units). (Formerly numbered Architecture and Urban Planning M202B.) (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 units). (Formerly numbered Architecture and Urban Planning M202C.) (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. Research Seminar for Master's Thesis. (Formerly numbered Architecture and Urban Planning 205.) Discussion, three hours. Prerequisite: second-year standing in M.A. program. Required course for all second-year M.A. students who select thesis option rather than one of comprehensive examination options, aimed at aiding students in preparation of their theses. Organized as workshop with periodic reports and discussions of proposed research. S/U grading.

206A. Urban Data Analysis: Demographic Applications. (Formerly numbered Architecture and Urban Planning 206A.) Lecture, three hours; laboratory, one hour. Prerequisites: one graduate-level statistics course, familiarity with one of the packaged statistics programs. Development of basic demographic methods of analysis in a policy context, providing parallel development of content, data sources, and applications. Topics include data sources and errors, mortality, fertility, age structure, and their effects on planning policy.

206B. Urban Data Analysis: Planning Models. (Formerly numbered Architecture and Urban Planning 206B.) Lecture, three hours; laboratory, one hour. Prerequisite: course 206A or equivalent. 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. (Formerly numbered Architecture and Urban Planning 207.) Lecture, three hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 208.) Lecture, three hours. Prerequisites: doctoral standing, consent of instructor. Required of Ph.D. students in or following second year. Process of developing dissertation proposal; introduction to alternative conceptions of science (or rigorous scholarship) now apparent in various social science paradigms. S/U grading.

209. Special Topics in Planning Theory (2 to 8 units). (Formerly numbered Architecture and Urban Planning 209.) Lecture, three hours. Seminar on topics in planning theory selected by faculty. May be repeated for credit.

210A. Introduction to Planning Theory. (Formerly numbered Architecture and Urban Planning 210A.) 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. (Formerly numbered Architecture and Urban Planning 210B.) 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. (Formerly numbered Architecture and Urban Planning 210C.) Lecture, one hour; discussion, two hours. Prerequisite: course 210A. Limited to Ph.D. students. Introduction to some central theoretical issues of contemporary planning.

211. Law and the Quality of Urban Life. (Formerly numbered Architecture and Urban Planning 211.) 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. (Formerly numbered Architecture and Urban Planning 214.) 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. (Formerly numbered Architecture and Urban Planning M215.) (Same as Geography M272.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisite: consent of instructor. Specific techniques useful in analysis of spatial data and modeling of spatial distributions.

216. Introduction to Nonprofit Development. (Formerly numbered Architecture and Urban Planning 219.) 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. (Formerly numbered Architecture and Urban Planning 217A-217B.) Prerequisite: second-year standing. 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. (Formerly numbered Architecture and Urban Planning 218.) 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 units). (Formerly numbered Architecture and Urban Planning 219.) Lecture, three hours. Seminar on topics in the built environment selected by the faculty. May be repeated for credit.

220A. Quantitative Analysis in Urban Planning I. (Formerly numbered Architecture and Urban Planning 220A.) Lecture, three hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 220B.) Lecture, three hours. Prerequisite: course 220A or equivalent (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. (Formerly numbered Architecture and Urban Planning 221.) Lecture, three hours. Prerequisites: 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 the Planning Profession. (Formerly numbered Architecture and Urban Planning 222.) Lecture, three hours. Lecture/project course offering introduction to the planning profession and to Urban Planning Department at UCLA. Overview of forces that shaped its practice over time and exploration of various professional roles for planners. Planning education viewed as response to changing needs and as catalyst for emerging roles for professional planners. Generally taken Fall Quarter of first year of M.A. program.

223. Professional Development Seminar. (Formerly numbered Architecture and Urban Planning 223.) Lecture, 90 minutes; discussion, 90 minutes. Recommended (but not prerequisite): 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 496F to meet fieldwork requirement.

229. Special Topics in Planning Methods (2 to 8 units). (Formerly numbered Architecture and Urban Planning 229.) Seminar on topics in planning methodology selected by faculty. May be repeated for credit.

M231. Urban Housing and Community Development (3 to 6 units). (Formerly numbered Architecture and Urban Planning M231.) (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.

232A. Introduction to Regional Planning: Evolution of Regional Planning Doctrines. (Formerly numbered Architecture and Urban Planning 232A.) 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. (Formerly numbered Architecture and Urban Planning 232B.) 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. (Formerly numbered Architecture and Urban Planning 233.) 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.

235A-235B. Urbanization and Rural Development in Third World Countries. (Formerly numbered Architecture and Urban Planning 235A-235B.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite for course 235A: course 266 or consent of instructor; for course 235B: course 235A or consent of instructor. 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.

235C. Research Seminar: Alternative Development. (Formerly numbered Architecture and Urban Planning 235C.) Discussion, three hours. Prerequisites: courses 235A-235B or 267A and 267B. Thesis and dissertation research seminar, consisting of review of major issues in an alternative development, specifically in poor countries, addressing issues in urban and rural development, with focus on one or more of following: inclusive democracy, appropriate economic growth, gender equality, and environmental sustainability; guest lectures and student presentations. S/U grading.

236A. Urban and Regional Economic Development I. (Formerly numbered Architecture and Urban Planning 236A.) Lecture, three hours. Introduction to industrial change and effect on urban and regional development theory and policy. Major topics include role of industrialization in economic development, explanations of regional industrial growth and decline, rise and fall of Fordism and its regional patterns, new forms of industrialization with particular emphasis on flexible production, and debates regarding political economy of industrialization.

236B. Urban and Regional Economic Development II. (Formerly numbered Architecture and Urban Planning 236B.) Lecture, three hours. Prerequisite: course 236A. Examination of local economic development theory and history and issues associated with different public policies. Topics include changing patterns of employment, job creation, job retention, and forms of income redistribution aimed at stabilizing a community's economy, with particular concern for women, minorities, and the poor.

236C. Urban and Regional Economic Development III. (Formerly numbered Architecture and Urban Planning 236C.) Discussion, three hours. Prerequisite: course 236B. Advanced seminar in community economic development, involving case study analysis, fieldwork, and individual student projects.

238. Advanced Seminar: Urban and Regional Development. (Formerly numbered Architecture and Urban Planning 238.) Lecture, two hours; discussion, two hours. Prerequisite: doctoral standing or consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning 239.) Lecture, three hours. Seminar on topics in urban and regional development policy selected by faculty. May be repeated for credit.

M242A. Topics in Asian American Studies: Asian Migration to the U.S. (Formerly numbered Architecture and Urban Planning M242A.) (Same as Asian American Studies M297B.) Prerequisite: graduate standing or consent of instructor. 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.

M242B. Topics in Asian American Studies: Urbanization in Asia — Policy Issues and Problems. (Formerly numbered Architecture and Urban Planning M242B.) (Same as Asian American Studies M297C.) Prerequisite: graduate standing or consent of instructor. 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.

244. Housing Markets. (Formerly numbered Architecture and Urban Planning 244.) 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. (Formerly numbered Architecture and Urban Planning 245.) Lecture, three hours. Prerequisites: courses 207 and 220A, or consent of instructor. 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. (Formerly numbered Architecture and Urban Planning 246.) Lecture, three hours. Seminar on 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. (Formerly numbered Architecture and Urban Planning 249.) 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.

249. Special Topics in Social Policy and Analysis (2 to 8 units). (Formerly numbered Architecture and Urban Planning 249.) Lecture, three hours. Seminar on topics in social policy and analysis selected by faculty. May be repeated for credit.

250. Introduction to Social Policy. (Formerly numbered Architecture and Urban Planning 250.) 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. (Formerly numbered Architecture and Urban Planning 251.) 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: Problems and Issues. (Formerly numbered Architecture and Urban Planning C252.) Lecture, three hours. Prerequisite: consent of instructor. Analysis of selected environmental problems and issues associated with human-induced ecological disturbances. In-depth evaluation of key problem factors and processes using a multidisciplinary approach. Concurrently scheduled with course CM128. S/U or letter grading.

254. Survey Methods in Planning. (Formerly numbered Architecture and Urban Planning 254.) Lecture, three hours. Prerequisite: course 220B or equivalent. 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. (Formerly numbered Architecture and Urban Planning 256.) 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. (Formerly numbered 219.) (Same as Architecture and Urban Design M259.) Discussion, three hours. Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 260A.) 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. (Formerly numbered Architecture and Urban Planning 260B.) 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. (Formerly numbered Architecture and Urban Planning 261.) Lecture, two hours; discussion, one hour. Prerequisites: courses 260A and 260B, or consent of instructor. 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. (Formerly numbered Architecture and Urban Planning M262A.) (Same as Chemical Engineering M290U and Environmental Health Sciences M249.) Lecture, three hours. Prerequisites: courses 260A and 260B, or consent of instructor. 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.

262B. Urban Environmental Problems: Water Resources. (Formerly numbered Architecture and Urban Planning 262B.) 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 Forum Series (2 units). (Formerly numbered Architecture and Urban Planning M262C.) (Same as Environmental Health Sciences M239.) 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.

263. Natural Resource Conservation. (Formerly numbered Architecture and Urban Planning 263.) Discussion, three hours. Prerequisites: courses 260A and 260B, or consent of instructor. 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 units). (Formerly numbered Architecture and Urban Planning M264.) (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 units). (Formerly numbered Architecture and Urban Planning C265.) 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. (Formerly numbered Architecture and Urban Planning 266.) 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 267A, 267B, and many of the other planning courses addressing Third World issues.

267A. Resource-Based Development Planning. (Formerly numbered Architecture and Urban Planning 267A.) Discussion, three hours. Recommended (but not prerequisite): 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. (Formerly numbered Architecture and Urban Planning 267B.) Lecture, three hours. Recommended (but not prerequisite): 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. (Formerly numbered Architecture and Urban Planning 268.) Discussion, three hours. Prerequisite: consent of instructor. Exploration of broad issues related to environmental and resource planning. Generally intended for second-year M.A. and Ph.D. students. May be repeated for credit.

269. Special Topics in Environmental Analysis and Policy (2 to 8 units). (Formerly numbered Architecture and Urban Planning 269.) Lecture, three hours. Seminar on topics in environmental analysis and policy selected by faculty. May be repeated for credit.

270. Homelessness: Housing and Social Service Issues. (Formerly numbered Architecture and Urban Planning 270.) 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.

M272. Real Estate Development for Planners and Architects. (Formerly numbered Architecture and Urban Planning 272.) (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. (Formerly numbered Architecture and Urban Planning 273.) Lecture, 90 minutes; laboratory, 90 minutes. Introduction to principles of site planning for urban areas.

274. Introduction to Physical Planning. (Formerly numbered Architecture and Urban Planning 274.) 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. (Formerly numbered Architecture and Urban Planning 275.) 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.

276. Planning Workshop (4 to 8 units). (Formerly numbered Architecture and Urban Planning 276.) Lecture, one hour; discussion, one hour; laboratory, four hours. Prerequisite: consent of instructor. Planning projects with focus on physical planning.

277. Historic Preservation: Principles and Practices. (Formerly numbered Architecture and Urban Planning 277.) 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. (Formerly numbered Architecture and Urban Planning 278.) 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.

281A. Introduction to History of the Built Environment in the U.S. (Formerly numbered Architecture and Urban Planning 281A.) 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. (Formerly numbered Architecture and Urban Planning 281B.) Discussion, three hours. Prerequisite: 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.

283. History of the American Household and American Home. (Formerly numbered Architecture and Urban Planning 283.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course 281A or consent of instructor. 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.

284. Looking at Los Angeles. (Formerly numbered Architecture and Urban Planning 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.

285. Great Planning Debates: Gender. (Formerly numbered Architecture and Urban Planning 285.) Lecture, 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.

286. Transportation and Land Use. 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.

287. Travel Behavior Analysis. Lecture, three hours. Prerequisites or corequisites: courses 207, 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.

288. Transportation System Operations and Performance. Lecture, three hours. Transportation system supply analysis, highway capacity analysis, traffic flow theory, measuring congestion, level of service, queuing, traffic impact analysis, travel demand management, parking management and pricing, high-occupancy vehicle treatments of highways, transit operations, transit performance, ridesharing, paratransit, specialized transportation for elderly and disabled people and the Americans with Disabilities Act.

289. Transportation Economics, Finance, and Policy. 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.

290. Transportation and Environmental Issues. 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.

375. Teaching Apprentice Practicum (1 to 4 units). (Formerly numbered Architecture and Urban Planning 375.) Prerequisite: 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. (Formerly numbered Architecture and Urban Planning 404.) (Same as Architecture and Urban Design M404.) Lecture, one hour; discussion, one hour; studio, four hours. Prerequisite: consent of instructor. 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.

494. Supervised Independent Teaching (2 to 8 units). (Formerly numbered Architecture and Urban Planning 494.) Supervised individual teaching experience. May be repeated for credit. S/U grading.

496. Field Projects (2 to 8 units). (Formerly numbered 496F.) May be repeated for credit. S/U grading.

501. Cooperative Program (2 to 8 units). (Formerly numbered Architecture and Urban Planning 501.) Prerequisite: 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 units). (Formerly numbered 596P.) May be repeated for credit.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations (2 to 8 units). (Formerly numbered 597P.) May be repeated for credit. S/U grading.

598. Preparation for M.A. Thesis in Urban Planning (2 to 8 units). (Formerly numbered 598P.) May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research in Planning (2 to 8 units). (Formerly numbered 599P.) 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

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 specialization must be taken in conjunction with a major in the social sciences.

Special Undergraduate Program

You may elect to combine this program 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 beginning of Chapter 5.

If you have a departmental major, you should seek advising in your major department. If you are interested in the individual major, 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, 18, 104 or equivalent.

Upper Division

Required: Nine upper division courses, including (1) at least three courses outside your 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 your major department: Economics 121, 130, 133; Geography 150, 151, 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 your major department; (4) internship experience in an urban governmental or community service organization.

Professor Eric Monkkonen (9252 Bunche Hall, 310-825-3376) is the program adviser. For further information, contact the political science undergraduate counselor in the program office.

WOMEN'S STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
240 Kinsey Hall
Box 951453
Los Angeles, CA 90095-1453
(310) 206-8101

Professors

Paula Gunn Allen, Ph.D. (*English*)
Edward A. Alpers, Ph.D. (*History*)
Emily Apter, Ph.D. (*French*)
Helen S. Astin, Ph.D. (*Education*)
Ann L.T. Bergren, Ph.D. (*Classics*)
Ellen DuBois, Ph.D. (*History*)
N. Kathryn Hayles, Ph.D. (*English*)
Nancy M. Henley, Ph.D. (*Psychology*)
Nikki Keddie, Ph.D. (*History*)
Kathleen L. Komar, Ph.D. (*German*)
Christine A. Littleton, J.D. (*Law*), *Chair*
Neil M. Malamuth, Ph.D. (*Communication Studies*)
Vickie M. Mays, Ph.D. (*Psychology*)
Anne K. Mellor, Ph.D. (*English*)
Carrie J. Menkel-Meadow, J.D. (*Law*)
Ruth M. Milkman, Ph.D. (*Sociology*)
Regina Morantz-Sanchez, Ph.D. (*History*)
Carole Pateman, D.Phil. (*Political Science*)
L. Anne Peplau, Ph.D. (*Psychology*)
Karen B. Sacks, Ph.D. (*Anthropology*)
Valerie A. Smith, Ph.D. (*English*)

Associate Professors

Emily K. Abel, Ph.D. (*Health Services*)
Ruth Bloch, Ph.D. (*History*)
King-Kok Cheung, Ph.D. (*English*)
Katherine C. King, Ph.D. (*Classics*)
Nancy E. Levine, Ph.D. (*Anthropology*)
Valerie J. Matsumoto, Ph.D. (*History*)
Sara Meizer, Ph.D. (*French*)
Kathryn Norberg, Ph.D. (*History*)

Vilma Ortiz, Ph.D. (*Sociology*)
 Karen E. Rowe, Ph.D. (*English*)
 Miriam Silverberg, Ph.D. (*History*)
 Sharon Traweek, Ph.D. (*History*)

Assistant Professors

Deborah M. Garfield, Ph.D. (*English*)
 Jayne E. Lewis, Ph.D. (*English*)
 Marcylina H. Morgan, Ph.D. (*Anthropology*)
 Judith A. Rosen, Ph.D. (*English*)
 Sonia Saldívar-Hull, Ph.D. (*English*)
 Seana Shiffrin, D.Phil. (*Philosophy*)
 Brenda Stevenson, Ph.D. (*History*)
 Mariko Tamanoi, Ph.D. (*Anthropology*)
 Dawn M. Upchurch, Ph.D. (*Community Health Sciences*)

Lecturers

Linda Garnets, Ph.D. (*Psychology*)
 Sylvia Sherno, Ph.D. (*Spanish and Portuguese*)

Adjunct Professor

Sandra G. Harding, Ph.D. (*Philosophy*)

Adjunct Associate Professors

Jacqueline D. Goodchilds, Ph.D. (*Psychology*)
 Sondra Hale, Ph.D. (*Anthropology*)

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 specialization. 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 specialization 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, and sexual 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. Strong 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 woman 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 25 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 stud-

ies 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 women's studies committee composed of the director, faculty members, and a student representative sets program policies and curricula.

The program sponsors a Student Association and assists other student groups with extra-curricular programming on feminist issues. Research in women's studies is promoted in cooperation with the Center for the Study of Women. A library of information related to women's studies is housed in the program office.

While no formal graduate program exists at UCLA at this time, 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.

Requirements for the Undergraduate Programs

Admission

To be admitted to either the major or specialization, you must have completed Women's Studies 10, be in good standing, and formally register with the program. You are encouraged to declare your major or specialization as early as possible and to discuss your proposed course of study with the director or undergraduate adviser.

You are encouraged to draw on the University's diverse resources in creating your major or specialization program. You 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, you may petition to have diverse courses accepted, including courses outside the College of Letters and Science, independent studies, or field study courses.

Bachelor of Arts Degree

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.

All courses applied toward the major must be taken for a letter grade, and you must have a GPA of 2.0 or better in women's studies courses to receive credit for completing the program. Courses in which you receive a grade of C – or lower may not be applied toward the major.

Preparation for the Major

Required: Women's Studies 10. You must also complete departmental lower division prerequisites, 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 you 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 one course from Women's Studies 110A through M110D, 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 course 197 (departmental 197 courses may not be applied).

(2) At least four *distribution* courses, each from different departments or disciplines, selected from the approved list of women's studies courses.

(3) Six additional *concentration* courses from one or two of the disciplines in which your core and distribution courses have been taken. You may petition for interdisciplinary or topical concentrations such as feminist theory, women of color, women's health, or lesbian studies.

For the purpose of the ethnic studies requirement and the distribution requirement, appropriate Council on Educational Development (CED), field studies, and Women's Studies courses may be applied. Four units of Women's Studies 199 may be applied toward either the distribution or concentration requirement for the major (departmental 199 courses are not affected by this limit).

Honors Program

The honors program is open to 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 director for approval.

To be eligible for honors at graduation, you must successfully complete Women's Studies 197 and two successive terms of independent studies (courses 199HA-199HB) with your faculty sponsor and receive a grade of B or better on your research paper/project. Course 199HA may be applied toward the concentration requirement; course 199HB is in addition to the minimum required courses. Further information is available from the undergraduate counselor in the program office.

Women's Studies Specialization

The specialization augments study in a traditional field. Students participating in this program are required to complete both a departmental major and the women's studies specialization.

You must take three core courses (Women's Studies 10, one course from 110A through M110D, and 197), plus five upper division elective courses from the approved list of women's studies credit courses issued each term by the program. One course on American ethnic minority women is strongly recommended. At least one of the five courses must be taken in a department other than the major department. Up to two may be experimental courses offered by the Council on Educational Development (CED). No more than four units of course 199 may be applied.

All courses applied toward the specialization must be taken for a letter grade, and you must have a GPA of 2.0 or better in women's studies courses to receive credit for completing the program. Courses in which you receive a grade of C – or lower may not be applied toward the specialization.

Lower Division Course

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society. 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 Core Courses

110A. Feminist Theories: Social and Political. Lecture/discussion, three hours. Prerequisite: course 10. Examination in depth of differing feminist theorists' attempts to describe, explain, critique, and reconstruct social and political institutions from perspectives of women. Emphasis on whether and how feminist theory is related to change in structure, operation, or understanding of such institutions as law, politics, the state, education, work, family, religion, sexuality.

110B. Feminist Theories: Criticism. Lecture/discussion, three hours. Prerequisite: course 10. Examination in depth of differing feminist theorists' interpretations of language, literature, and the arts from a critical perspective. Emphasis on ways in which women and sexuality have been represented in cultural texts.

110C. Feminist Theories: Perspectives on Gender and Science. Lecture/discussion, three hours. Prerequisite: course 10. Examination in depth of different theoretical positions on gender and women as they have been applied to study of sciences. Emphasis on theoretical contributions made by the new scholarship on women as it applies to shaping of scientific enterprise.

M110D. Philosophical Analysis of Issues in Feminist Theory. (Same as Philosophy M192.) Lecture, three hours. Prerequisite for women's studies majors: course 10; for other students: one philosophy course or consent of instructor. 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.

197. Senior Seminar: Women's Studies. Discussion, three hours. Prerequisites: course 10, one course from 110A through M110D, two other women's studies courses; for seniors and juniors: consent of instructor. Designed for students completing work in women's studies. Each student pursues research on specific topic concerning women, explores frameworks for understanding female experience (biological, economic, historical, and psychological), and refines methods for research.

Upper Division Supporting Courses

105. Topics in Women and Medicine. 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 specialty and ways to deliver health care to women. Exploration of roles and lifestyles of female physicians. P/NP or letter grading.

M106. Imaginary Women. (Same as Honors Collegium M106.) Prerequisite: upper division standing. 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. (Same as English M107A.) Prerequisite: 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. (Same as English M107B.) Prerequisite: 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. (Same as English M107C.) Prerequisite: 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.

M112. Special Topics in Women and the Arts. (Same as World Arts and Cultures M112.) Lecture, three hours; outside study, nine hours. Prerequisite: 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.

114. Introduction to Lesbian, Gay, and Bisexual Studies. Lecture, three hours; discussion, one hour. Introduction to study of lesbians and gay men as social groups; examination of sexual orientation as a category for investigation; interdisciplinary approaches to theories and research on commonalities and diversity of gay, lesbian, and bisexual experience, including race/ethnicity. P/NP or letter grading.

115. Topics in Studies of Sexual and Gender Orientation. Lecture/discussion, three hours. Prerequisite: course 10 or 114. 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; multi-ethnic and cross-cultural emphases.

120. Internship in Women's Studies. Seminar, three hours. Prerequisites: course 10 and at least one course from 110A through M110D. 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 courses 110A through M110D.

125. Women and Health Care in the U.S. Lecture/discussion, three hours. Prerequisite: 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.

130. Women of Color in the U.S. Lecture/discussion, three hours. Prerequisite: 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. (Same as Chicana and Chicano Studies M110.) Lecture, three hours. Prerequisite: course 10 or consent of instructor. 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. (Same as Chicana and Chicano Studies M154.) Prerequisite: course 10 or consent of instructor. Overview of conditions facing Chicanas in the U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas.

135. Women in Science. 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.

M137E. Work Behavior of Women and Men. (Same as Psychology M137E.) Prerequisite: course 10 or Psychology 10 or senior standing. 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. (Same as Communication Studies M124 and Psychology M137J.) Lecture, three hours. Prerequisites: Psychology 10 or equivalent, junior standing. 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. (Formerly numbered CED 139.) Lecture/discussion, three hours. Prerequisite: 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.

M148. Women in Higher Education. (Same as Education M148.) Limited to 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.

M154. Women in Culture and Society. (Same as Anthropology M154.) Lecture, three hours. Open to upper division social sciences majors. Comparative study of women's lives globally and locally from an anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case studies, and student research and presentation. P/NP or letter grading.

M158. Women in Italian Culture. (Same as Italian M158.) Lecture, three hours. Designed with intent of examining role that women have played in Italian society. Concentration alternatively on the world of medieval and Renaissance "matriarch" and on "liberated" women of our times. Historical and political documents and social and religious taboos presented and discussed, together with other data derived from literature and art. Italian majors required to read texts in Italian and to prepare papers written in Italian.

M160. Women and Social Movements. (Formerly numbered 160.) (Same as Anthropology M155Q.) Lecture/discussion, three hours. Recommended (but not prerequisite): 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.

M162. Sociology of Gender. (Same as Sociology M162.) Lecture, three hours; discussion, one hour. Prerequisite: course 10 or Sociology 1 or consent of instructor. 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.

M164. Gender and Work. (Same as Sociology M163.) Lecture, three hours. Prerequisite: course 10 or Sociology 1 or consent of instructor. 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.

M165. Psychology of Gender. (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.

170. Jurisprudence of Sexual Equality. Prerequisites: course 10 and one course from 110A through M110D or Political Science 10 or Philosophy 6 or 9 or consent of instructor. 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.

M172. The Afro-American Woman in the U.S. (Same as Afro-American Studies M172 and Psychology M172.) Limited to 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. (Formerly numbered M103.) (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.

185. Special Topics in Women's Studies. Prerequisites: upper division standing, one prior course in women's studies. Specialized or advanced study in an area within women's studies.

199. Special Studies in Women's Studies. Prerequisites: at least two upper division women's studies courses, minimum 3.0 GPA, consent of instructor and program director. 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 specialization or major.

199HA-199HB. Directed Studies for Honors. Prerequisites: course 197, 3.0 GPA overall, 3.0 GPA in major. Limited to women's studies honors majors. Two-term sequence to research and write honors thesis under direction of faculty sponsor.

Supporting Courses in Other Departments

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

Community Health Sciences 230. Family and Sexual Violence

431. Research in Women's Health: Theories and Methods

English 180X. Specialized Studies in Literature

French 140. Women's Studies in French Literature

165. Topics in French Literature in Translation: From Nature (Female?) to Culture (Male?)

Health Services M241. Women, Health, and Aging: Policy Issues

History 137A-137B-137C. History of Women in Europe

156C-156D-156E. Social History of American Women

156F-156G. History of the American Family

197. Undergraduate Seminars

Humanities C170. Alternate Traditions: In Search of Female Voices in Contemporary Literature

Political Science 149. Special Topics in American Government and Politics: Women and the Political Process

Psychology 197A. Current Issues in Psychology: Social Psychology of the Lesbian Experience

231. Psychology of Gender

WORLD ARTS AND CULTURES

School of the Arts and Architecture

UCLA

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Los Angeles, CA 90095-1608

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Professors

James W. Bassler, M.A.

Irma Dosamantes Beaudry, Ph.D.

Alessandro Duranti, Ph.D.

Michael O. Jones, Ph.D.

Judy Mitoma, M.A., *Chair and Integrated*

Concentration Adviser

Professors Emeriti

Elsie Dunin, M.A.

Pia Gilbert

Alma M. Hawkins, Ed.D.

Carol Scotthorn, M.A.

Marion Scott

Doris Siegel

Allegra Fuller Snyder, M.A.

Emma Lewis Thomas, Ph.D.

Associate Professors

Robert L. Brown, Ph.D.

Donald J. Cosentino, Ph.D.

Patricia M. Harter, Ph.D.

Angelia Leung, M.A., C.M.A., *Dance Concentration*

Adviser

Steven J. Loza, Ph.D.

Colin Quigley, Ph.D., *Cultural Studies Concentration*

Adviser

Beverly J. Robinson, Ph.D.

Carol J. Sorgenfrei, Ph.D.

Assistant Professors

Marcyliena H. Morgan, Ph.D.

Edit Villarreal, M.F.A.

Lecturers

Nzingha Camara

Guillermo Gomez-Pena

Kevin Ritter, M.F.A.

Visiting Professors

Peter Sellars, B.A.

Rebecca Wright

Adjunct and Visiting Assistant Professors

Stephen Bennet, *Visiting*
 Janis Brenner, *Visiting*
 Ronald Brown, *Adjunct*
 Pamela Fairweather, M.A., *Visiting*
 Judy Gantz-Siegel, M.A., C.M.A., *Visiting*
 David Gere, *Visiting*
 John Malpede, *Visiting*

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 programs reflect 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, 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. This unique department provides students with skills for many career possibilities ranging from the pursuit of dance- and humanities-based fields of advanced study to professional roles in architecture and urban planning, education, law, management, public service, and many others, limited only by the imagination of its graduates.

Bachelor of Arts Degree

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 you declare by the end of your sophomore year.

The *dance concentration* offers courses in a wide range of world idioms, 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 you 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. You may also consider courses from ethnic and area studies programs. You may organize your 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 you to select units from each of the three 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. You can select your own program of study in close consultation with faculty. You develop a rationale outlining the objectives of your study, a self-assessment of your needs for the future, a proposed list of courses, some indication of your 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 your sophomore year. After approval, you are assigned a faculty adviser for your junior and senior years. This structure allows you 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. Freshmen interested in the dance concentration must submit a videotape. Transfer applicants 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. You are advised to take world arts and cultures courses during the term in which you apply to the program. You 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 transfer student 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

Group A — Performance Courses: Ethnomusicology and Systematic Musicology 91A through 91Z, Theater 12, 15, 50, 130A, 138 (by petition), 150, World Arts and Cultures 7A, 7B, 7C, 11A through 11F, 70, 71B through 79Z, 100A, 100B, 100C, 101A, 101B, 101C, C102A, C102B, C102C, 103, 106A, 106B, 106C, C107A, C107B, C107C, 113A, 113B, 130 (by petition), 140C, 149, C171B through C179Z, 191, 192.

Group B — Theoretical Courses: Anthropology 9 or 33 (if not used to satisfy the core requirement), 34, 60, 114Q, 114R, 130, 133R, 135A, 135B, 141, 144, M145, 146, 150, 151, 152, M154, 161, 162, M164, 165, 167, 171, 172R, M172T, 173Q, 174Q, 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, Film and Television 106C, 112, 128, Folklore and Mythology 101, C105, CM106, C107, 108, 118, M122, M127, M128, M129, 130, 131, CM132, M142, M149, M150, M154A, M154B, M155, 163, C165, M170, 172, C175, M180, M181, M182, 183, CM184, 190, German 134, Ethnomusicology and Systematic Musicology 106A, 106B, 106C, M108A, 108B, M110A, M110B, M111,

M115, 120A, 120B, M126, 128; 136A, 136B, 147, 156A, 156B, 160A, 160B, 174, M180, 181, Music 158, Musicology 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, M112, 128, 130 (by petition), 132A, 135, 141A, 150, M152, C161A, 181A through 181D, 182, 183, CM184, C187.

Group C — Applied Courses: Anthropology 118B, M136Q, 143, Ethnomusicology and Systematic Musicology 10A, 10B, 10C, Music 1A, 1B, 4A, 4B, 4C, 20A, 20B, 20C, 23, 105, Folklore and Mythology C145, Theater 174A, World Arts and Cultures 23L, 48, 110, C120, 122, 123A, 123B, 125, 126, C127, 130 (by petition), 141, 142, 144, 145, 148, 151A, 151B, 153, C160A, C160B, C160C, 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 the research and 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. For a complete outline of degree requirements, see *Program Requirements for UCLA Graduate Degrees* available in the program office and accessible on the Graduate Division Gopher via the Internet.

Master's Degrees

The Department of World Arts and Cultures offers the following master's degrees: Master of Arts degree in Dance, Master of Arts degree in Dance/Movement Therapy, and Master of Fine Arts degree in Dance.

Admission

For the Master of Arts in Dance or 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 write to the UCLA Department of World Arts and Cultures at the address given at the beginning of this listing 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.

M.F.A. applicants must demonstrate exceptional promise in either choreography (modern) or performance (modern, world, or historical). 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, 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 or 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 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 prerequisite 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. This 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 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 192 and/or 490; (2) 12 units of studio technique courses at the 400 level; (3) 12 units of production courses from 142, 145, 221, C227, 240B, 240C, 240D; (4) eight units of movement studies from 122, 225A, 225B; (5) eight units of cultural/critical studies from 181A, 181B, 181C, 181D, 182, 183, 230, 232, C233, 234, 235, 236, 240A, 280A, 280B, CM284, C287; (6) eight units of education, internship, field studies, and practicum studies from 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 (modern, world dance) as their M.F.A. focus.

Comprehensive Examination Plan

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 address given at the beginning of this listing.

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.

For M.F.A. students, the preliminary examination consists of a written proposal submitted to a faculty panel. 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 address given at the beginning of this listing. The student 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 address given at the beginning of this listing.

Thesis Plan

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 address given at the beginning of this listing.

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.

Lower Division Courses

1A-1B-1C. Fundamentals of Modern Dance (2 units each). (Formerly numbered Dance 1A-1B-1C.) 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.

6. Fundamentals of Ballet (2 units). (Formerly numbered Dance 6.) 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 units each). (Formerly numbered Dance 7A-7B-7C.) Laboratory, four hours. Limited to dance 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 units). (Formerly numbered Dance 10.) Introduction to the many and varied theoretical aspects of dance as a discipline.

11A-11F. Modern Dance Technique and Choreography (2 units each). (Formerly numbered Dance 11A-11F.) Lecture, one hour; studio, three hours. Limited to dance majors. Experiences designed to achieve beginning to intermediate levels of kinesthetic awareness and technical and improvisational skills, as well as understanding of the creative process of structure and form in dance compositions.

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. (Formerly numbered Dance 20.) 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 units). (Formerly numbered Dance 23L.) 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. P/NP grading.

25. Introduction to Dance/Movement Notation (2 units). (Formerly numbered Dance 25.) 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 units). (Formerly numbered Dance 40.) 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 unit). (Formerly numbered Dance 48.) 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.

70. Survey of Dancing in Selected Cultures (2 units). (Formerly numbered Dance 70.) Studio, three hours. Introduction to dances and their movement characteristics in Western and non-Western cultures.

71B. Dance of Indonesia (2 units). (Formerly numbered Dance 71B.) 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 units). (Formerly numbered Dance 71C.) Studio, three hours. Dance experience not required. Technique and repertory from the court dance tradition (e.g., Gagaku).

71D. Dance of India (2 units). (Formerly numbered Dance 71D.) 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 units). (Formerly numbered Dance 71E.) 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 units). (Formerly numbered Dance 72B.) 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 units). (Formerly numbered Dance 73B.) 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 units). (Formerly numbered Dance 74C.) 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 units). (Formerly numbered Dance 74D.) 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 units). (Formerly numbered Dance 76B.) Studio, three hours. Dance experience not required. Technique and repertory from selected ethnographic regions.

79A-79Z. Dance of a Selected Culture (2 units each). (Formerly numbered Dance 79A-79Z.) Laboratory, four hours. Introduction to selected dance forms from a culture area or historical period or of a particular dance genre. P/NP or letter grading.

80A-80B. Movement as Cultural Behavior (2 units each). (Formerly numbered Dance 80A-80B.) 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. 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

100A-100B-100C. Modern Dance: Intermediate Technique and Choreography. (Formerly numbered Dance 100A-100B-100C.) Lecture, three hours; laboratory, four hours. Prerequisite: course 11F. Limited to dance majors. Intermediate to advanced levels of technical skill emphasizing musicality, spatial awareness, and movement complexity. Choreographic assignments include use of composed music, group forms, and stage space.

101A-101B-101C. Intermediate Modern Dance Technique (2 units each). (Formerly numbered Dance 101A-101B-101C.) 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 units each). (Formerly numbered Dance C102A-C102B-C102C.) Laboratory, four and one-half hours. Prerequisite: course 101C or consent of instructor. 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 units). (Formerly numbered Dance 103.) Studio, four hours. Prerequisite: dance major or consent of instructor. Development of aesthetic perspective through use of imagery, sound, and other art. Concentration and projection. May be repeated twice.

106A-106B-106C. Intermediate Ballet (2 units each). (Formerly numbered Dance 106A-106B-106C.) Laboratory, four hours. Prerequisites: courses 7A-7B-7C or consent of instructor. Study of techniques and principles of ballet, including phrasing, combinations, and repertory. Each course may be repeated once. P/NP or letter grading.

C107A-C107B-C107C. Advanced Ballet (2 units each). (Formerly numbered Dance C107A-C107B-C107C.) Laboratory, four and one-half hours. Prerequisite: course 106C or consent of instructor. Advanced technique in ballet, with emphasis on performing skills. Each course may be repeated for a maximum of six units. Concurrently scheduled with courses C407A-C407B-C407C. P/NP or letter grading.

110. Field Studies in World Arts and Cultures. (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 repeated once for credit.

M112. Special Topics in Women and the Arts. (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.

113A-113B-113C. Advanced Modern Dance: Performance and Choreography (2 units each). (Formerly numbered Dance 113A-113B-113C.) Studio, two hours; rehearsal, two hours. Prerequisite: course 100C. Improvisation and choreographic study leading to independent work in solo and group forms. Development of performance, direction, and production skills culminating in a presentation.

114. Form and Structure in Choreography. (Formerly numbered Dance 114.) Lecture, one hour; laboratory, three hours. Prerequisite: dance major or consent of instructor. Study of craft of choreography. Emphasis on breath movement, phrasing, ABA, theme and variations, rondo. Learning to discipline and shape creative impulse into specific forms, with emphasis on staging.

C120. Music as Dance Accompaniment. (Formerly numbered Dance C120.) Prerequisite: course 20 or consent of instructor. 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 units). (Formerly numbered Dance 122.) 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. (Formerly numbered Dance 123A.) Prerequisite: course 11F or consent of instructor. Study of human muscular-skeletal system as related to dance.

123B. Principles of Conditioning and Correctives for Dance. (Formerly numbered Dance 123B.) Prerequisite: 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. (Formerly numbered Dance 123C.) Prerequisite: course 123B. In-depth study of selected topics introduced in courses 123A and 123B.

125. Principles of Movement Analysis: Laban-analysis. (Formerly numbered Dance 125.) Lecture, two hours; laboratory, two hours. Prerequisite: 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. (Formerly numbered Dance 126.) Lecture, two hours; laboratory, two hours. Prerequisite: course 25. Developing skills in reading, writing, reconstructing, and score preparation of complex movement.

C127. Production Techniques for Dance/Video. (Formerly numbered Dance C127.) Lecture, one hour; laboratory, three hours. Experiential dance/video workshop concentrating on effective techniques of shooting, as well as choreographing movement especially for the camera. Choreographers/dancers and camerapeople/technicians with dance experience collaborate to establish a common vocabulary, set of values, and sensitivity to each other's concerns. Concurrently scheduled with course C227. Undergraduates required to complete short self-designed, edited video work as final project.

128. Dance and the Visual Media. (Formerly numbered Dance 128.) 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. Lecture, three hours. Prerequisite: junior standing. 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 units, 2 units). (Formerly numbered Dance 132A-C132B.) Course 132A is prerequisite 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 C231B.

C133. Baroque Dance: Analysis and Re-creation. (Formerly numbered Dance C133.) Lecture, two hours; laboratory, two hours. Prerequisites: courses 134A-134B or equivalent experience, consent of instructor. Analysis and re-creation of 17th- and 18th-century dance as recorded in dance notation of the era. Study of cultural context, aesthetics, style, music. Social and theatrical dance forms. Concurrently scheduled with course C233.

134. History of Dance in Culture and Performance. (Formerly numbered Dance 134A.) 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. Lecture, two hours; discussion, one hour; laboratory, one hour. Limited to 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. Limited to 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. Prerequisite: junior standing. 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. Prerequisite: junior standing. 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. P/NP or letter grading.

141. Lighting Design for Dance Theater. (Formerly numbered Dance 141.) Lecture, four hours; laboratory, two hours. Prerequisite: course 11F or consent of instructor. 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. Lecture, three hours. Limited to 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 units). (Formerly numbered Dance 142.) Lecture, four hours; laboratory, four or more hours. Prerequisite: course 141 or consent of instructor. 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. (Formerly numbered Dance 144.) Prerequisite: course 11F or consent of instructor. 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. (Formerly numbered Dance 145.) Lecture, three hours; laboratory, six hours. Prerequisite: course 144 or consent of instructor. 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.

148. Advanced Laboratory in Dance Production (1 unit). (Formerly numbered Dance 148.) Laboratory, two hours. Prerequisites or corequisites: courses 141 and 144, or consent of instructor. 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 unit). (Formerly numbered Dance 149.) Laboratory, four hours. Dancing in selected choreography or repertory in performance. May be repeated for credit. P/NP grading.

150. Viewing Native American Culture. 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. (Formerly numbered Dance 151.) Lecture, two hours; laboratory, three hours. Prerequisite: dance major or consent of instructor. Introduction to movement concepts, skills, and teaching principles for modern dance instruction. Supervised teaching practicum included.

151B. Dance as Culture in Education. (Formerly numbered Dance 152.) Lecture, two hours; laboratory, two hours. Prerequisite: course 70 or consent of instructor. Theoretical and practical aspects of teaching ethnic dance, especially in higher education.

M152. Asian American Aesthetics. (Same as Asian American Studies M119.) Lecture, four hours; outside study, eight hours. Limited to 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. (Formerly numbered Dance 153.) Lecture, three hours; laboratory, one hour. Prerequisite: dance major or consent of instructor. 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 units each). (Formerly numbered Dance C160A-C160B-C160C.) Lecture, one hour; laboratory, three hours. Prerequisite: consent of instructor. 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. Ritual and Transformation. Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Exploration of transformative functions served by cultural and personal rituals of passage and healing. Class discussion to be informed by Western and non-Western points of view and by therapeutic and ethnographic models. Concurrently scheduled with course C261A.

M162P. Destruction and Survival of Indigenous Societies. (Same as Anthropology M162P.) Lecture, three hours. Prerequisite: Anthropology 9 or upper division standing or consent of instructor. Clarification of concepts and forms of destruction and survival; analysis directed to different processes threatening the institutions of a group and its survival. Exploration of current theories of ethnocide and genocide for their relevance and validity. P/NP or letter grading.

C171B. Dance of Indonesia (2 units). (Formerly numbered Dance C171B.) Studio, three hours. Prerequisite: course 71B or consent of instructor. 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 units). (Formerly numbered Dance C171C.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C171D.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C171E.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C172B.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C173B.) Studio, three hours. Prerequisite: course 73B. Dance techniques of selected ethnographic regions. May be repeated once. Concurrently scheduled with course C473B.

C174C. Dance of Spain (2 units). (Formerly numbered Dance C174C.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance 174D.) Laboratory, four hours. Prerequisite: course 74D or consent of instructor. 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 units). (Formerly numbered Dance C176B.) Studio, three hours. Prerequisite: course 76B. Technique and repertoire from selected ethnographic regions. May be repeated once. Concurrently scheduled with course C476B.

C179A-C179Z. Dance of a Selected Culture (2 units each). (Formerly numbered Dance C179A-C179Z.) Laboratory, four hours. Prerequisite: consent of instructor. 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 courses C479A-C479Z. P/NP or letter grading.

C180A-C180B. Studies in Dance Ethnography. (Formerly numbered Dance C180A-C180B.) Development of observation and recording skills for study of dance events, including both analytical consideration of selected ethnographies and development of skills. Concurrently scheduled with courses C279A-C279B. **C180A.** Labanotation and Labananalysis. Lecture, two hours; discussion, two hours; laboratory, two hours. **C180B.** Notation. Prerequisite: course C180A or consent of instructor.

181A. Dance Cultures of Asia. (Formerly numbered Dance 181A.) 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. (Formerly numbered Dance 181B.) Prerequisite: course 181A or consent of instructor. 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. (Formerly numbered Dance 181C.) Prerequisite: course 181A or consent of instructor. 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. (Formerly numbered Dance 181D.) Prerequisite: course 181A or consent of instructor. 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. (Formerly numbered Dance 182.) 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. (Formerly numbered Dance 183.) 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 in European and Euro-American Cultures. (Formerly numbered Dance CM184.) (Same as Folklore CM184.) Survey of social, ceremonial, and ritual European-based dance; consideration of role of dance in society, its cultural significance, and historical background. Emphasis on various European and European-American regional and national dance traditions. Concurrently scheduled with course CM284.

C187. Dance in Native American Cultures. (Formerly numbered Dance C187.) 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. 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 units). (Formerly numbered Dance 191.) Lecture, two hours; rehearsal or performance, four to six hours. Prerequisite: dance major or consent of instructor. Creation and performance of dance concerts in the community, with special emphasis on problems of touring dance company with a variable repertoire.

192. Projects in Dance (2 to 4 units). (Formerly numbered Dance 190.) 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 units). (Formerly numbered Dance 196.) Seminar, two hours; discussion, two hours, or laboratory, to be arranged. Prerequisites: course 100C, senior standing. Advanced project reflecting student's area of concentration. May be taken for a maximum of four units.

C197A-C197Z. Selected Topics in Dance (2 to 4 units each). (Formerly numbered Dance C197A-C197Z.) Lecture, discussion, and analysis of a selected dance style, specific time period, or dance of a particular culture group. Concurrently scheduled with courses C297A-C297Z.

199. Special Studies in World Arts and Cultures (2 to 8 units). Prerequisites: junior standing, 3.0 GPA in major, consent of instructor. Individual studies for world arts and cultures majors. May be taken twice for a maximum of eight units.

Graduate Courses

211A-211F. Advanced Choreography. (Formerly numbered Dance 211A-211F.) Lecture, two hours; laboratory, two hours. Prerequisite: course 113C or equivalent. 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. (Formerly numbered Dance C220.) Prerequisite: course 20 or consent of instructor. 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. (Formerly numbered Dance 221.) Prerequisite: course C120. Theory of aesthetic and functional relationship of music to dance.

223. Principles of Dance Kinesiology. (Formerly numbered Dance 223.) Prerequisite: consent of instructor. Scientific basis for movement for dance. Study of anatomical, kinesiological, and physical principles and demands of dance.

225A-225B. Theories of Movement: Labananalysis. (Formerly numbered Dance 225A-225B.) 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 units). (Formerly numbered Dance 226.) Prerequisite: course 126. Selected problems in directing from notated repertoire; principles of teaching, comparative notation systems, writing projects.

C227. Production Techniques for Dance/Video. (Formerly numbered Dance C227.) Lecture, one hour; laboratory, three hours. Experiential dance/video workshop concentrating on effective techniques of shooting, as well as choreographing movement especially for the camera. Choreographers/dancers and camerapeople/technicians with dance experience collaborate to establish a common vocabulary, set of values, and sensitivity to each other's concerns. Concurrently scheduled with course C127. Graduate students expected to complete written papers related to reading and viewing assignments and final video project.

230. Research Methods and Bibliography in Dance. (Formerly numbered Dance 230.) 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. (Formerly numbered Dance 231A.) Prerequisite: course 100C. 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.

C231B. Philosophical Bases and Trends in Dance (2 units). (Formerly numbered Dance C231B.) Prerequisite: 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. (Formerly numbered Dance 232.) Analysis of aesthetic concepts and critical methods used in writing about dance.

C233. Baroque Dance: Analysis and Re-creation. (Formerly numbered Dance C233.) Lecture, two hours; laboratory, two hours. Prerequisites: courses 134A-134B or equivalent experience, consent of instructor. Analysis and re-creation of 17th- and 18th-century dance as recorded in Feuillet notation. Study of cultural context, aesthetics, style, music. Social and theatrical dance forms. Concurrently scheduled with course C133.

234. Renaissance Dance: Analysis and Re-creation. (Formerly numbered Dance 234.) Lecture, two hours; studio, two hours. Prerequisites: courses 134A-134B or consent of instructor. Analysis and re-creation of study of 15th- and 16th-century dance styles from Domenico da Piacenza through Cesare Negri.

235. History of Ballet. (Formerly numbered Dance 235.) Prerequisites: courses 134A-134B or consent of instructor. Development of ballet from 19th-century Romanticism to the present. Stylistic differences in Italy, France, England, Denmark, and Russia.

236. Dance in the 20th Century. (Formerly numbered Dance 236.) Prerequisites: courses 134A-134B or consent of instructor. Seminar in historical development of 20th-century dance.

240A. Production Arts Seminar. (Formerly numbered Dance 240A.) Lecture, two hours; discussion, two hours; laboratory, two hours. Prerequisite: consent of instructor. 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. (Formerly numbered Dance 240B.) Lecture, four hours; laboratory, to be arranged. Prerequisite: consent of instructor. 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. (Formerly numbered Dance 240C.) Lecture, four hours; laboratory, to be arranged. Prerequisite: consent of instructor. Examination of contemporary art world, including arts organizations, funding sources, legal aspects of arts production, support groups, public relations and publicity. Relationship of film and video to choreographer and dancer. Choreographing for film/video. Adapting stage works to film/video.

240D. Production Arts Seminar (2 units). (Formerly numbered Dance 240D.) Lecture, three hours. Prerequisite: consent of instructor. Corequisites: courses 441, 490. Topics from current problems of students preparing M.F.A. concert productions.

251A-251D. Advanced Studies in Dance Education. (Formerly numbered Dance 251A-251D.) Lecture, two hours; discussion, two hours. Prerequisite: course 151 or consent of instructor:

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 units each). (Formerly numbered Dance C260A-C260B-C260C.) Lecture, one hour; laboratory, three hours. Prerequisite: consent of instructor. 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. Ritual and Transformation. (Formerly numbered Dance 261A.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Exploration of transformative functions served by cultural and personal rituals of passage and healing. Class discussion to be informed by Western and non-Western points of view and by therapeutic and ethnographic models. Concurrently scheduled with course C161A.

261B-261C. Dance/Movement Therapy: Theory and Practice. (Formerly numbered Dance 261B-261C.) Lecture, two hours; laboratory, two hours. Prerequisite: consent of instructor. Year-long sequence encompassing basic theoretical and practice concepts of field of dance/movement therapy.

262A-262B-262C. Seminars: Dance/Movement Therapy. (Formerly numbered Dance 262A-262B-262C.) Lecture, two hours; laboratory, two hours. Prerequisites: 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.

C279A-C279B. Studies in Dance Ethnography. (Formerly numbered Dance C279A-C279B.) Development of observation and recording skills for study of dance events, including both analytical consideration of selected ethnographies and development of skills. Concurrently scheduled with courses C180A-C180B. **C279A.** Labanotation and Labananalysis. Lecture, two hours; discussion, two hours; laboratory, two hours. **C279B.** Notation. Prerequisite: course C279A.

280A-280B. Advanced Studies in Dance Ethnology. (Formerly numbered Dance 280A-280B.) Corequisites: courses C279A-C279B or consent of instructor. Dance viewed as an aspect of culture and human behavior. **280A.** Survey of literature of the field of dance ethnology and in related fields of anthropology, folklore, and performance studies. **280B.** Advanced studies in methodologies and training in fieldwork to develop dance-focused ethnographies with emphasis on ethnographic interview.

CM284. Dance in European and Euro-American Cultures. (Formerly numbered Dance CM284.) (Same as Folklore CM284.) Survey of social, ceremonial, and ritual European-based dance; consideration of role of dance in society, its cultural significance, and historical background. Emphasis on various European and European-American regional and national dance traditions. Concurrently scheduled with course CM184.

C287. Dance in Native American Cultures. (Formerly numbered Dance C287.) Survey of Native American dance; role of dance in society, its cultural significance, and historical background. Concurrently scheduled with course C187.

C297A-C297Z. Selected Topics in Dance. (Formerly numbered Dance C297A-C297Z.) Lecture, discussion, and analysis of a selected dance style, specific time period, or dance of a particular culture group. Concurrently scheduled with courses C197A-C197Z. S/U or letter grading.

375. Teaching Apprentice Practicum (1 to 4 units). (Formerly numbered Dance 375.) Prerequisite: 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 units). (Formerly numbered Dance 400.) Prerequisite: consent of graduate adviser. 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 units each). (Formerly numbered Dance C402A-C402B-C402C.) 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.

C407A-C407B-C407C. Advanced Ballet (2 units each). (Formerly numbered Dance C407A-C407B-C407C.) Laboratory, four and one-half hours. Prerequisite: course 106C or consent of instructor. Advanced technique in ballet, with emphasis on performing skills. May be repeated for credit. Concurrently scheduled with courses C107A-C107B-C107C. S/U or letter grading.

441. Dance Production Practicum (2 to 4 units). (Formerly numbered Dance 441.) Laboratory, four to eight hours (one or two hours may be individualized consultation). Prerequisite: consent of instructor. 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 units). (Formerly numbered Dance 451.) Lecture, 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 units). (Formerly numbered Dance 452.) Seminar, one hour; field study, two hours minimum. Prerequisite: consent of instructor. 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. (Formerly numbered Dance 460A-460B-460C.) 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 units). (Formerly numbered Dance C471B.) Studio, three hours. Prerequisite: course 71B or consent of instructor. 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 units). (Formerly numbered Dance C471C.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C471D.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C471E.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C472B.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C473B.) Studio, three hours. Prerequisite: course 73B. Dance techniques of selected ethnographic regions. May be repeated once. Concurrently scheduled with course C173B.

C474C. Dance of Spain (2 units). (Formerly numbered Dance C474C.) Studio, three hours. Prerequisite: 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 units). (Formerly numbered Dance C476B.) Studio, three hours. Prerequisite: course 76B. Technique and repertoire from selected ethnographic regions. May be repeated once. Concurrently scheduled with course C176B.

C479A-C479Z. Dance of a Selected Culture (2 units each). (Formerly numbered Dance C479A-C479Z.) Laboratory, four hours. Prerequisite: consent of instructor. 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 courses C179A-C179Z. S/U or letter grading.

480. Seminar: Research Topics (2 units). (Formerly numbered Dance 480.) 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 units). (Formerly numbered Dance 490.) Tutorial, one three-hour rehearsal per unit per week minimum. Prerequisite: course 240C or consent of instructor. 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 units). (Formerly numbered Dance 498.) Full- or part-time supervised fieldwork. Prerequisites: advanced standing in M.F.A. program, consent of instructor. 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 units). (Formerly numbered Dance 596A.)

596R. Directed Study or Research in a Hospital or Clinic (2 to 8 units). (Formerly numbered Dance 596R.) S/U grading.

597. Preparation for Master's Comprehensive Examination (2 to 8 units). (Formerly numbered Dance 597.) 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 units). (Formerly numbered Dance 598.) 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 Campus Counsel, 3149 Murphy Hall, UCLA, Los Angeles, CA 90095-1405, (310) 825-4042. Speech- and hearing-impaired persons may call TDD (310) 206-6083.

Inquiries regarding Americans with Disabilities Act (ADA) or 504 Compliance may be directed to Dr. Douglas Martin, Special Assistant to the Chancellor/Coordinator of ADA and 504 Compliance, A239 Murphy Hall, UCLA, Los Angeles, CA 90095-1405, Voice (310) 825-2242, CRS (800) 735-2929, TDD/TT (310) 206-3349, fax (310) 825-3688.

Students may complain of any action which they believe discriminates against them on the ground of race, color, national origin, religion, sex, sexual orientation, disability, or age and may contact the Office of the Dean of Students, 1206 Murphy Hall, for further information and procedures.

Student Conduct: Violation of University Policies

Students are subject to disciplinary action for several types of misconduct or attempted misconduct while on University property or in connection with official University functions, including but not limited to cheating, multiple submission (i.e., the resubmission of any work which has been previously submitted for credit in identical or similar form in one course to fulfill any of the requirements of another course without the prior consent of the current instructor), fabrication, plagiarism, or facilitating academic dishonesty; 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; forgery, alteration, or misuse of any University document, record, key, electronic device, or identification; theft of, conversion of, damage to, or destruction of any property of the University or property of others while on University premises, or possession of any property of the University or others stolen while on University premises; 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 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; unauthorized entry to, 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 University properties, equipment, resources, or services; violation of policies, regulations, or rules governing University-owned or operated housing facilities or leased housing facilities located on University property; 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; sexual harassment; 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; the use of "fighting words" when they constitute harassment; 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; obstruction or disruption of teaching, research, administration, disciplinary procedures, or other University activities; disorderly or lewd conduct; participation in a disturbance of the peace or unlawful assembly; failure to identify oneself to, or comply with directions of, University officials or other public officials 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; 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; 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; possession, use, storage, or manufacture of explosives, firebombs, or other destructive devices except as expressly permitted by law; possession, use, or manufacture of a firearm or other weapon specified in campus regulations; violation of the conditions contained in the terms of a disciplinary action; violation of the conditions contained in a written Notice of Emergency

Salary and Employment Information, University of California

	DEGREE LEVEL OF GRADUATES		
	BACHELOR'S	MASTER'S	DOCTORATE
	AVERAGE MONTHLY SALARY*		
Engineering	\$2,887	\$3,428	\$4,397
Humanities	1,983	2,845	2,722
Life Sciences	1,881	2,381	3,774
Management	2,147	3,952	4,465
Physical Sciences	2,308	3,146	4,058
Social Sciences	1,922	2,827	3,150

*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 July 1995 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.

Suspension or violation of emergency regulations or procedures during a declared state of emergency; and violations of other University policies or campus rules and regulations.

Further information on these infractions and on the procedures concerning student discipline are contained in the *University of California Policies Applying to Campus Activities, Organizations, and Students; Universitywide Student Conduct Harassment Policy; UCLA Student Conduct Code of Procedures*; and *UCLA Activity Guidelines*. Copies of these documents are available in the Office of the Dean of Students (1206 Murphy Hall), Center for Student Programming (337 Plaza Building), and Student Psychological Services (A3-062 CHS).

In addition, the Office of the Dean of Students 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.

Rape and Other Forms of Sexual Assault

UCLA will 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 by a student, the campus will pursue disciplinary actions which may include sanctions up to and including dismissal from the University.

A student accused of 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

A student who individually, or in concert with others, participates in any of the following misconduct is subject to University discipline. (Refer to the *University of California Policies Applying to Campus Activities, Organizations, and Students* and the *UCLA Student Conduct Code of Procedures* which are available from the Office of the Dean of Students, 1206 Murphy Hall.) The following language describes specific conduct which, at UCLA, may subject a student to University discipline:

Physical abuse, threats of violence, rape, and other forms of sexual assault or other conduct that threatens the health or safety of any person on University property or in connection with official University functions. More specifically:

Rape

For the purposes of this policy, rape refers to those actions defined as rape by the California Penal Code. The acts summarized below are among the behaviors prohibited by the California Penal Code:

(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, which includes, but is not limited to, instances in which the complainant is prevented from resisting due to alcohol or drugs administered by or with the knowledge of the accused.

Other Forms of Sexual Assault

The act of sexual assault includes forced sodomy (anal intercourse); forced oral copulation (oral-genital contact); 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 where the accused sexually assaults a complainant incapable of giving consent, including where the complainant is prevented from resisting due to alcohol or drugs administered by or with the knowledge of the accused.

Note: For the purpose of this policy, 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.

If You Have Been Raped or Sexually Assaulted

Take care of your safety and health needs:

(1) **Immediately call the police department.** If possible, call the UCLA Department of Community Safety at (310) 825-1491 or 911.

(2) **Get medical attention.** Campus police will provide transportation to the Santa Monica Hospital 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 people who have been raped or sexually assaulted. 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 any UCLA student 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 Hospital 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 have been raped or otherwise sexually assaulted 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.

Cases referred to the Office of the Dean of Students will be treated under the hearing procedures set forth in the *UCLA Student Conduct Code of Procedures*. If the allegation is of rape or other forms of sexual assault, or sexual harassment, and the case is referred to the Student Conduct Committee, the following *additional* procedures shall also 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 chair or hearing officer 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.

Definition

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 will be given to the record of the incident as a whole and to the totality of the circumstances, including the nature of the sexual advances and the context in which the alleged incidents occurred (*University of California Policies Applying to Campus Activities, Organizations, and Students*, Section 160.00).

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 PCPC, (310) 825-7627 (for faculty, staff, students)

(2) Women's Resource Center, 2 Dodd Hall, (310) 825-3945 (for students)

(3) Office of Residential Life, Residential Life Building, (310) 825-3401 (for students)

(4) Office of International Students and Scholars, 105 Men's Gym, (310) 825-1681 (for international students)

(5) Student Psychological Services, 4223 Math Sciences, (310) 825-0768, or A3-062 Center for the Health Sciences, (310) 825-7985 (for students)

(6) Office of Vice Chancellor — Academic Personnel, 2147 Murphy Hall, (310) 206-9345 (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, 2126 Ueberroth Building, (310) 825-0661 (for campus staff employees and students when acting in the capacity of their staff appointments)

(8) Medical Center Human Resources Office,

924 Westwood Boulevard, Suite 200, (310) 794-0500 (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 (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*) 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*, 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 PCPC, (310) 825-7627

(2) Women's Resource Center, 2 Dodd Hall, (310) 825-3945

(3) Office of Residential Life, Residential Life Building, (310) 825-3401

(4) Office of International Students and Scholars, 105 Men's Gym, (310) 825-1681

(5) Student Psychological Services, 4223 Math Sciences, (310) 825-0768, or A3-062 Center for the Health Sciences, (310) 825-7985

(6) Office of Fraternity and Sorority Relations, 118 Men's Gym, (310) 825-6322

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, Supplement A (1987)*, pages 32-35 (copies are available in the Academic Personnel Office, 3109 Murphy Hall). Section IIA outlines faculty obligations to students and reads as follows:

Teaching and Students

Ethical Principles — "As a teacher, the professor encourages the free pursuit of learning in students; holds before them the best scholarly standards of the discipline; demonstrates respect for the student as an individual and adheres to the proper role as intellectual guide and counselor; makes every reasonable effort to foster honest academic conduct and to assure that the evaluation of students reflects their true merit; respects the confidential nature of the relationship be-

tween professor and student; avoids any exploitation of students for private advantage and acknowledges significant assistance from them; and protects their academic freedom." (from 1966 AAUP statement)

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 citizenship or for other arbitrary or personal reasons.

(3) 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.

(4) 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, 310-825-3852) 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.

Residence for Tuition Purposes

If you have not been living in California with intent to make it your permanent home for more than one year immediately before the residence determination date for each term in which you propose to attend the University, you 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?

If you are an adult student (at least 18 years of age), you may establish residence for tuition purposes in California if (1) you are a U.S. citizen, (2) you are a permanent resident or other immigrant, or (3) you are a nonimmigrant who is 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 you must be physically present in California for more than one year, and you must have come here with the intent to make California your 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 your stay. You must demonstrate your intention to make California your home by severing your residential ties with your former state of residence and establishing those ties with California. If these steps are delayed, the one-year durational period will be extended until you have demonstrated both presence and intent for one full year. If your parents are not residents of California or you were not previously enrolled as a UC student, you are required to be financially independent in order to be a resident for tuition purposes. Your residence cannot be derived from your spouse or your parents.

Requirements for Financial Independence

You are considered "financially independent" if one or more of the following apply: (1) you are at least 24 years of age by December 31 of the calendar year for which you are requesting residence classification; (2) you are a veteran of the U.S. Armed Forces; (3) you are a ward of the court or both parents are deceased; (4) you have legal dependents other than a spouse; (5) you are married, or a graduate student or a professional student, and you were not claimed as an income tax deduction by your parents or any other individual for the tax year immediately preceding the term for which you are requesting resident classification; or (6) you are a single undergraduate student and

you were not claimed as an income tax deduction by your parents or any other individual for the two tax years immediately preceding the term for which you are requesting resident classification, and you 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 your intent to make California your permanent residence can include the following: registering to vote and voting in California elections; designating California as your permanent address on all school and employment records, including military records if you are in the military service; obtaining a California driver's license or, if you 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 you establish residence; establishing a California residence in which you keep your personal belongings; and licensing for professional practice in California. The absence of these indicia in other states during any period for which you claim residence can also serve as an indication of your intent. Documentary evidence is required, and all relevant indications will be considered in determining your classification. Your intent will be questioned if you return to your prior state of residence when the University is not in session.

General Rules Applying to Minors

If you are an unmarried minor (under age 18), the residence of the parent with whom you live is considered to be your residence. If you have a parent living, you cannot change your residence by your own act, by the appointment of a legal guardian, or by the relinquishment of your parent's right of control. If you live with neither parent, your residence is that of the parent with whom you last lived. Unless you are a minor alien present in the U.S. under the terms of a nonimmigrant visa which precludes you from establishing domicile in the U.S., you may establish your own residence when both your parents are deceased and a legal guardian has not been appointed. If you 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** — You may be able to derive California resident status

from a California resident parent if you move to California to live with that parent on or before your 18th birthday. If you begin residing with your California parent after your 18th birthday, you will be treated like any other adult student coming to California to establish residence.

(2) Parent of Minor Moves from California

— You may be entitled to resident status if you are a minor U.S. citizen or eligible alien whose parent(s) was a resident of California who left the state within one year of the residence determination date if (a) you remained in California after your parent(s) departed, (b) you enroll in a California public postsecondary institution within one year of your parent(s) departure, and (c) once enrolled, you maintain continuous attendance in that institution. Financial independence is not required in this case.

(3) Two-Year Care and Control

— You may be entitled to resident status if you are a U.S. citizen or eligible alien and you have lived continuously with an adult who is not your parent for at least two years prior to the residence determination date. The adult with whom you are living must have been responsible for your 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 you are a member of the U.S. military stationed in California on active duty, unless you are assigned for educational purposes to a state-supported institution of higher education, you may be exempt from the nonresident tuition fees until you have lived in California long enough to become a resident. You must provide the on-campus residence deputy with a statement from your commanding officer or personnel officer stating that your assignment to active duty in California is not for educational purposes. The letter must include the dates of your assignment to the state.

(2) Spouse or Other Dependents of Military Personnel

— You are exempt from payment of the nonresident tuition fee if you 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 you have lived in California long enough to become a resident. You must petition for a waiver of the nonresident tuition fee each term you are eligible. If you 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, you may retain this exemption under conditions listed above.

(3) Child or Spouse of Faculty Member

— To the extent funds are available, if you 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, you 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

— You may be entitled to resident classification if you 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). Your 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

— You may be entitled to a waiver of the nonresident tuition fee if you 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 you 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, you may be entitled to a waiver of the nonresident tuition until you 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 you are a nonresident student who is in the process of establishing a residence for tuition purposes and you return to your former home during noninstructional periods, your presence in the state will be presumed to be solely for educational purposes and only convincing evidence to the contrary will rebut this presumption. **Students who are in the state solely for educational purposes will NOT be classified as residents for tuition purposes regardless of the length of their stay.**

If you are a student who has been classified as a resident for tuition purposes and you leave the state temporarily, your absence could result in the loss of your California residence. The burden will be on you (or your parents if you are a minor) to verify that you did nothing inconsistent with your claim of a continuing California residence during your absence. Steps that you (or your 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 you are claiming California residence, you are liable for payment of income taxes on your total income from the date you establish

your residence in the state, including income earned in another state or country.

(3) Retain your 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 your driver's license or vehicle registration, you must change them back within the time prescribed by law.

Petition for Resident Classification

You MUST PETITION IN PERSON 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 you intend to be classified as a resident.

Time Limitation on Providing Documentation

If additional documentation is required for residence classification but is not readily accessible, you will be allowed until the end of the applicable term to provide it.

Incorrect Classification

If you were incorrectly classified as a resident, you are subject to a nonresident classification and to payment of all nonresident tuition fees not paid. If you 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 90095-1429 (310-825-3447) or to the Legal Analyst — Residence Matters, 300 Lakeside Drive, 7th Floor, Oakland, CA 94612-3565. NO OTHER UNIVERSITY PERSONNEL ARE AUTHORIZED TO SUPPLY INFORMATION RELATIVE TO RESIDENCE REQUIREMENTS FOR TUITION PURPOSES.

You 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 you are a legal resident for tuition purposes. Registration cannot be processed without this information. The Registrar's Office on campus maintains the requested information. You 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, you expect you will not be able to meet the satisfactory academic progress requirements listed below, contact the Financial Aid Office immediately for further advising.

Undergraduate Students

Qualitative Standard

The qualitative standard is enforced by your college or school. You are notified by your academic department if you 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 your 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 a full-time student, you must successfully complete at least 24 units in each of your first two academic years at UCLA to maintain satisfactory academic progress. Thereafter, you must successfully complete 84 units by the end of your ninth term, 120 units by the end of your twelfth term, 156 units by the end of your fifteenth term, and 180 units by the end of your 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 you enter UCLA in advanced standing, the number of terms for which you are eligible for aid is reduced proportionally to the number of transfer units credited to your record. For example, if you are credited with 84 transfer units, you would have only eight terms of financial aid eligibility as an undergraduate at UCLA.

If you are a continuing student at UCLA at the time you apply for financial aid, your progress

is measured by the satisfactory academic progress chart to determine your eligibility (i.e., you must have successfully completed 48 units if you attended UCLA for six terms). You would then have only 11 terms of financial aid eligibility.

Nonstandard Enrollment

Part-time students' progress is measured by a modified schedule, and aid is similarly modified. Summer enrollment counts as a term of enrollment for the following year if you apply the units earned toward graduation. Accommodation is made for students enrolled in a joint degree program.

Successful Completion

To successfully complete units, you 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 from a term in which you receive financial aid applies as a term attended and works to your disadvantage on the units-per-term schedule. Cancellation of your registration (prior to the first day of classes), however, does not apply as a term attended. Refund and payback of aid received is based on published schedules and the date you officially withdraw or cancel.

Disqualification and Reinstatement

The Financial Aid Office monitors satisfactory progress annually after Winter Quarter grades are recorded. Your progress is measured according to the number of terms you have attended at UCLA and the number of units you have successfully completed.

If you have not met the requirements shown on the schedule, your financial aid is discontinued until the deficiencies are satisfied. You may use Summer Sessions or regular academic terms to make up deficiencies.

Your financial aid eligibility is reinstated for the term following the term in which you reestablish compliance with the units-per-term schedule. For example, if you successfully complete 16 units in Fall Quarter and therefore make up your deficiency, you become eligible for financial aid in Winter Quarter. Financial aid is then awarded on the basis of your need and the availability of funds.

Appeal Process

If you fail to meet the satisfactory academic progress standards because of debilitating illness, prolonged hospitalization, death in your immediate family, or other such mitigating circumstances, you may appeal your disqualification.

To appeal, submit a letter and supporting documentation to the Financial Aid Appeal Committee explaining the circumstances and how they affected your ability to meet the requirements.

The committee evaluates your request based on the rationale and evidence you provide.

Graduate Students

Qualitative Standard

The qualitative standard is enforced by the dean of the Graduate Division in consultation with your department.

Quantitative Standard

To be eligible for financial aid as a full-time student, you must successfully complete at least 12 units per term of enrollment. Approved study loads of less than 12 units result in proportionally reduced aid for that term and are charged against your maximum period of eligibility at the appropriate proportional rate.

Disqualification and Appeal Process

If you fail to meet the qualitative and quantitative requirements, your financial aid is discontinued until the deficiencies are made up. Appeals are reviewed by your academic department, the dean of the Graduate Division, and/or the Financial Aid Appeal Committee.

Period of Eligibility

The degree program to which you are admitted determines the maximum number of terms for which you can receive need-based financial aid. Terms for which no need-based aid is received are considered when determining your remaining number of terms of financial aid eligibility.

If you are in a credential program or a professional master's program (other than Master of Fine Arts), you are eligible for a maximum of nine terms of need-based financial aid. The professional master's degrees include LL.M., M.Arch., M.A.T., M.B.A., M.C.L., M.E., M.Ed., M.J., M.L.I.S., M.N., M.P.A., M.P.H., M.S.P., M.S.W.

If you are in a Master of Fine Arts program, you are eligible for a maximum of 12 terms of need-based financial aid. If you are in an M.A. or M.S. program, a doctoral program, or a combination master's/doctoral program, you are eligible for a maximum of 27 terms of need-based financial aid. 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 will be appointed within two weeks to review the disputed grade, and any warranted change will be 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 PCPC, 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 will be 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 appropriate Committee on Courses, 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 (1) to 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) to 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) to inspect records maintained by UCLA of disclosures of personally identifiable information from their student records, (4) to seek correction of their student records through a request to amend the records or, if such request is denied, through a hearing, and (5) to 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/ mailing and/or permanent), 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/ mailing and/or permanent 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 at (310) 208-0425. To restrict the release and publication of the additional items in the category of "public information," complete the Decline to Release form available from the Registration/ Enrollment Office, 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, Placement and Career Planning Center (PCPC), 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. Call (310) 206-0482 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 Unisys Building, 10920 Wilshire Boulevard. 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 your Social Security number, sex, and marital status, and the name(s), address(es), and telephone number(s) of your parents or next of kin are made available to the UCLA University Relations Department for use in alumni, development, and public relations activities. To restrict the release of this additional information, complete a Request for University Relations Information Restriction form available from the Registration/Enrollment Office, 1113 Murphy Hall.

UCLA Graduation Rates

Graduation rates have shown a steady increase over the last eight years. While a little less than two thirds of freshmen who entered *UCLA* in Fall Quarter 1981 graduated in at least six years, the figure has risen to 77 percent for the 1988 entering class. In addition, over the last two years of available data, graduation rates have increased for both four- and five-year periods. The five-year graduation rate of 72 percent for the 1988 class is higher than any other five-year rate. The 36 percent four-year rate for the 1989 class portends even higher five- and six-year rates over the next two years.

Students attending public universities often average five years to earn a bachelor's degree. Many enroll for a sixth year to prepare for graduate or professional school admission. Additional reasons students take more than four years to complete their degrees include employment and time taken for internships, travel, or field studies. Also, the data show *elapsed* time. Actual enrollment averages 13 to 14 terms. In addition, many students who do not earn a degree at UCLA have transferred to another UC campus or university.

Campus Security Information

UCLA Police Department

The UCLA Police Department (310-825-1491), located at Westwood Plaza and Circle Drive South, has 59 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.

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 and the Center for the Health Sciences. 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 (Circle Drive South and Westwood Plaza). 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 law enforcement agency with proper jurisdiction over that area.

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.

Community Service Officers

The UCLA Police Department employs approximately 200 student community service officers (CSOs) 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. The CSO Division pro-

vides over 20 different safety and security programs but is 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.

Additionally, the department employs unarmed security personnel to assist in crime prevention efforts in the Center for the Health Sciences and UCLA Medical Plaza. These guards provide on-site security and assistance for all who use the facilities.

Crime Prevention

The UCLA Police Department has established a Community-Oriented Policing (COP) Program. One component of that program — crime prevention — provides the best measure of protection. Therefore, the department supports a proactive Crime Prevention Unit 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. Brochures and literature on crime prevention and personal safety are available. Throughout the year, the crime prevention officer and the student housing offices present personal safety workshops and many other crime awareness programs. 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 programs, 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*. With the combined efforts of the Crime Preven-

FBI Crime Index and other Offenses — Los Angeles

	1990	1991	1992	1993	1994	% Change
Violent Crime						
Homicide/Manslaughter	1	0	0	0	0	—
Rape						
Rape by Force	1	1	3	1	1	—
Attempt to Commit Rape	2	0	0	2	4	100%
Robbery	15	27	16	22	13	-41%
Aggravated Assault	17	32	11	40	41	3%
Total Violent Crime	36	60	30	65	59	-9%
Property Crime						
Burglary	308	598	660	615	722	17%
Larceny/Theft						
Bicycle Theft	43	84	87	65	52	-20%
Other Larceny/Theft	654	838	717	672	669	—
Motor Vehicle Theft	128	173	142	77	131	70%
Arson	2	3	18	15	0	-100%
Total Property Crime	1,135	1,696	1,624	1,444	1,574	9%
Total FBI Crime Index	1,171	1,756	1,654	1,509	1,633	8%
Other Offenses						
Weapons/Firearms	4	11	8	11	6	-45%
Weapons/All Others	6	6	3	7	8	14%
Narcotics/Felony	14	19	10	25	23	-8%
Narcotics/Misdemeanor	9	12	2	7	37	429%
Public Drunkenness	1	4	2	7	2	-71%
DUI/Alcohol	22	41	58	45	108	140%
DUI/Drugs	2	5	3	2	3	50%
Total Other Offenses	58	98	86	104	187	80%

Clearance Rates of FBI Crime Index and other Offenses — Los Angeles

	1992			1993			1994		
	Reports	Cleared	Percent Cleared	Reports	Cleared	Percent Cleared	Reports	Cleared	Percent Cleared
Violent Crime									
Homicide/Manslaughter	0	0	0%	0	0	0%	0	0	0%
Rape									
Rape by Force	3	0	0%	1	1	100%	1	0	0%
Attempt to Commit Rape	0	0	0%	2	1	50%	4	0	0%
Robbery	16	6	38%	22	7	32%	13	1	8%
Aggravated Assault	11	4	36%	40	10	25%	41	13	32%
Total Violent Crime	30	10	33%	65	19	29%	59	14	24%
Property Crime									
Burglary	660	19	3%	615	24	4%	722	15	2%
Larceny/Theft									
Bicycle Theft	87	0	0%	65	1	2%	52	0	0%
Other Larceny/Theft	717	56	8%	672	50	7%	669	46	7%
Motor Vehicle Theft	142	20	14%	77	16	21%	131	13	10%
Arson	18	0	0%	15	0	0%	0	0	0%
Total Property Crime	1,624	95	6%	1,444	91	6%	1,574	74	5%
Total FBI Crime Index	1,654	105	6%	1,509	110	7%	1,633	88	5%
Other Offenses									
Weapons/Firearms	8	6	75%	11	6	55%	6	1	17%
Weapons/All Others	3	2	67%	7	3	43%	8	4	50%
Narcotics/Felony	10	8	80%	25	22	88%	23	4	17%
Narcotics/Misdemeanor	2	0	0%	7	4	57%	37	18	49%
Public Drunkenness	2	2	100%	7	6	86%	2	0	0%
DUI/Alcohol	58	51	88%	45	38	84%	108	65	60%
DUI/Drugs	3	3	100%	2	2	100%	3	3	100%
Total Other Offenses	86	72	84%	104	81	79%	187	95	51%

tion 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) provides counseling and referral assistance to students who are troubled by alco-

hol or substance abuse problems. The service is completely confidential and free to regularly enrolled students. All information and counseling will be treated in accordance with University Policies and State and Federal Laws. Your decision to seek assistance will not be 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 common-sense 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 come under the jurisdiction of their local police department. The department does not compile statistical data on criminal activity that occurs in such facilities, including off-campus housing facilities *not operated by the University*. Information related to specific

locations should be requested from the law enforcement agency with proper jurisdiction over those areas.

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 find it easy to access the University grounds. Regardless of the time of day or night and no matter where you are on campus, be alert and aware of your surroundings and exercise good commonsense safety precautions. If you park on campus, remember to lock your vehicle 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 your room and apartment doors locked at all times. Most important, if you need assistance, do not hesitate to contact the department.

Appointed Regents

William T. Bagley (2002)
 Roy T. Brophy (1998)
 Clair W. Burgener (2000)
 Glenn Campbell (1996)
 Frank W. Clark, Jr. (2000)
 Ward Connerly (2005)
 John G. Davies (2004)
 Tirso del Junco (1997)
 Alice J. Gonzales (1998)
 S. Sue Johnson (2002)
 Meredith J. Khachigian (2001)
 Leo S. Kolligian (1997)
 Howard H. Leach (2001)
 David S. Lee (2006)
 Velma Montoya (2005)
 S. Stephen Nakashima (2004)
 Tom Sayles (2006)
 Dean A. Watkins (1996)
 Edward P. Gomez (1996)

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 Duncan Mellichamp

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 Chair of The Regents
 Clair W. Burgener
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 Interim Provost and Senior Vice President —
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 Baldwin G. Lamson
 Vice President Emeritus — Physical Planning
 and Construction
 Elmo R. Morgan
 University Provost Emeritus, Chancellor
 Emeritus, and Professor Emeritus of
 Mathematics
 Angus E. Taylor
 Assistant President Emeritus
 Dorothy E. Everett
 Associate Vice President Emeritus —
 Agriculture and Natural Resources
 Programs
 Lowell J. Lewis
 Assistant Vice President Emeritus
 Loren Furtado
 University Auditors Emeriti
 Norman H. Gross
 Robert Tuffnell
 Secretary Emeritus of The Regents
 Bonnie M. Smotony
 Associate Secretary Emeritus of The Regents
 Elizabeth O. Hansen
 Treasurer Emeritus of The Regents
 Owsley B. Hammond

Chancellors of the Campuses

Chancellor at Berkeley
 Chang-Lin Tien
 Chancellor at Davis
 Larry N. Vanderhoef
 Chancellor at Irvine
 Laurel L. Wilkening
 Chancellor at Los Angeles
 Charles E. Young

Appendix B

University Administrative Officers

Terms of Regents appointed by the Governor expire February 28 of the year in parentheses. The Student Regent (Edward P. Gomez) 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
 Pete Wilson
 Lieutenant Governor of California
 Gray Davis
 Speaker of the Assembly
 Doris Allen
 State Superintendent of Public Instruction
 Delaine Eastin
 President of the Alumni Association of the
 University of California
 Ralph C. Carmona
 Vice President of the Alumni Association of the
 University of California
 Judith Willick Levin
 President of the University
 Richard C. Atkinson

Chancellor at Riverside

Raymond L. Orbach

Chancellor at San Diego

To be named

Chancellor at San Francisco

Joseph B. Martin

Chancellor at Santa Barbara

Henry T.Y. Yang

Chancellor at Santa Cruz

Karl S. Pister

University Professors

J. Michael Bishop, University Professor, San Francisco, Department of Microbiology and Immunology

E. Margaret Burbidge, University Professor Emerita, San Diego, Department of Physics

Melvin Calvin, University Professor Emeritus, Berkeley, Department of Chemistry

Marvin L. Cohen, University Professor, Berkeley, Department of Physics

Donald J. Cram, University Professor, Los Angeles, Department of Chemistry and Biochemistry

Gerard Debreu, University Professor Emeritus, Berkeley, Departments of Economics and Mathematics

Amos Funkenstein, University Professor, Berkeley, Department of History

Richard Karp, University Professor, Berkeley, Departments of Electrical Engineering and Computer Sciences, Industrial Engineering and Operations Research, and Mathematics

Murray Krieger, University Professor, Irvine, Department of English and Comparative Literature

Yuan T. Lee, University Professor Emeritus, Berkeley, Department of Chemistry

Glenn T. Seaborg, University Professor Emeritus, Berkeley, Lawrence Berkeley Laboratory

S. Jonathan Singer, University Professor, San Diego, Department of Biology

Neil J. Smelser, University Professor Emeritus, Berkeley, Department of Sociology

Edward Teller, University Professor Emeritus, Livermore, Lawrence Livermore Laboratory

Charles H. Townes, University Professor Emeritus, Berkeley, Department of Physics

Sherwood L. Washburn, University Professor Emeritus, Berkeley, Department of Anthropology

John R. Whinnery, University Professor Emeritus, Berkeley, Department of Electrical Engineering and Computer Sciences

Hayden White, University Professor, Santa Cruz, Board of Studies in History of Consciousness

UCLA Administrative Officers

Chancellor

Charles E. Young, Ph.D.

Executive Vice Chancellor

Peter W. Blackman, J. D.

Administrative Vice Chancellor

To be named

Vice Chancellor — Academic Affairs and Dean of Graduate Division

Claudia Mitchell-Kernan, Ph.D.

Vice Chancellor — Academic Personnel

Norman Abrams, J.D.

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 Neuropsychiatric Hospital

G. Michael Arnold, Interim

Director of Neuropsychiatric Institute

Gary L. Tischler, M.D.

Director of UCLA Medical Center

Michael Karph, 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., Acting

School of Dentistry

Jay A. Gershen, D.D.S., Ph.D., Acting

Graduate School of Education and Information Studies

Theodore R. Mitchell, Ph.D.

School of Engineering and Applied Science

A.R. Frank Wazzan, Ph.D.

School of Law

Susan W. Prager, 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.

Division of Honors and Undergraduate Programs

Edward A. Alpers, Ph.D.

John E. Anderson Graduate School of Management

William P. Pierskalla, Ph.D.

School of Medicine

Gerald S. Levey, M.D.

School of Nursing

Donna L. Vredevoe, Ph.D., Acting

School of Public Health

Abdelmonem A. Afifi, Ph.D.

School of Public Policy and Social Research

Archie Kleingartner, Ph.D., Acting

School of Theater, Film, and Television

Gilbert Cates, M.A.

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 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 113 endowed chairs which have been approved by The Regents of the University of California, as follows. (Asterisks indicate new chairs which have been approved by The Regents since publication of the 1994-95 *UCLA General Catalog*.)

College of Letters and Science

Maurice Amado Chair in Sephardic Studies

Armenian Educational Foundation Chair in Modern Armenian History

Arthur Andersen and Company Alumni Chair in Business Economics

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

Mr. and Mrs. C.N. Flint Professorship of Philosophy

Gloria and Paul Griffin Chair in Philosophy

Armand Hammer Chair in Leonardo Studies

Marvin Hoffenberg Chair in American Politics and Public Policy

Endowed Chair in Modern European History

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 Philosophy of Science

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

Saul Winstein Chair in Organic Chemistry

School of the Arts

UCLA Art Council Professorship of Art

School of Engineering and Applied Science

L.M.K. Boelter Chair in 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

Rockwell International Chair in Engineering

TRW Chair in Electrical Engineering

Graduate School of Architecture and Urban Planning

S. Charles Lee Chair in Architecture and Urban Planning

Harvey S. Pertoff Chair

Graduate School of Education and Information Studies

Allan Murray Carter Chair in Higher Education

George F. Kneller Chair in Education and Philosophy

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. Price and Dallas P. Price Chair in Law

Security Pacific Bank Chair

William D. Warren Chair in Law

John E. Anderson Graduate School of Management

Allstate Chair in Insurance and Finance

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

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

*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

Paine Chair in Management

*Sanford and Betty Sigoloff Chair in Corporate Renewal

Times Mirror Chair in Management Strategy and Policy

School of Social Welfare

Marjorie Crump Chair in Social Welfare

School of Dentistry

Tarrson Family Chair in Periodontics

School of Medicine

William S. Adams, M.D., Chair in Medicine

Louis D. Beaumont Chair in Surgery

Bowyer Professorship of Medical Oncology

Judson Braun Chair in Biological Psychiatry

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

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

Dolly Green Chair in Ophthalmology

Maud Cady Guthman Chair in Cardiology

Chizuko Kawata Chair in Cardiology

George F. Kneller Chair in Family Medicine

Grace and Walter Lantz Chair in Ophthalmology

Eleanor I. Leslie Chair in Neuroscience

William P. Longmire, Jr., Chair in Surgery

*Charles H. Markham Chair in Neurology

Della Martin Chair in Psychiatry

Sherman M. Mellinkoff Distinguished Professor in Medicine Chair

James H. Nicholson Chair in Pediatric Cardiology

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

Leo G. Rigler Chair in Radiological Sciences

Augustus S. Rose Chair in Neurology

Jennifer Jones Simon Chair in Biophysics

Norman F. Sprague Chair in Molecular Oncology

Frances and Ray Stark Chair in Ophthalmology

Francis Stark Chair in Neurology

Jules Stein Chair in Ophthalmology

W. Eugene Stern Chair in Neurosurgery

Ruth and Raymond Stotter Chair in Neurosurgery

Dorothy and Leonard Straus Chair in Gastroenterology

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 Professorship of Ophthalmology

School of Nursing

Lulu Wolf Hassenplug Chair in Nursing

School of Public Health

Fred H. Bixby Chair in Population Policy

Fred W. and Pamela K. Wasserman Chair in Health Services

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 Alumni 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 are to be named the Luckman Distinguished Teaching Awards.

1961

John E. Barron (*Economics*)
Kenneth N. Trueblood (*Chemistry and Biochemistry*)

1962

Charles W. Hoffman (*Germanic Languages*)
Ken Nobe (*Chemical Engineering*)

1963

Carl W. Hagge (*Germanic Languages*)
Wendell P. Jones (*Education*)
Robert H. Sorgenfrey (*Mathematics*)

1964

Mostafa A. El-Sayed (*Chemistry and Biochemistry*)
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*)

1967

Basil Gordon (*Mathematics*)
J.A.C. Grant (*Political Science*)
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*)

1969

Robert J. Finkelstein (*Physics and Astronomy*)
Douglas S. Hobbs (*Political Science*)
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*)
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*)
Kenneth L. Karst (*Law*)
Ronald F. Zernicke (*Physiological Science*)

1981

Arnold J. Band (*Near Eastern Languages and Cultures*)
Charles L. Batten, Jr. (*English*)
Gerald Lopez (*Law*)
Andy Wong (*Dentistry*)

1982

Dean Bok (*Neurobiology*)
Robin S. Liggett (*Architecture and Urban Design, Urban Planning*)
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, 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 (*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 (*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*)

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 are to be named the Luckman Distinguished Teaching Awards.

1985

L. Geoffrey Cowan (*Communication Studies*)
 Mary Elizabeth Perry (*History*)
 Linda Diane Venis (*English*)

1986

David Cohen (*Mathematics*)
 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*)

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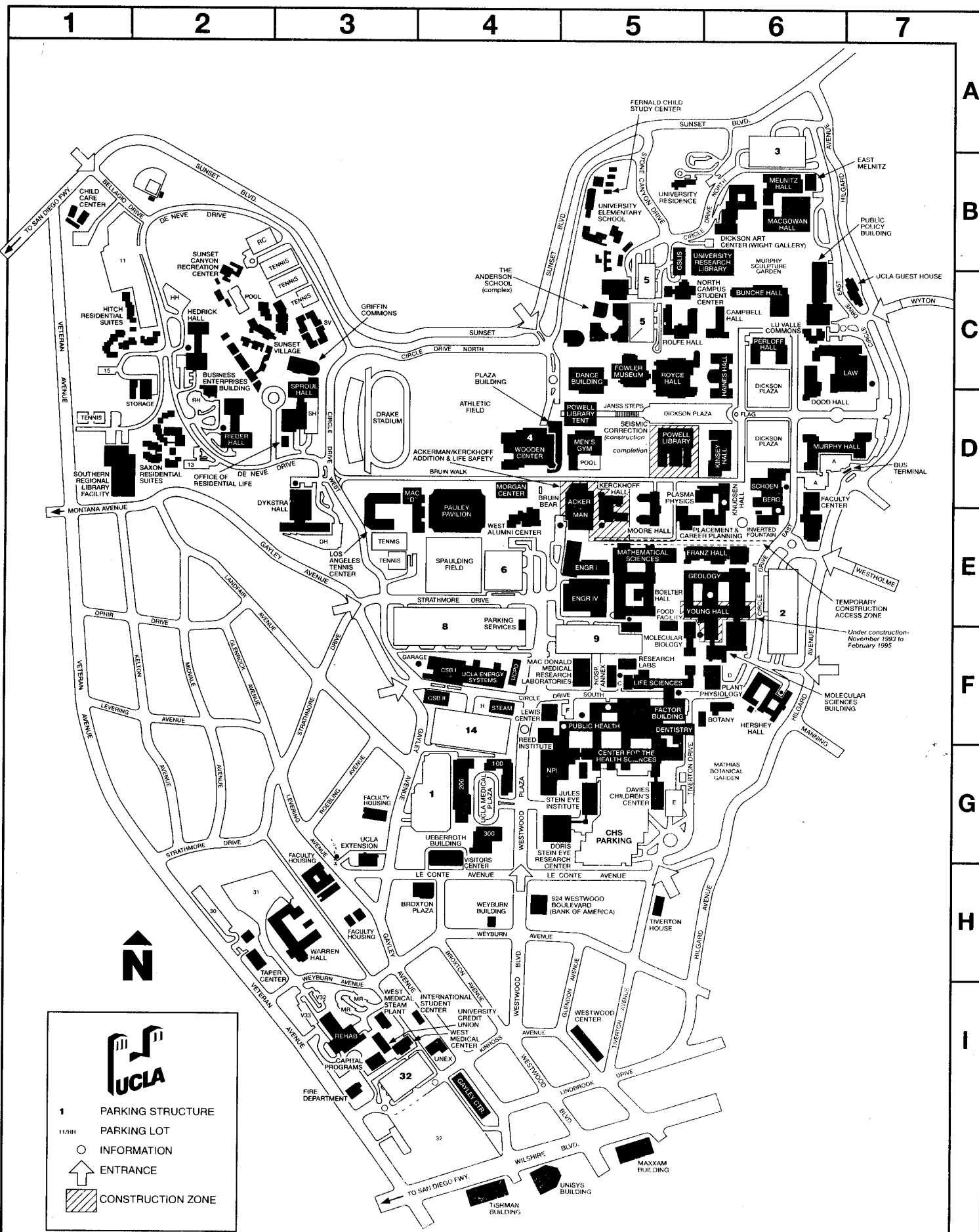
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Correspondence Directory

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Speech- and hearing-impaired access: TDD (310) 825-2833

Office	Location	Telephone (Area Code 310)
Academic Advancement Program	1209 Campbell Hall	825-1481
Accounting Office, Student	B303 Murphy Hall	825-9194
Admissions		
Undergraduate	1147 Murphy Hall	825-3101
Graduate	1255 Murphy Hall	825-1711
Alumni Association	West Alumni Center	206-0610
Campus Ombuds Office	1172 PCPC Building	825-7627
Cashier's Office, Main	1125 Murphy Hall	825-2201
Dean of Students, Office of the	1206 Murphy Hall	825-3871
Financial Aid Office	A129J Murphy Hall	206-0400
Graduate Division		
Affirmative Affairs Office	1248 Murphy Hall	825-2469
Graduate Student Support	1252 Murphy Hall	825-3521
Student and Academic Affairs	1255 Murphy Hall	825-4226
Housing		
UCLA Community Housing Office	350 De Neve Drive	825-4491
UCLA Housing Assignment Office	270 De Neve Drive	825-4271
International Student Center	1045 Gayley Avenue	794-8138
International Students and Scholars, Office of	105 Men's Gym	825-1681
Libraries		
College Library	Powell Library Tent (Towell)	825-1938
University Research Library	URL Building, North Campus	825-1323
Parking Services	555 Westwood Plaza (Structure 8)	825-9871
Placement and Career Planning Center	PCPC Building	825-2981
Registrar's Office	1105 Murphy Hall	825-1091
Student Health Service	A2-130 Center for the Health Sciences	825-4073
Students' Store	B Level, Ackerman Union	825-7711
Summer Sessions	1147 Murphy Hall	794-8333
UCLA Extension	10995 Le Conte Avenue	825-9971
Visitors Center	1417 Ueberroth Building	206-8147